

2022 Air Quality Annual Report for the Austin-Round Rock-San Marcos Metropolitan Statistical Area

Prepared by the Capital Area Council of Governments

August 18, 2023



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EXECUTIVE SUMMARY

This is the annual air quality report for the Austin-Round Rock-San Marcos Metropolitan Statistical Area (MSA) prepared by the Capital Area Council of Governments (CAPCOG) for the members of the Central Texas Clean Air Coalition (CAC), the Texas Commission on Environmental Quality (TCEQ), and the U.S. Environmental Protection Agency (EPA). This report serves as the region's annual "check-in" with EPA as part of the CAC's participation in the Ozone (O₃) and fine particulate matter (PM_{2.5}) Advance Programs (OAP). The report covers January 1, 2022, through December 31, 2022. Under the most recent MSA definitions promulgated by the Office of Management and Budget (OMB) in June 2023, the Austin-Round Rock-San Marcos MSA consists of Bastrop, Caldwell, Hays, Travis, and Williamson Counties, which are the same five counties that have been participating in regional air quality planning efforts since 2002.

The report is intended to do the following:

- Provide an update to EPA, TCEQ, and local stakeholders on the status of air quality in the Austin-Round Rock-San Marcos MSA through the end of 2022 (Section 1);
- Provide an update on the latest understanding of the contribution of the region's emissions to high O₃ levels when they occur (Section 2);
- Summarize the status of emission reduction measures implemented in the region in 2022 (Section 3);
- Detail ongoing planning activities in the region (Section 4); and
- Identify new issues affecting air quality planning efforts in 2021 and beyond (Section 5).

Some of the highlights of the report are listed below:

- The region's 2022 air pollution levels continued to meet all federal air quality standards;
- There were a total of 2 days when monitored air pollution levels were considered "unhealthy", 34 that were considered "unhealthy for sensitive groups", and another 142 days when air pollution levels were considered "moderate," according to EPA's Air Quality Index (AQI), this was the worse ozone season the region has experienced since the early 2010s;
- Overall emissions of nitrogen oxides (NO_x) continued to trend downward, and emissions from regional power plants were lower during the 2022 O₃ season than they were in 2021 largely due to the shutdown of steam unit 2 at the Decker Power Plant in early 2022;
- Emission reduction measures implemented by the state and local partners in 2022 continued to help control regional O₃ levels and PM_{2.5}; and
- CAPCOG received an EPA grant to fund PM monitoring in the region.

This report includes information from twenty-three different CAC member organizations. However, eighteen CAC member organizations did not provide reports this year. CAPCOG will provide an addendum to this report to CAC members if these organizations provide reports or if CAPCOG receives any updates from any other organization after this report has been submitted.

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LIST OF ACRONYMS

- AFFP: Alternative Fueling Facilities Program
- AQI: Air Quality Index
- CAC: Clean Air Coalition
- CACAC: Clean Air Coalition Advisory Committee
- CAMPO: Capital Area Metropolitan Planning Organization
- CAPCOG: Capital Area Council of Governments
- CapMetro: Capital Metropolitan Transit Authority
- CAMS: Continuous Air Monitoring Station
- CAPP: Clean Air Partners Program
- CO: Carbon Monoxide
- CTRMA: Central Texas Regional Mobility Authority
- CTT: Clean Transportation Triangle
- DACM: Drive a Clean Machine
- DERI: Diesel Emission Reduction Incentive
- DTIP: Drayage Truck Incentive Program
- EAC: Early Action Compact
- EE/RE: Energy efficiency and renewable energy
- EPA: U.S. Environmental Protection Agency
- ERIG: Emission Reduction Incentive Grant Program
- FEM: Federal Equivalent Method
- FRM: Federal Reference Method
- I/M: Inspection and maintenance
- ILA: Inter-Local Agreement
- kWh: Kilowatt-Hour
- LCRA: Lower Colorado River Authority
- LDPLIP: Light Duty Motor Vehicle Purchase or Lease Incentive Program
- LIRAP: Low-Income Vehicle Repair, Retrofit, and Accelerated Vehicle Retirement Program
- LSCFA: Lone Star Clean Fuels Alliance
- MDA8: Maximum Daily 8-Hour Average
- $\mu\text{g}/\text{m}^3$: Micrograms per cubic meter
- MOVES: Motor Vehicle Emissions Simulator
- MSA: Metropolitan Statistical Area
- NAAQS: National Ambient Air Quality Standards
- NO_x : Nitrogen oxides
- NO_2 : Nitrogen dioxide
- NTIG: New Technology Implementation Grant
- O_3 : Ozone
- OAD: Ozone Action Day
- OAP: Ozone Advance Program
- PACE: Property-Assessed Clean Energy
- Pb: Lead
- PM: Particulate matter
- $\text{PM}_{2.5}$: Particulate matter with a diameter of 2.5 microns or less
- PM_{10} : Particulate matter with a diameter of 10 microns or less
- ppb: Parts per billion
- ppm: Parts per million
- SIP: State Implementation Plan
- SO_2 : Sulfur dioxide
- SPRYP: Seaport and Rail Yard Areas Grant
- TCAWG: Texas Clean Air Working Group
- TCEQ: Texas Commission on Environmental Quality
- TCFP: Texas Clean Fleet Program
- TCSB: Texas Clean School Bus Program
- TDM: Travel Demand Management
- TERP: Texas Emission Reduction Plan
- TexN: Texas NONROAD Model
- TNGVGP: Texas Natural Gas Vehicle Grant Program
- tpd: tons per day
- TWG: Texas Working Group for Mobile Source Emissions
- TxDOT: Texas Department of Transportation
- TxVEMP: Texas Volkswagen Environmental Mitigation Program
- VOC: Volatile Organic Compound

3 AIR QUALITY STATUS

The following bullet points summarize the status of the Austin-Round Rock-San Marcos MSA's air quality status as of the end of 2022:

- Air pollution levels throughout the metro area remained in compliance with all current National Ambient Air Quality Standards (NAAQS) and all five of the counties in the Austin-Round Rock-San Marcos MSA remain designated as “attainment/unclassifiable” all NAAQS.
- Through the end of 2022, City of Austin is the largest city in the U.S. with air pollution levels in compliance with all NAAQS, and it is the largest city in the U.S. designated “attainment/unclassifiable” for all NAAQS.
- The NAAQS that the region's air pollution levels are closest to violating is the O₃ NAAQS and the annual PM_{2.5} NAAQS:
 - the region's 2020-2022 8-hour O₃ “design value” of 63 parts per billion (ppb) was 9% below the 70 ppb 2015 O₃ NAAQS
 - the region's 2019-2021 annual PM_{2.5} design value level of 9.3 micrograms per cubic meter (µg/m³) was 22% below the 2012 annual PM_{2.5} NAAQS of 12.0 µg/m³.
 - The EPA recently recommended¹ a more stringent annual PM_{2.5} NAAQS in the range of 9-10 µg/m³. If lowered the region will be at a significantly higher risk of exceeding the PM_{2.5} NAAQS.
- The region recorded two days in 2022 when O₃ levels were considered “unhealthy”, 32 days when O₃ levels were considered “unhealthy for sensitive groups”, and two days when PM_{2.5} levels were considered “unhealthy for sensitive groups”. In addition, there were 138 days when either O₃ or PM_{2.5} levels were considered “moderate,” based on EPA's AQI.
- The region's cumulative seasonal O₃ levels in 2022 were below the levels that EPA considers harmful to vegetation.
- TCEQ's most recent review² of air toxics data collected at CAMS 171 found that all air toxics levels measured were below the levels that would be expected to cause adverse health or environmental impacts.
- 19 of the 33 TCEQ Ozone Action Day (OAD) forecasts correctly predicted O₃ levels > 70 ppb. TCEQ's daily AQI forecasts correctly predicted “moderate” or worse air quality 61% of the time,

¹ EPA's proposed decision for the reconsideration of the NAAQS for PM: <https://www.epa.gov/pm-pollution/proposed-decision-reconsideration-national-ambient-air-quality-standards-particulate#:~:text=On%20January%206%2C%202023%2C%20after,12.0%20%2%B5g%2Fm3%20to>

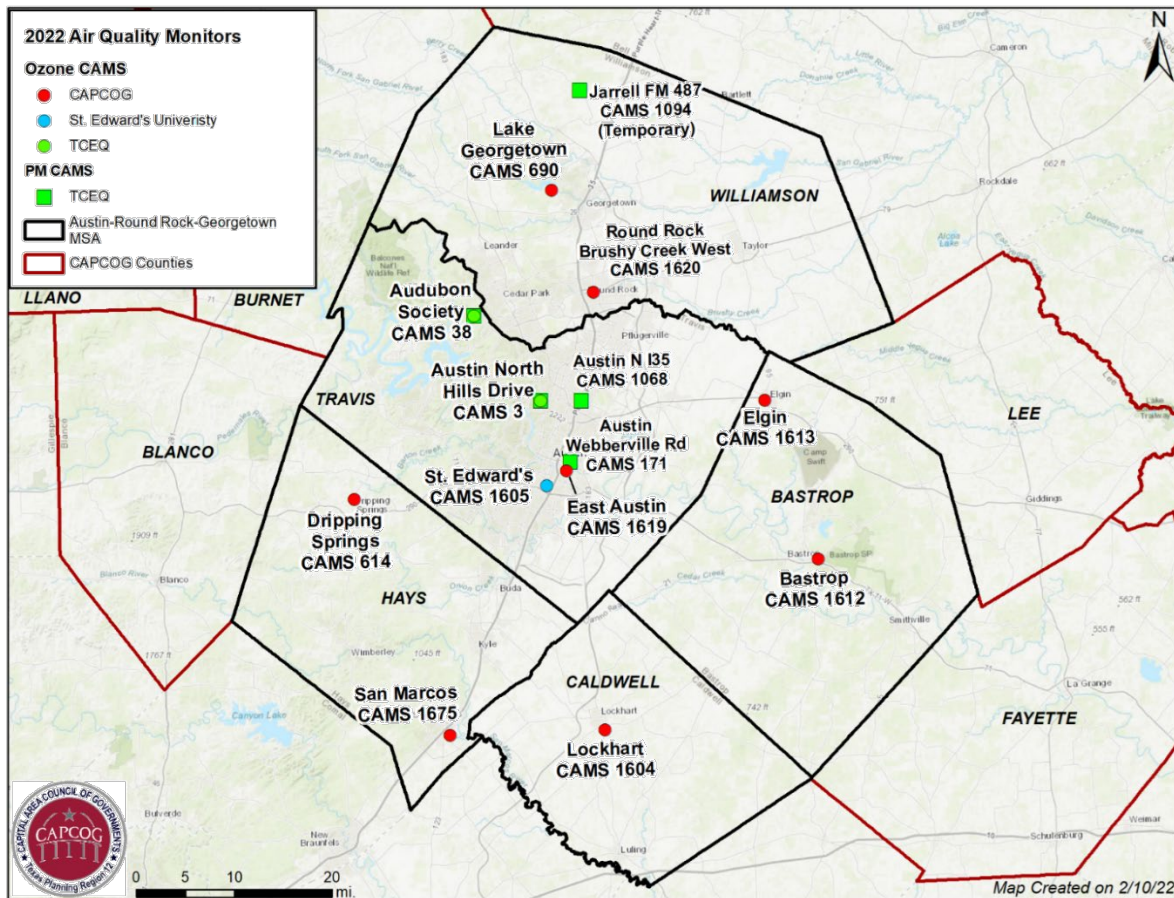
² TCEQ. Toxicological Evaluations of Ambient Air Monitoring Data: <https://www.tceq.texas.gov/toxicology/regmemo/AirMain.html/>

and TCEQ was able to predict 72% of all days when the AQI levels were “moderate” or worse within the region.

- There was a total of 89 odor complaints reported to the TCEQ from within the Austin-Round Rock-San Marcos MSA in 2022, up from 171 in 2021.

The following map shows the locations of all the Continuous Air Monitoring Stations (CAMS) that collected air pollution and meteorological data around the Austin-Round Rock-San Marcos MSA in 2022, including the monitors operated by TCEQ, CAPCOG, and St. Edward’s University.

Figure 1-1. 2022 Air Quality Monitors in the Austin-Round Rock-San Marcos MSA and CAPCOG Counties Cited in the Report



3.1 COMPLIANCE WITH THE NAAQS

The Austin-Round Rock-San Marcos MSA’s 2022 design values for CO, NO₂, O₃, PM_{2.5}, PM₁₀, and SO₂ were all in compliance with the applicable NAAQS. Lead is not monitored within the region. Table 1-1 shows all the NAAQS currently in effect.

Table 1-1. NAAQS Currently in Effect

Pollutant	Standard Type	Averaging Time	Level	Form	Impacts of Violating the NAAQS
CO	Primary	8 hours	9 parts per million (ppm)	Not to be exceeded more than once per year	Neurological and cardiovascular impacts, particularly for individuals who are exercising or under stress
	Primary	1 hour	35 ppm	Not to be exceeded more than once per year	
Pb	Primary and Secondary	Rolling 3-month average	0.15 micrograms per cubic meter (µg/m ³)	Not to be exceeded	Primarily neurological problems for children and cardiovascular problems for adults, but numerous other health impacts as well; ecological damage from deposition
NO ₂	Primary	1 hour	100 parts per billion (ppb)	98 th percentile of 1-hour daily maximum concentrations, averaged over 3 years	Respiratory impacts to people with lung disease such as asthma, children and teens, older adults, and people who are active outdoors; contributes to acid rain, visibility impairment, and nutrient pollution in coastal waters
	Primary and Secondary	1 year	53 ppb	Annual mean	
O ₃	Primary and Secondary	8 hours	0.070	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years	Respiratory impacts to people with lung disease such as asthma, children and teens, older adults, and people who are active outdoors; impacts on plant growth
PM _{2.5}	Primary	1 year	12.0 µg/m ³	Annual mean, averaged over 3 years	Respiratory and cardiovascular impacts on people with lung or heart disease (respectively), older adults, children, and teenagers; visibility impairment
	Secondary	1 year	15.0 µg/m ³	Annual mean, averaged over 3 years	
	Primary and Secondary	24-hr	35.0 µg/m ³	98 th percentile, averaged over 3 years	
PM ₁₀	Primary and Secondary	24 hours	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years	
SO ₂	Primary	1 hour	75 ppb	99 th percentile of 1-hour daily maximum concentrations, averaged over 3 years	Respiratory impacts to people with lung disease such as asthma, children and teens, older adults, and people who are active outdoors; impacts plant growth and contributes to acid rain
	Secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year	

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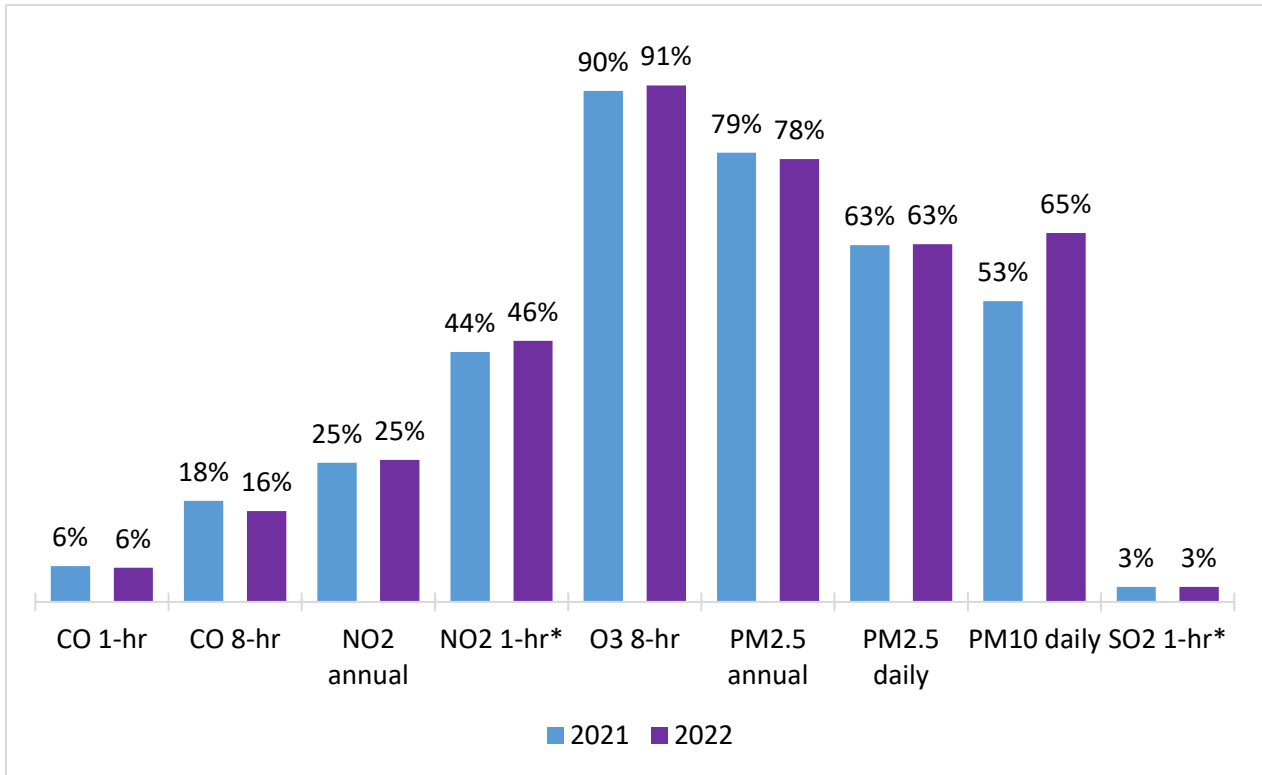
There are four “regulatory” monitoring stations in the Austin-Round Rock-San Marcos MSA, all located in Travis County, that reported data to EPA and were used for comparisons to the NAAQS. Table 1-2 summarizes the Federal Reference Method (FRM)/Federal Equivalent Method (FEM) monitors in the region and the years for which data are available from 2012-2022. CAMS 1068 is the region’s designated “near-road” monitor.

Table 1-2. Summary of Criteria Pollutant Measurement Periods at Federal Reference Method (FRM) Monitors in the Austin-Round Rock-San Marcos MSA, 1/1/2020 – 12/31/2022

Pollutant	Sampler Type	CAMS 3 (AQS Site Number 484530014)	CAMS 38 (AQS Site Number 484530020)	CAMS 171 (AQS Site Number 484530021)	CAMS 1068 (AQS Site Number 484531068)
CO	Continuous, regulatory	n/a	n/a	n/a	1/1/2019 – 10/17/2022
NO₂	Continuous, regulatory	1/1/2020 - 2/17/2020; 10/21/2020 – 10/19/2022	n/a	n/a	1/1/2020– 6/28/2022; 8/17/2022 – 9/15/2022; 10/21/2022– 12/27/2022
O₃	Continuous, regulatory	1/1/2020 - 2/17/2020; 10/22/2020 – 12/31/2022	1/1/2020 – 12/31/2022	n/a	n/a
PM_{2.5}	Continuous, regulatory	10/16/2020 – 12/31/2022	n/a	1/1/2019 – 12/31/2022	1/1/2019 – 12/31/2022
PM_{2.5}	Non- continuous, regulatory	n/a	n/a	1/1/2019 – 12/31/2022	n/a
PM₁₀	Non- continuous, regulatory	n/a	1/1/2019 – 12/31/2022	1/1/2019 – 12/31/2022	n/a
SO₂	Continuous, regulatory	1/1/2020 - 2/17/2020; 10/22/2020 – 10/19/2022	n/a	n/a	n/a

Figure 1-2 shows the metro area’s 2021 and 2022 design values compared to each primary NAAQS.

Figure 1-2. Austin-Round Rock-San Marcos MSA Design Values as a Percentage of Primary NAAQS



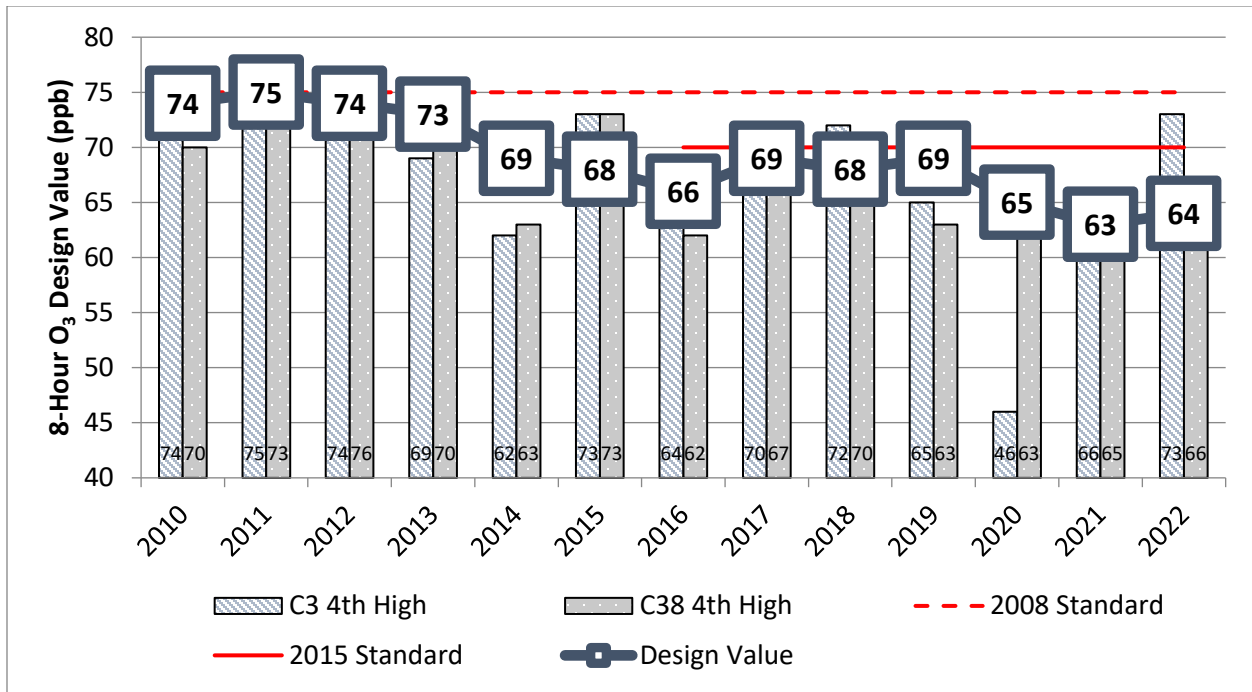
The asterisks next to the 1-hour NO₂ and SO₂ NAAQS signify the fact that the 2021 and 2022 design values for these NAAQS are considered invalid due to not meeting EPA’s data completeness standards. CAMS 1068 had only 3 quarters of valid NO₂ data in 2022, CAMS 3 had only 1 quarter of valid NO₂ and SO₂ data in 2020.

As part of its 2019-2026 Regional Air Quality Plan, the CAC defined “near-nonattainment” as having a design value of at least 85% of any NAAQS. Based on this criterion, O₃ remains the only pollutant for which the MSA is classified as “near-nonattainment.” Although, the annual PM_{2.5} levels are close to that range and with the EPA considering a revised annual PM_{2.5} standard the region could move significantly closer to the standard’s limit.

3.2 O₃ DESIGN VALUE TREND

Figure 1-3 below shows the trend in the Austin-Round Rock-San Marcos MSA’s 8-hour O₃ design values from 2010-2022 compared to the 2008 and 2015 8-hour O₃ NAAQS, along with the 4th-highest Maximum Daily 8-Hour Average (MDA8) O₃ at each regulatory O₃ station. MDA8 is the daily maximum 8-hour concentration for a given calendar day that is the highest of the twenty-four possible 8-hour average concentrations computed for that day.

Figure 1-3. Austin-Round Rock-San Marcos MSA 8-Hour O₃ Design Value and 4th-Highest MDA O₃ Trend 2010-2022



The O₃ design value increased 1 ppb from 2021 to 2022. The experienced high ozone concentrations in 2022 however, CAMS 38³ which was used for the 2022 O₃ design value, is the only monitor in the region that did not record an 8-hour daily maximum O₃ concentration above 70 ppb. CAMS 3 will likely become the monitor that is used for the 2023 O₃ design value and the region’s O₃ design value will jump back up to the 2017 – 2019 range.

3.3 MAXIMUM DAILY 8-HOUR O₃ AVERAGES IN THE REGION

While compliance with the O₃ NAAQS is based on readings recorded at “regulatory” Federal Reference Method (FRM) or Federal Equivalent Method (FEM) O₃ samplers, there are also several non-regulatory O₃ monitoring stations in the region that are used to understand regional O₃ levels.

In addition to the two regulatory O₃ monitors that TCEQ operates, CAPCOG collected O₃ data at eight monitoring stations. St. Edward’s University collected data at one additional O₃ monitoring station between 2019 and 2021. These monitoring stations use EPA-approved O₃ sampling methods and data collected during this period and followed a Quality Assurance Project Plan (QAPP) approved by TCEQ. However, these monitors were not operated as FRM or FEM monitors, and they are not reported to EPA’s Air Quality System (AQS).

³ Due to construction at the area of the CAMS 3 monitoring site at Murchison Middle School, CAMS 3 was re-located to another location on the school property during 2020. CAMS 3 data collection was paused in February, and the data collection did not resume until October. As a result of the CAMS 3 re-location, the primary O₃ monitor for the region was offline for 89% of the region’s ozone season in 2020.

Table 1-3 summarizes the fourth-highest MDA8 O₃ measurements collected at each monitoring station in the CAPCOG region in 2020, 2021, and 2022, as well as the three-year average for each station. CAMS 3 and 38 are the “regulatory” monitoring stations operated by TCEQ, while CAMS 614, 690, 1604, 1612, 1613, 1619, 1675, and 1620 are research monitoring stations operated by CAPCOG. CAMS 1619 and CAMS 1620 were new sites for CAPCOG in 2020. Reports documenting the quality checks performed at CAPCOG’s sites can be found on CAPCOG’s website at <http://www.capcog.org/divisions/regional-services/aq-reports>.

Table 1-3. Fourth Highest MDA8 Measurements at All O₃ Monitoring Stations in the CAPCOG Region, 2020-2022 (ppb)

CAMS	AQS Site Number	County	2020	2021	2022	2020-2022 Average ⁴	2020-2022 St. Dev.
3 – Austin NW ⁵	484530014	Travis	46	66	73	61	14.0
38 – Audubon Society	484530020	Travis	63	65	66	64	1.5
614 – Dripping Springs	482090614	Hays	66	69	81	72	7.9
690 – Lake Georgetown	484910690	Williamson	64	65	74	67	5.5
1604 - Lockhart	480551604	Caldwell	59	63	69	63	5.0
1605 – St. Edwards	484531605	Travis	56	57	69	60	7.2
1612 - Bastrop	480211612	Bastrop	59	64	67	63	4.0
1613 - Elgin	480211613	Bastrop	61	63	69	64	4.2
1619 - East Austin	484531619	Travis	63	62	74	66	6.7
1620 ⁶ - Round Rock	484916602	Williamson	n/a	59	77	n/a	n/a
1675 – San Marcos	482091675	Hays	63	63	78	68	8.7

These data show the 2020-2022 three-year average of the fourth highest MDA8 values in the region ranged from 64 ppb – 72 ppb, with CAMS 614 recording the highest three-year average of 72 ppb. The three-year average at CAMS 614 of 72 ppb is the highest monitor-specific DV in the region.

3.4 DAILY POLLUTION LEVELS COMPARED TO EPA’S AQI

While regulatory compliance is an important indicator of the region’s air quality, it is possible for an area to experience numerous NAAQS exceedances multiple times each year and still have a compliant design value. A design value also does not directly indicate how frequently a region experienced high pollution levels. Another indicator that can be used to characterize a region’s air quality is the number of days a

⁴ Truncated, as is done in calculating O₃ design values

⁵ Data for 2020 and averages including 2020 at CAMS 3 are considered “invalid” for comparison to the NAAQS despite being collected at a regulatory monitor due to low data completeness in 2020.

⁶ CAMS 1620 began operations in 2021, thus 2020 values for the monitor are not available.

region experiences air pollution levels that fall within each of the AQI categories established by the EPA. Table 1-4 shows the concentrations of NO₂, O₃, and PM_{2.5} that correspond to each AQI level.

Table 1-4. Summary of AQI for NO₂, O₃, PM_{2.5}, and PM₁₀

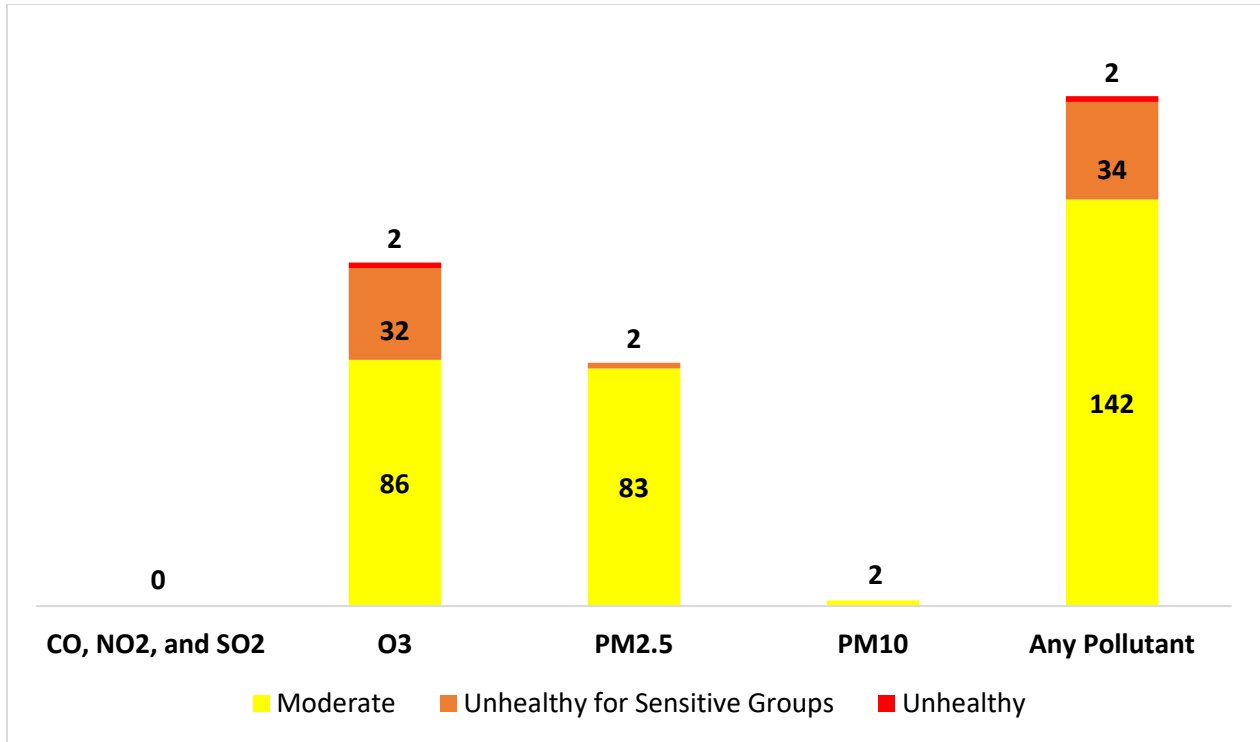
AQI Level	AQI Number	NO ₂ (1-Hr., ppb)	O ₃ (8-Hr., ppb)	PM _{2.5} (24 hr., µg/m ³)	PM ₁₀ (24 hr., µg/m ³)
Good	0-50	0-53	0-54	0.0-12.0	0-54
Moderate	51-100	54-100	55-70	12.1-35.4	55-154
Unhealthy for Sensitive Groups	101-150	101-360	71-85	35.5-55.4	155-254
Unhealthy	151-200	361-649	86-105	55.5-150.4	255-354
Very Unhealthy	201-300	650-1249	106-200	150.5-250.4	355-424
Hazardous	301-500	1250-2049	201-600	250.5-500	425-604

This report includes data from all the air pollution monitoring stations in the region, not just the TCEQ regulatory monitors. Therefore, the number of days in the “moderate” and “unhealthy for sensitive groups” categories described below are higher than if only the TCEQ regulatory monitors were used.

3.4.1 High AQI Days by Pollutant

The following figures show the number of days in 2022 when PM_{2.5}, PM₁₀, or O₃ concentrations measured in the CAPCOG region were high enough to be considered “moderate” or “unhealthy for sensitive groups.” Monitored pollution levels for CO, NO₂, and SO₂ all remained in the “good” range throughout the year. In total, the region experienced moderate or worse air quality on 47% of days in 2023, with 34 of those days reaching “unhealthy for sensitive groups” or “unhealthy” levels. It is important to note that PM₁₀ sampling only occurs once every six days. While there were two recorded “moderate” PM₁₀ days in 2022, there could have been more days that were “moderate” or “unhealthy for sensitive groups” that were not captured in the sampling window.

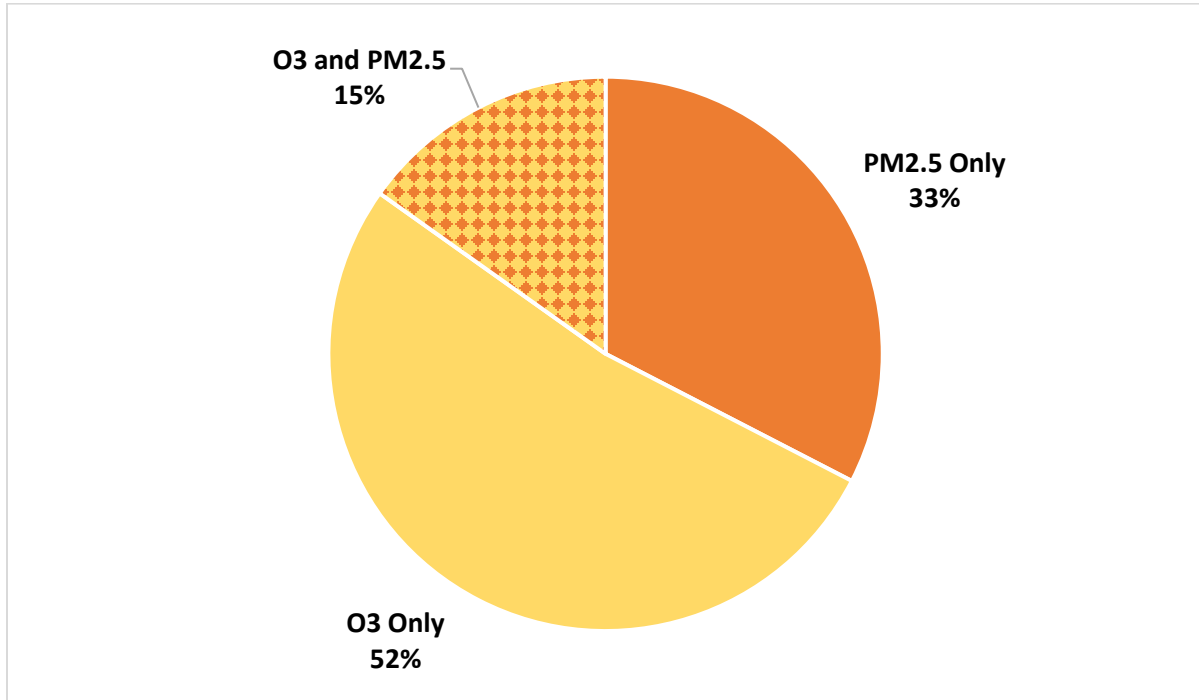
Figure 1-3. Number of "Moderate" or "Unhealthy for Sensitive Groups" Air Pollution Days in the MSA in 2022 by Pollutant



The region recorded two days in 2022 when O₃ levels were considered “unhealthy”, 32 days when O₃ levels were considered “unhealthy for sensitive groups”, and two days when PM_{2.5} levels were considered “unhealthy for sensitive groups”. In addition, there were 115 days when either O₃ or PM_{2.5} levels were considered “moderate,” 27 days when it was “moderate” for both O₃ and PM_{2.5} and two which were considered “moderate,” for both PM₁₀ and PM_{2.5}. This is also notable because PM₁₀ is only sampled every 6 days, so these three “moderate” days represented 5% of all samples collected in 2022, proportionate to 18 out of 365 days. For the third year in a row, “moderate” levels for PM₁₀ were recorded.

Figure 1-4 shows the distribution of days when O₃ or PM_{2.5} air pollution was considered at least “moderate” by pollutant.

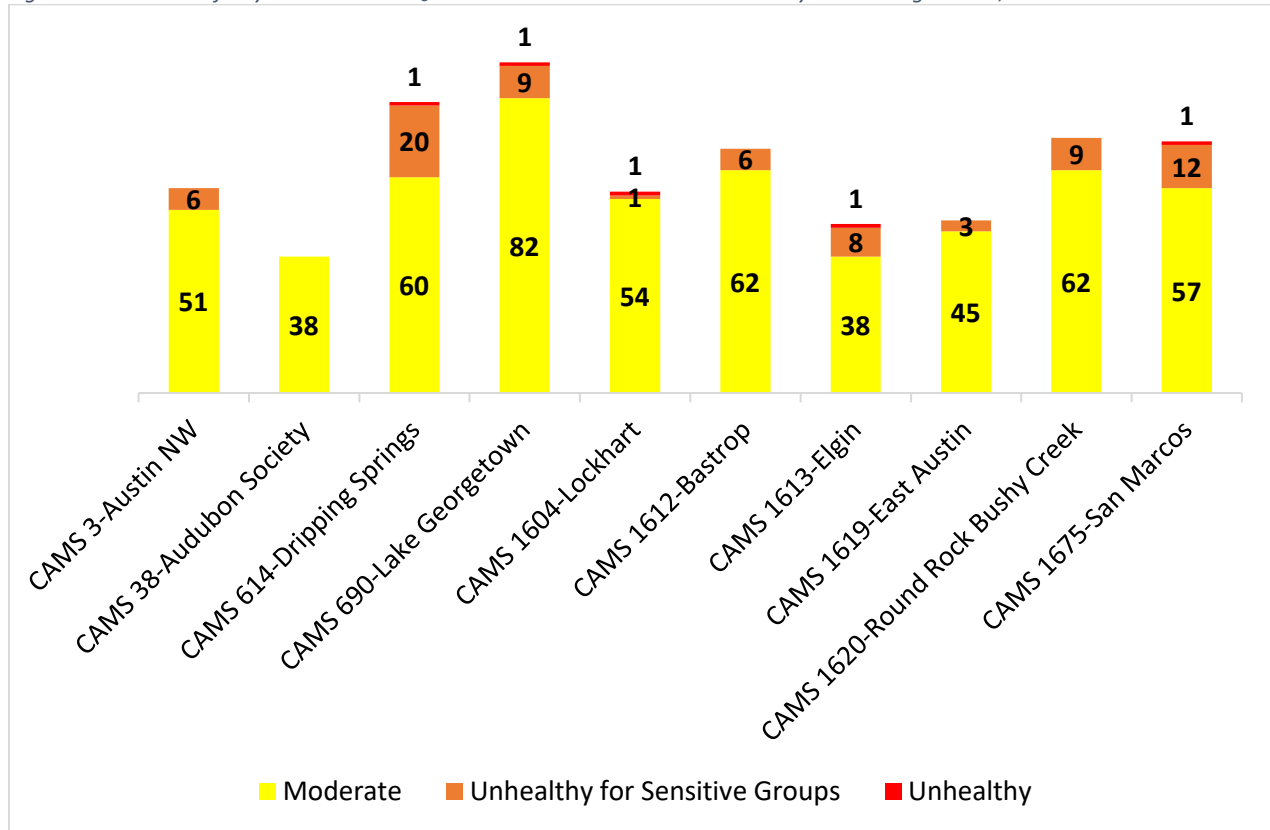
Figure 1-4. Days in 2022 When O₃ or PM_{2.5} AQI Levels in the MSA Were “Moderate” or Worse



3.4.2 High O₃ AQI Days by Monitoring Station

The following figure shows the number of days when O₃ levels were considered “moderate” or “unhealthy for sensitive groups” at each O₃ monitoring station in the region in 2022. CAMS 614, CAMS 690, CAMS 1604, and CAMS 1613 each recorded one day when ozone levels that were “unhealthy” in 2023. All ozone CAMS other than CAMS 38 recorded at least one day when ozone levels were “unhealthy for sensitive groups” in 2023.

Figure 1-5. Number of Days when MDA8 O₃ Pollution was "Moderate" or Worse by Monitoring Station, 2022

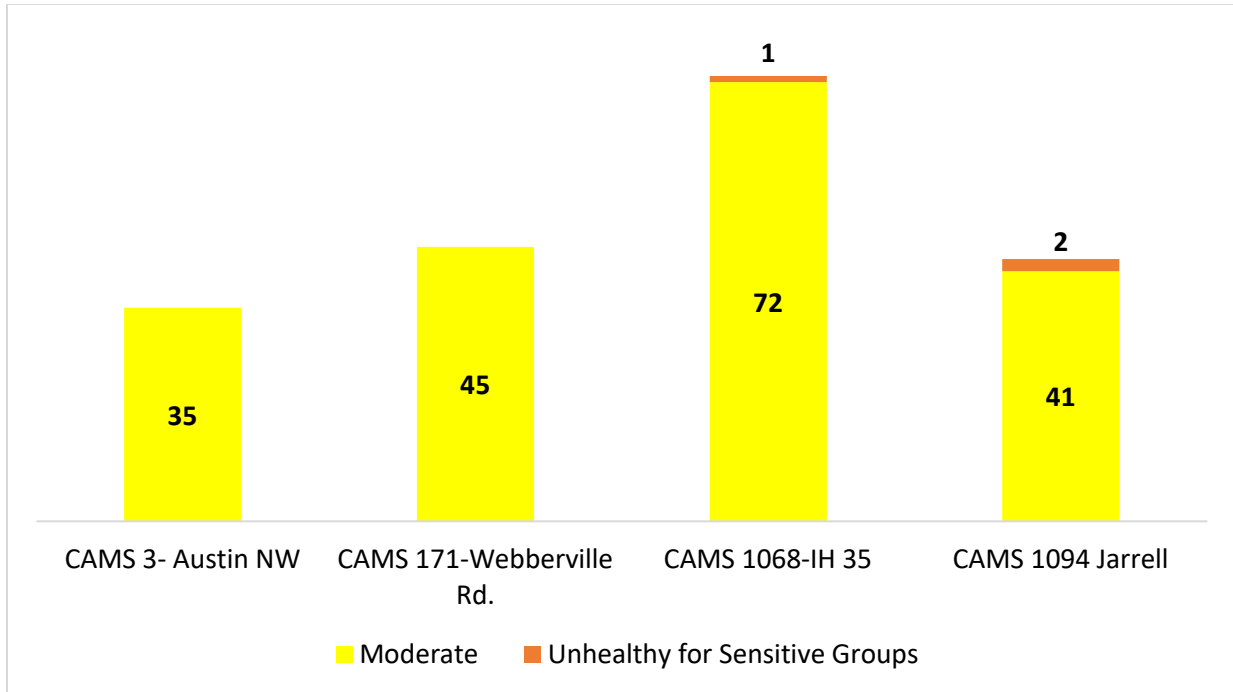


3.4.3 High PM AQI Days by Monitoring Station

3.4.3.1 PM_{2.5} AQI Days

Figure 1-6 shows the number of days when PM_{2.5} levels were considered “moderate” and “unhealthy for sensitive groups” at each PM_{2.5} monitoring station in the region in 2022. Data is based on the daily average PM_{2.5} levels collected from four continuous samplers. CAMS 3, CAMS 171, and CAMS 1068 are all located within the City of Austin, and CAMS 1094 is a temporary monitor that is in the City of Jarrell in Williamson County. CAMS 1094 started data collection on July 23, 2020. According to the TCEQ from August 2020, “The continuous PM_{2.5} monitor in Jarrell was deployed because the TCEQ is working on a complaint investigation. This is a temporary monitor that will be deployed for approximately 90 days. This monitor is a state-initiative monitor and is not part of TCEQ’s federal network of monitors.” However, CAMS 1094 continued to collect data for all of 2022 and remains in operation in 2023.

Figure 1-6. Number of Days when PM_{2.5} Pollution was "Moderate" or Worse by Monitoring Station, 2022

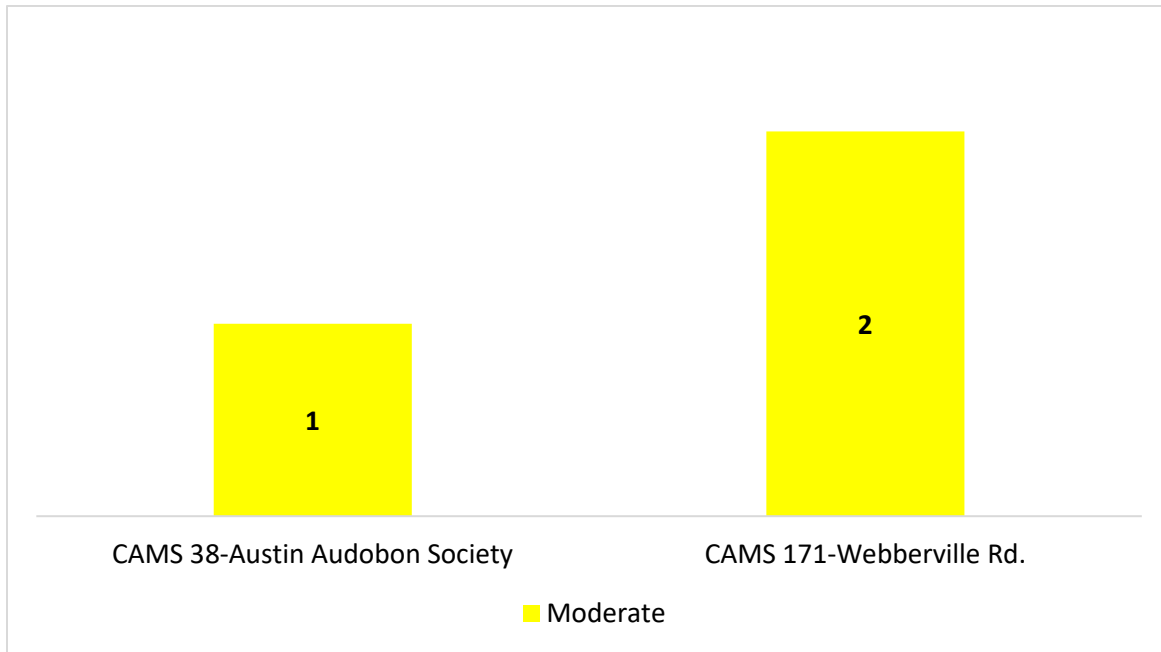


CAMS 171 continued to record the highest number of “moderate or worse” days for PM_{2.5} pollution. CAMS 1094 recorded the highest number of “unhealthy for sensitive groups” day for PM_{2.5} pollution.

3.4.3.2 PM₁₀ AQI Days

PM₁₀ monitors recorded two days that were “moderate.” During both “moderate” levels for PM₁₀ days, TCEQ’s forecast attributed elevated levels of PM to plumes of Saharan dust entering the region. It is important to note that PM₁₀, sampling only occurs once every six days. While there were two recorded “moderate” PM₁₀ days in 2022, there could have been more days that were “moderate” or “unhealthy for sensitive groups” that were not captured in the sampling window. The figure below displays the number of “moderate” days by monitor for PM₁₀.

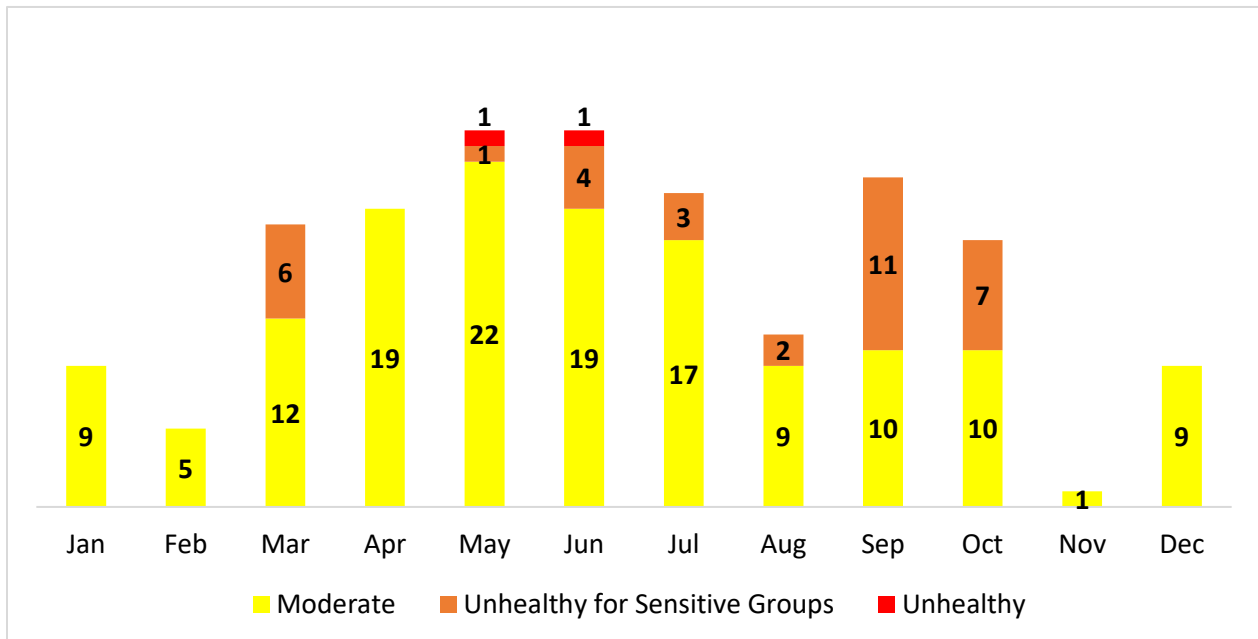
Figure 1-7. Number of Days when PM₁₀ Pollution was "Moderate" by Monitoring Station, 2022



3.4.4 Distribution of "Moderate" or Worse AQI Days by Month

Air pollution levels vary significantly by month in the MSA. Figure 1-8 shows the number of days when air pollution levels were "moderate", "unhealthy for sensitive groups", or "unhealthy" within the MSA by month.

Figure 1-8. Number of Days when Air Pollution was "Moderate" or Worse in the Austin-Round Rock-San Marcos MSA by Month, 2022

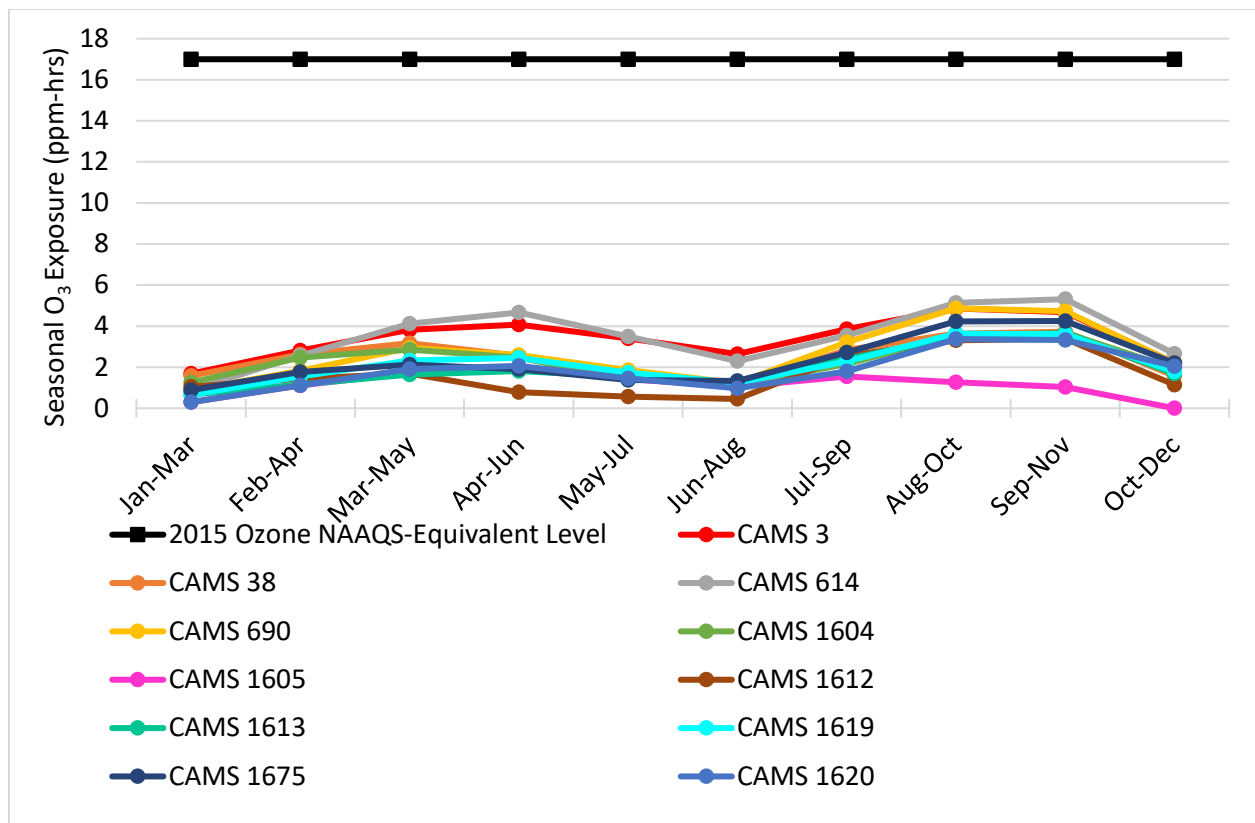


3.4.5 Seasonal O₃ Exposure

While EPA set the 2015 secondary O₃ standard identical to the 2015 primary O₃ standard, the preamble to the rulemaking states that, “the requisite protection will be provided by a standard that generally limits cumulative seasonal exposure to 17 ppm-hours (ppm-hrs.) or lower, in terms of a 3-year W126 index.”⁷ EPA did not set a separate secondary standard set to protect public welfare, as opposed to public health, because, “such control of cumulative seasonal exposure will be achieved with a standard set at a level of 0.070 ppm, and the same indicator, averaging time, and form as the current standard.”⁸

The region’s seasonal O₃ exposure levels were 31%-99% below the 17 ppm-hr. levels EPA referenced in the final 2015 O₃ NAAQS rulemaking. Figure 1-9 shows the 3-month seasonal exposure levels at each monitoring station.

Figure 1-9. Weighted Seasonal O₃ Exposure by Monitoring Station and 3-Month Period, 2022 (W126 ppm-hrs.)



⁷ 80 FR 65294

⁸ Ibid.

3.5 AIR QUALITY FORECASTING

One of the factors that influences the risks associated with air pollution is the extent to which air pollution can be accurately and successfully predicted. For the MSA, there are two types of forecasting tools that can be used to help reduce the exposure of sensitive populations to high air pollution levels – Ozone Action Days (OADs) and daily Air Quality Forecasts.

3.5.1 Ozone Action Days

TCEQ issues OADs the afternoon before the next day when TCEQ believes that O₃ levels may exceed the level of the NAAQS.

There are two ways that CAPCOG measures the performance of OAD forecasting for the region:

1. Accuracy in correctly predicting an OAD; and
2. Success in predicting when actual monitored O₃ levels were high enough to be considered “unhealthy for sensitive groups.”

Using the AQI for O₃, CAPCOG calculates these metrics as follows:

$$OAD\ Accuracy\ Rate = \frac{Days\ OAD\ Declared\ When\ Actual\ MDA8 > 70\ ppb}{Days\ OAD\ Declared}$$

$$OAD\ Success\ Rate = \frac{Days\ OAD\ Declared\ When\ Actual\ MDA8 > 70\ ppb}{Days\ When\ Actual\ MDA8 > 70\ ppb}$$

Using these formulas for accuracy and success, TCEQ’s OAD forecasting efforts for the region were 73% accurate and 59% successful in 2022. The days used to determine this rate are presented in Table 1-5. These 2022 metrics only account for days when TCEQ issued an OAD or actual O₃ measured >70 ppb. It does not account for the other days when TCEQ correctly did not issue an OAD and O₃ did not exceed 70 ppb.

From 2020-2022, TCEQ issued 32 OAD alerts for the MSA –two in 2020, five in 2021, 25 in 2022. During this time frame, there were 37 days when O₃ levels exceeded the level of the relevant O₃ NAAQS: two in 2020, three in 2021, 32 in 2022. Table 1-5 lists each of these dates.

Table 1-5. OAD Dates and Dates when O₃ Exceeded Level of NAAQS, 2020-2022

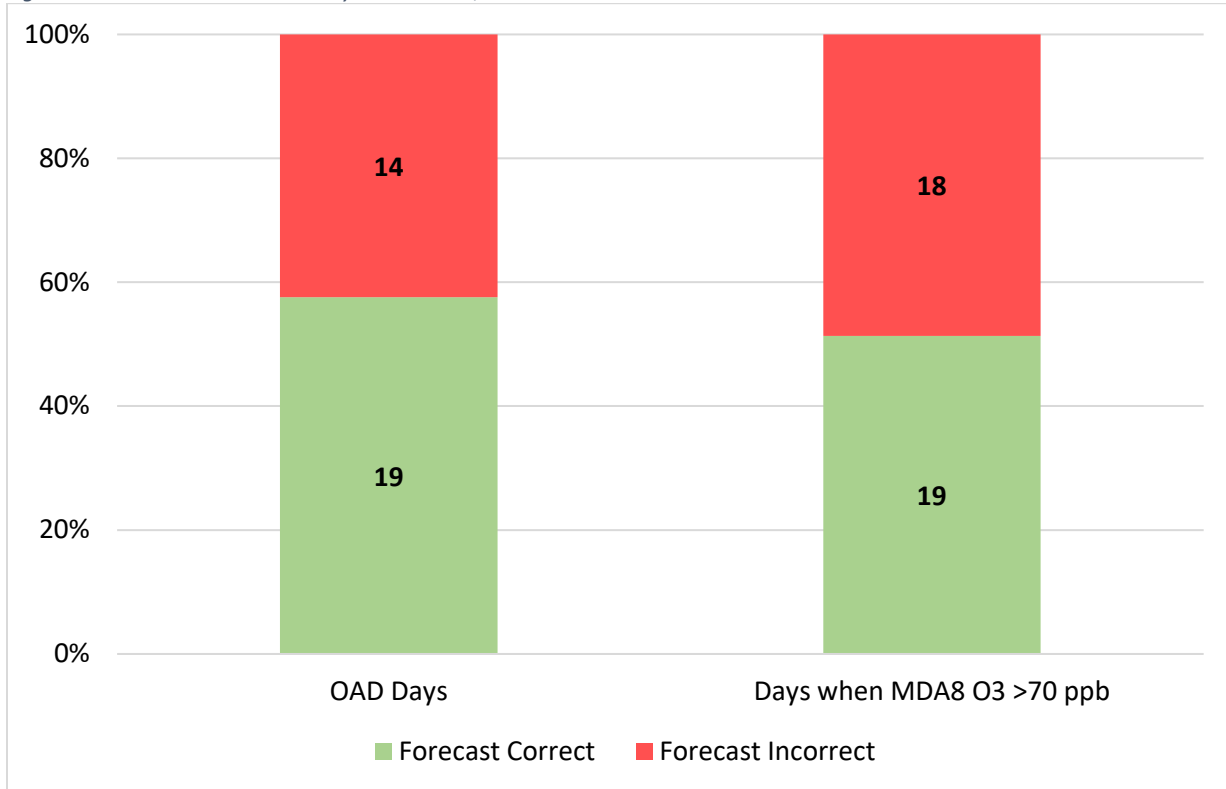
Date	OAD Issued for this Date?	Highest O ₃ MDA8 Value Recorded in MSA	Station where Highest O ₃ MDA8 Value Recorded
5/18/2020	No	72	CAMS 614
8/18/2020	No	78	CAMS 1619 & 1675
8/20/2020	Yes	62	CAMS 614
9/30/2020	Yes	58	CAMS 614
4/11/2021	No	71	CAMS 614
6/16/2021	Yes	66	CAMS 614
6/18/2021	Yes	66	CAMS 614
6/19/2021	Yes	61	CAMS 614

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Date	OAD Issued for this Date?	Highest O₃ MDA8 Value Recorded in MSA	Station where Highest O₃ MDA8 Value Recorded
9/10/2021	No	75	CAMS 614
9/25/2021	Yes	70	CAMS 1612
9/26/2021	Yes	63	CAMS 690
10/8/2021	No	76	CAMS 1620
3/1/2022	No	75	CAMS 614
3/2/2022	No	82	CAMS 614
3/3/2022	No	76	CAMS 614
3/16/2022	No	72	CAMS 1675
3/19/2022	Yes	61	CAMS 1613
3/25/2022	Yes	73	CAMS 614
4/3/2022	Yes	63	CAMS 690
5/26/2022	Yes	99	CAMS 1604
5/27/2022	Yes	75	CAMS 614
5/28/2022	Yes	58	CAMS 614
6/4/2022	No	75	CAMS 1675
6/29/2022	No	88	CAMS 690
7/1/2022	No	74	CAMS 690
7/10/2022	Yes	66	CAMS 1620
7/12/2022	No	71	CAMS 614
7/13/2022	Yes	76	CAMS 1620
8/11/2022	No	72	CAMS 1620
8/12/2022	Yes	74	CAMS 690
9/9/2022	Yes	79	CAMS 1675
9/10/2022	Yes	73	CAMS 1613
9/11/2022	No	74	CAMS 1613
9/12/2022	No	76	CAMS 1613
9/13/2022	No	79	CAMS 1675
9/14/2022	Yes	81	CAMS 690
9/15/2022	Yes	82	CAMS 1613
9/22/2022	Yes	66	CAMS 1619
9/23/2022	Yes	72	CAMS 690
9/27/2022	Yes	73	CAMS 690
9/28/2022	Yes	67	CAMS 690
9/29/2022	Yes	85	CAMS 614
9/30/2022	Yes	77	CAMS 690
10/1/2022	Yes	81	CAMS 614
10/2/2022	Yes	72	CAMS 614
10/3/2022	Yes	81	CAMS 614
10/4/2022	Yes	78	CAMS 614
10/5/2022	Yes	73	CAMS 614
10/6/2022	Yes	76	CAMS 614
10/7/2022	Yes	66	CAMS 614
10/13/2022	No	71	CAMS 614

Over the three-year period, 19 out of the 33 OAD forecasts correctly predicted O₃ levels over the applicable NAAQS – a 58% accuracy rate. Conversely, there was a 51% “success rate” in predicting actual MDA8 O₃ levels over the NAAQS from 2020-2022 (19 correctly predicted OAD out of 37 days with actual O₃ >70 ppb).

Figure 1-10. OAD Forecast Accuracy and Success, 2020-2022



3.5.2 Daily Air Quality Forecasts

TCEQ issues OADs when TCEQ believes that O₃ will reach levels considered “unhealthy for sensitive groups.” However, the TCEQ issues daily AQI forecasts for O₃, PM_{2.5} and, rarely, PM₁₀. The performance of these forecasts can be measured using the same type of metrics that were used for OADs – accuracy and success. In this case, CAPCOG evaluated the accuracy and success rate in terms of the number of days when air quality was forecast to be “moderate” or worse. The equations below explain these terms in terms of the daily AQI forecast.

AQI Forecast Accuracy Rate

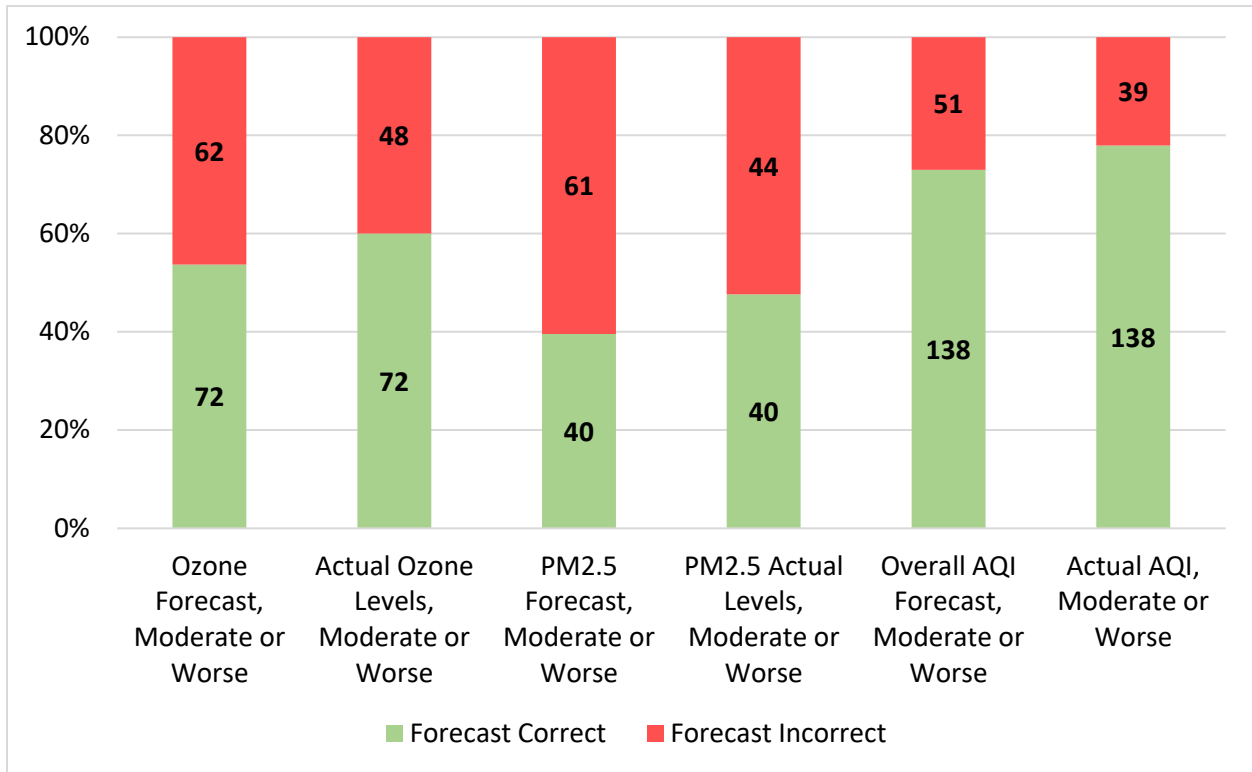
$$= \frac{\text{Days When AQI Forecast to be Moderate or Worse and was Actually Moderate or Worse}}{\text{Days Forecast to be Moderate or Worse}}$$

AQI Forecast Success Rate

$$= \frac{\text{Days When AQI Forecast to be Moderate or Worse and was Actually Moderate or Worse}}{\text{Days When Actual AQI Was Moderate or Worse}}$$

Since the daily AQI forecasts for the region included forecasts for both O₃ and PM_{2.5}, it is possible to analyze these accuracy and success rates by pollutant, as well as for the overall AQI. Figure 1-11 presents the results of this AQI forecast analysis for 2022.

Figure 1-11. Accuracy and Success of AQI Forecasts for 2022



In summary, TCEQ’s forecasts for “moderate” or higher O₃ levels were 72% accurate and 80% successful. Whereas forecasts for “moderate” or higher PM_{2.5} levels were 41% accurate and 49% successful. Overall AQI forecasts were 73% accurate and 78% successful.

3.6 ENVIRONMENTAL COMPLAINTS

The Regional Air Quality Plan is intended to be a comprehensive plan for air quality. Therefore, it includes a section on nuisance complaints sent to TCEQ⁹. This section of the annual report summarizes the compliant data from the region in 2022 county-by-county.

The table below summarizes the number of complaints filed from each county in 2022, along with each county’s population, and the number of odor complaints per 10,000 residents.

Table 1-6. 2022 Complaints and Number of Complaints Per 10,000 Residents by County

County	Bastrop	Caldwell	Hays	Travis	Williamson	Total
Burning Complaints	4	2	2	4	1	13
Odor Complaints	3	3	1	78	4	89
Dust Complaints	4	0	6	12	34	56

⁹ Obtained by querying for “Air Quality High Level, on TCEQ’s complaint tracking website at: <https://www2.tceq.texas.gov/oce/waci/index.cfm>

County	Bastrop	Caldwell	Hays	Travis	Williamson	Total
Smoke Complaints	1	0	0	11	0	12
Other Complaints¹⁰	3	6	3	3	4	19
Complaints/ 10,000 Residents	1.41	2.30	0.45	0.81	0.64	0.78

As evident in Table 1-6, Caldwell County had the highest number of complaints per 10,000 residents. This is largely due to five complaints submitted on the same day on September 1, 2022, in Luling Texas. All the complaints were related to hydrocarbon emissions at different oil & gas tanks in the city. One of these complaints resulted in a 'Notice of Violation' for failure to obtain the proper permit or authorization¹¹.

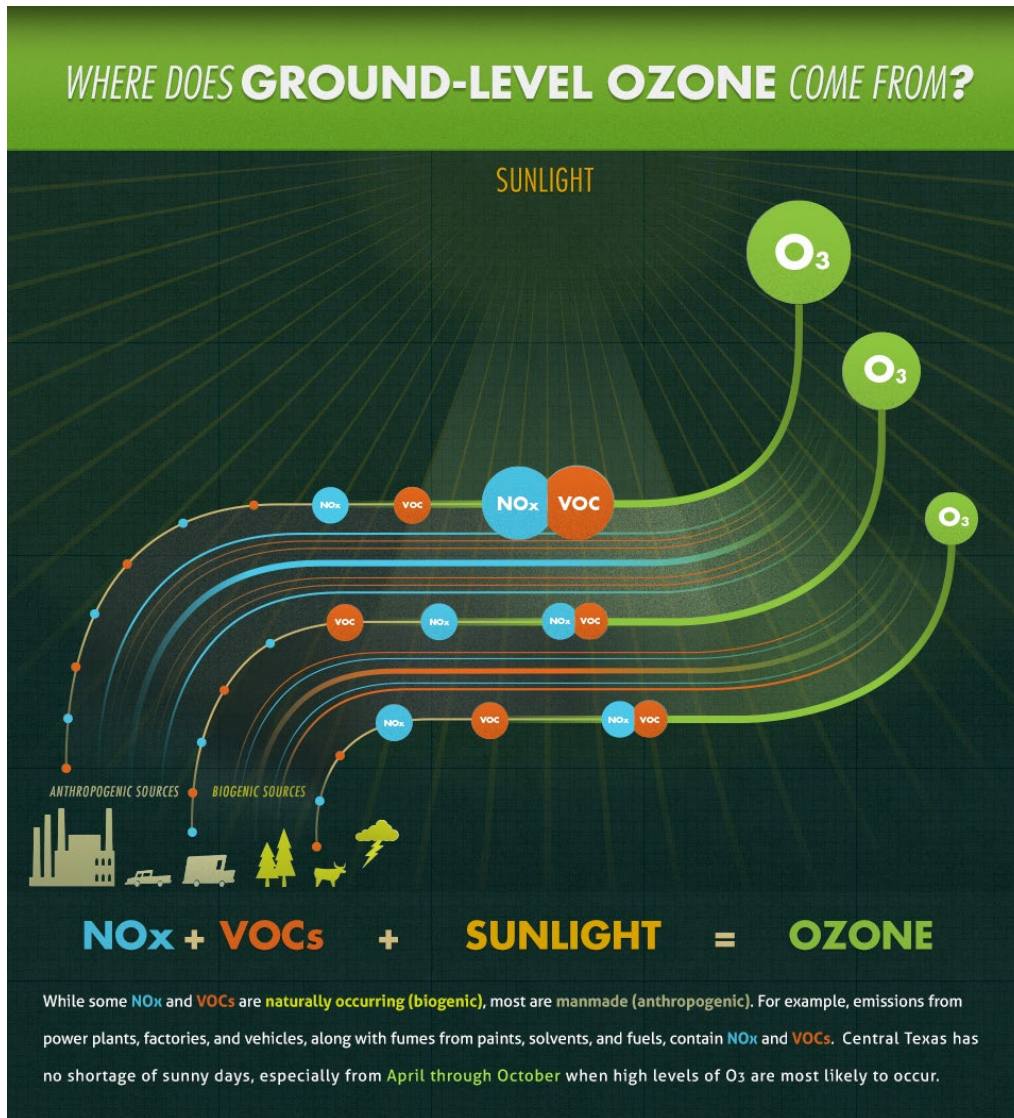
4 2022 REGIONAL OZONE SEASON WEEKDAY NO_x EMISSIONS PROFILE

NO_x emissions react with volatile organic compounds (VOC) in the presence of sunlight to form ground-level O₃. Depending on local conditions, an area's O₃ problems can be influenced more by NO_x emissions or VOC emissions. In the MSA, it is understood that NO_x emissions account for about 99% of all locally generated O₃. Therefore, an understanding of the contribution of different sources of NO_x emissions to the region's overall daily NO_x emissions during Ozone Season will elucidate the relative importance of these sources to O₃ formation.

¹⁰ Other Complaints include those categorized by TCEQ as Wastewater, Municipal (non-industrial), Construction, and undefined.

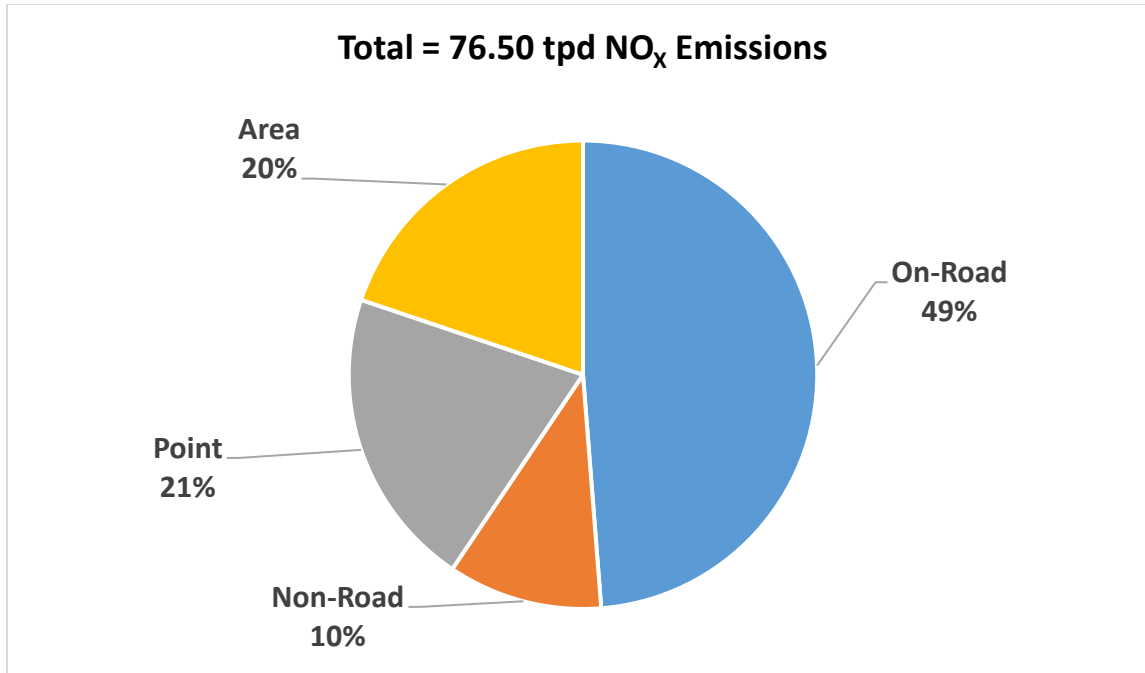
¹¹ Details available via TCEQ's Web Access to Complaint Information System:
<https://www2.tceq.texas.gov/oce/waci/index.cfm?fuseaction=home.complaint&incid=386733>

Figure 2-1. Ozone Formation



The following pie chart shows the estimated average 2022 O_3 season weekday anthropogenic NO_x emissions in the region by major source type – on-road mobile, non-road mobile, point source, and area source emissions.

Figure 2-2 2022 O₃ Season Weekday NO_x Emissions for the Austin-Round Rock-San Marcos MSA (tpd)



4.1 NO_x EMISSIONS BY SOURCE TYPE BY COUNTY

Table 2-1 shows the break-down of the region’s ozone season day (OSD) weekday NO_x emissions by county and source type.

Table 2-1. 2022 OSD Weekday NO_x Emissions by Source Type and County (tons per day)

County	On-Road	Non-Road	Point	Area	Total
Bastrop	2.32	0.58	3.42	0.49	6.81
Caldwell	1.29	0.38	1.90	3.52	7.09
Hays	5.34	0.60	6.02	1.07	13.03
Travis	19.78	4.24	4.39	7.62	36.03
Williamson	8.57	2.35	0.15	2.46	13.53
Total	37.30	8.16	15.88	15.16	76.50

4.2 ON-ROAD SOURCES

The on-road sector includes mobile sources that are registered to operate on public roads. On-road vehicles remain the largest source of NO_x emissions within the region, accounting for 37.30 tons per day (tpd) of NO_x emissions on a typical 2022 OSD weekday, based on TCEQ’s most recent “trends” emissions

inventories.¹² Table 2-2 shows the typical 2022 O₃ season weekday NO_x emissions for the region by source use type.

Table 2-2. Regional 2022 OSD Weekday On-Road NO_x Emissions by Source Use Type (tpd)

Source Use Type	NO _x
Motorcycle	0.06
Passenger Car	11.10
Passenger Truck	7.49
Light Commercial Truck	2.18
Intercity Bus	0.21
Transit Bus	0.30
School Bus	0.63
Refuse Truck	0.48
Single-Unit Short-Haul Truck	2.42
Single-Unit Long-Haul Truck	0.26
Motor Home	0.26
Combination Short-Haul Truck	4.42
Combination Long-Haul Truck	7.48
Total	37.30

Passenger cars and passenger trucks combined to account for 18.59 tpd of NO_x emissions, while heavy-duty commercial trucking accounted for 14.58 tpd NO_x emissions. The remaining sources accounted for 4.13 tpd NO_x emissions, most of which come from light commercial trucks.

4.3 NON-ROAD SOURCES

The non-road sector consists of any mobile source that is not registered to be operated on a public road, including sources such as agricultural equipment, construction and mining equipment, locomotives, aircraft, and drill rigs. Non-road sources made up the 3rd-largest source of NO_x emissions within the region in 2022, accounting for 12.85 tpd of NO_x emissions on a typical O₃ season weekday. There are four different types of non-road data sets: equipment modeled in the MOVES2014b and TexNv2 models, locomotives/rail equipment, aircraft (including ground support equipment), and drill rigs.

Table 2-3. 2022 OSD Weekday Non-Road NO_x Emissions by County (tpd)

County	MOVES2014b	Rail	Aircraft	Drill Rigs	Total
Bastrop	0.58	0.40	0.00	0.00	0.98
Caldwell	0.38	0.41	0.02	0.02	0.83
Hays	0.60	0.38	0.01	0.00	0.99
Travis	4.24	0.40	2.54	0.00	7.18
Williamson	2.35	0.48	0.03	0.00	2.86
Total	8.16	2.07	2.60	0.02	12.85

¹² Produced by TTI in August 2015. Available online at: ftp://amdaftp.tceq.texas.gov/pub/EI/onroad/mvs14_trends/.

- For MOVES2014b sources, CAPCOG used the 2017 OSD estimates prepared by TCEQ for the AERR,¹³ then adjusted the totals for each SCC and county based on the ratios between the 2021 “Trends” inventory and the 2017 “Trends” inventory.¹⁴
- For aircraft, CAPCOG used ERG’s estimated O₃ season daily 2022 NO_x emissions.¹⁵
- For rail and drill rigs, CAPCOG used TCEQ’s existing 2022 trends inventories.¹⁶

4.4 POINT SOURCES

The point source sector consists of any stationary source that reports its emissions to TCEQ. The most recent point source data that is publicly available from TCEQ is for 2021. In that year, there were 27 facilities in the Austin-Round Rock-San Marcos MSA that reported emissions to TCEQ.¹⁷ Emissions data specific to 2022 are available for each electric generating unit (EGU) that reports to EPA. CAPCOG estimated an average of 15.88 tpd NO_x emissions from point sources in the MSA in 2022:

- Except for the turbines at Decker Creek Power Plant, CAPCOG used the average daily NO_x emissions reported to EPA for May 1, 2021 – September 30, 2021, for all EGUs that report emissions to EPA,¹⁸ (5.27 tpd);
- For the eight turbine units at Decker Creek Power Plant, CAPCOG used the average daily NO_x emissions reported to EPA for May 1, 2021 – September 30, 2021, adjusted to reflect the ratio between the average OSD NO_x emissions reported in TCEQ’s EIQ for 2020 to the average OSD (May 1 – September 30) NO_x emissions reported to EPA for 2022¹⁹ (0.57 tpd);
- For all other sources of NO_x emissions, including sources at non-EGU facilities, CAPCOG used the OSD NO_x emissions reported in the facility’s 2021 EIQ (10.62 tpd).

Table 2-4 shows the estimated OSD NO_x emissions by county for EGU and non-EGU sources.

Table 2-4. Estimated 2021 Point Source OSD NO_x Emissions by County (tpd)

County	EGU ²⁰	Non-EGU	Total
Bastrop	3.31	0.11	3.42
Caldwell	0.00	1.90	1.90
Hays	0.59	5.43	6.02
Travis	1.36	3.03	4.39
Williamson	0.00	0.15	0.15

¹³ Available online here: ftp://amdaftp.tceq.texas.gov/pub/EI/nonroad/aerr/2017/for_EPA/

¹⁴ Available online here: <ftp://amdaftp.tceq.texas.gov/pub/EI/nonroad/trends/>

¹⁵ E-mail from Roger Chang, ERG, to CAPCOG, on June 3, 2021

¹⁶ Available online here: <ftp://amdaftp.tceq.texas.gov/pub/EI/offroad/locomotive/trends/> and ftp://amdaftp.tceq.texas.gov/pub/EI/oil_gas/drilling/.

¹⁷ “State Summary” file available online here: https://www.tceq.texas.gov/downloads/air-quality/point-source/2014_2021statesum.xlsx

¹⁸ Accessible online here: <https://ampd.epa.gov/ampd/>

¹⁹ The adjustment for the Decker Turbines is due to a known issue with data substitution required for reporting data to EPA that does not apply to the annual EIQs.

²⁰ Includes all sources at these facilities, including sources that do not report to AMPD.

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County	EGU ²⁰	Non-EGU	Total
Total	5.27	10.62	15.88

The table below shows the facility-level OSD NO_x emissions estimates.

Table 2-5. Estimated Average 2022 OSD Point Source Emissions in the Austin-Round Rock-San Marcos MSA (tpd)

RN	Company	Site	2021 NO _x Emission (tpy)	2021 OSD NO _x (ppd)
RN100211689	Hays Energy LLC	Hays Energy Facility	190.59	1,199.10
RN100212034	Meridian Brick	Elgin Facility	19.24	105.44
RN100214337	Austin White Lime	McNeil Plant & Quarry	460.19	2,743.92
RN100215052	Austin Energy	Sand Hill Energy Center	99.87	547.23
RN100215938	Waste Management	Austin Community Landfill	37.32	199.56
RN100219872	Austin Energy	Decker Creek Power Plant	423.14	2,150.19
RN100220177	Oasis Pipeline	Prairie Lea Compressor Station	586.12	3,204.87
RN100225754	Waste Management	Williamson County Recycling and Disposal Facility	15.41	91.12
RN100225846	Acme Brick Company	Elgin Plant	11.17	61.23
RN100518026	Samsung Austin Semiconductor	Austin Fabrication Facility	94.08	518.63
RN100542752	BFI Waste Systems of North America	BFI Sunset Farms Landfill	17.25	94.83
RN100723915	Gentex Power	Lost Pines Power Plant	147.46	891.89
RN100725712	Seminole Pipeline Company	Coupland Pump Station	33.91	228.21
RN100728179	Durcon Laboratory Tops	Durcon Laboratory Tops	3.95	23.85
RN100843747	NXP USA	Ed Bluestein Site	28.68	51.71
RN101056851	Bastrop Energy Partners	Bastrop Energy Center	247.21	1,735.86
RN101059673	Flint Hills Resources Corpus Christi	Austin Terminal	0.21	0.78
RN102016698	Texas Disposal System Landfill	Texas Disposal System Landfill	14.58	77.47
RN102038486	Lower Colorado River Authority	Sim Gideon Power Plant	594.67	4,448.36
RN102204427	Lower Colorado River Authority	Hilbig Gas Storage Facility	0.52	2.84

RN	Company	Site	2021 NO_x Emission (tpy)	2021 OSD NO_x (ppd)
RN102533510	University of Texas at Austin	Hal C Weaver Power Plant	380.89	2,445.01
RN102597846	Texas Lehigh Cement Company	Texas Lehigh Cement	2,113.06	12,001.20
RN102752763	NXP USA	Integrated Circuit MFG Oak Hill Fab	18.89	33.25
RN105074561	Texas Materials Group	Austin Hot Mix	1.22	6.76
RN105366934	Flint Hills Resources Corpus Christi	Mustang Ridge Terminal	0.37	0.42
RN106897036	130 Environmental Park LLC	130 Environmental Park	0.0	0.00
RN109992479	Valero Terminaling & Distribution Co.	Truck Loading Terminal	0.05	0.10
Total	n/a	n/a	5,540.05	32,863.83

Since EPA data for EGUs are available at the daily level, CAPCOG analyzed the regional EGU NO_x emissions on the top four days at Continuous Air Monitoring Site (CAMS) 3 with the highest 8-hour O₃ averages for 2022, since these days affect National Ambient Air Quality Standard (NAAQS) compliance.

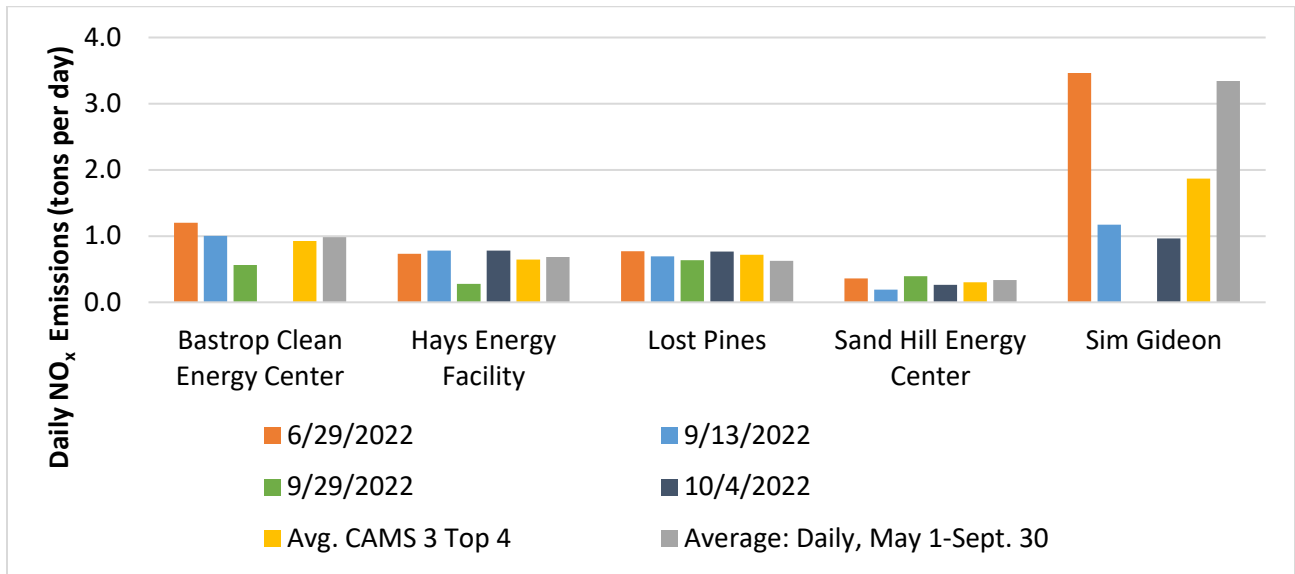
The top four days at CAMS 3, the current monitor used for the region's design value, were the following:

- 9/29/2022: 79 ppb
- 6/29/2022: 75 ppb
- 9/13/2022: 75 ppb
- 10/4/2022: 73 ppb

On these days, EGU NO_x emissions averaged 3.76 tpd, which is 37% lower than the May 1st – September 30th daily average of 5.98 tpd, though NO_x emissions did reach 6.53 tpd on 6/29/2022. This suggests at the relationship between these EGUs and the highest ozone concentrations at CAMS 3 was not strong. Unlike in most prior years, the EGU emissions on the top 4 days don't stand out as being significantly higher than what is typical for May – September.

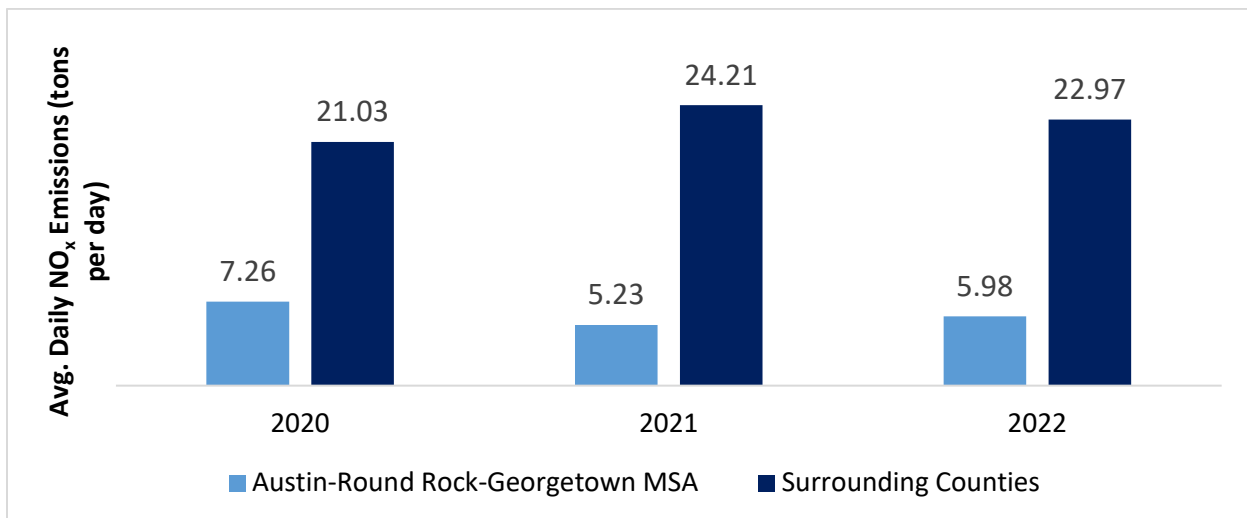
2022 Air Quality Annual Report for the Austin-Round Rock-Georgetown MSA, August 18, 2023

Figure 2-3. Comparison of EGU NO_x Emissions on Top 4 O₃ Days at CAMS 38 Compared to Average Daily NO_x Emissions May 1 – September 30, 2022



Looking at the 2022 data compared to previous years, average OSD emissions from EGUs within the MSA were slightly higher in 2022 than 2021 while emissions in the counties surrounding MSA decreased in 2022 from 2021. The figure below compares the OSD NO_x emissions from EGUs within the MSA and EGUs in surrounding counties. Note that the figure does not include the emissions from the Decker Creek as the turbine units have a known issue and those are the only emissions from the facility during this time period.

Figure 2-4. Average Daily May – September NO_x Emissions from EGU Point Sources in Austin-Round Rock-Georgetown MSA and Surrounding Counties, 2020-2022



4.5 AREA SOURCES

CAPCOG estimated the 2022 area sources using TCEQ’s 2020 summer weekday NO_x emissions from its 2020 National Emissions Inventory submission.

Table 2-6. Area Source NO_x Emissions by County and Source Type (tpd)

County	Industrial Combustion	Commercial & Institutional Combustion	Residential Combustion	Oil & Gas	Other	Total
Bastrop	0.09	0.08	0.07	0.16	0.09	0.49
Caldwell	1.90	0.03	0.04	1.53	0.04	3.52
Hays	0.27	0.32	0.19	0.00	0.30	1.07
Travis	1.95	3.29	1.61	0.01	0.76	7.62
Williamson	0.60	0.86	0.62	0.04	0.33	2.46
Total	4.80	4.59	2.53	1.73	1.52	15.16

5 IMPLEMENTATION OF 2019-2026 REGIONAL AIR QUALITY PLAN AND OTHER MEASURES

This section provides details on emission reduction measures implemented within the Austin-Round Rock-San Marcos MSA in 2022. This includes both measures that had been included in the 2019-2026 Regional Air Quality Plan and other measures that were not explicitly committed to in that plan.

5.1 REGIONAL AND STATE-SUPPORTED MEASURES

Regional and state-supported measures involve multi-jurisdictional programs or state involvement in an emission reduction measure within the region. These include:

- The Vehicle Emissions Inspection and Maintenance (I/M) Program
- Texas Emission Reduction Plan (TERP) grants
- Volkswagen Environmental Mitigation Trust Beneficiary Mitigation Plan for Texas
- The Clean Air Partners Program
- The Clean Cities Program
- Outreach and Education Measures
- Property-Assessed Clean Energy (PACE)
- The Commute Solutions Program

5.1.1 Vehicle Emissions Inspection and Maintenance Program

The Austin-Round Rock-San Marcos MSA is home to Travis and Williamson Counties – the two largest “attainment” counties in the country that have a vehicle emissions inspection and maintenance (I/M) program. The I/M program has been in place since September 1, 2005, and it was implemented as part of the region’s participation in the Early Action Compact (EAC) program. The program’s rules are found in Title 30, Part 1, Texas Administrative Code (TAC) Chapter 114, Subchapter C, Division 3: Early Action Compact Counties. Under the program, all gasoline-powered vehicles (including heavy-duty vehicles but excluding motorcycles) that are 2-24 years old are required to undergo an annual emissions inspection along with their annual safety inspection. Vehicles model year 1995 and older are required to pass a “two-speed idle” (TSI) test, and vehicles model year 1996 and newer are required to pass an “on-board diagnostic” (OBD) test. 2019 was the last year in which TSI tests will be conducted for the I/M program due to the model year coverage. Up until the end of state fiscal year 2021, the inspection cost \$18.50 per test:

- The station may retain \$11.50
- \$4.50 is remitted to the state and deposited into the Clean Air Account (Fund 151):
 - \$2.50 is for state administration of the I/M program

If a vehicle fails an emissions inspection, the owner is required to fix the vehicle as a condition of registration. As described in 37 TAC § 23.52(a), “an emissions testing waiver defers the need for full compliance with vehicle emissions standards of the vehicle emissions inspection and maintenance (I/M) program for a specified period of time after a vehicle fails an emissions test.” The following waivers are available in certain circumstances:

- A “low-mileage” waiver if a motorist has paid at least \$100 for emissions-related repairs and is driven less than 5,000 per year
- An “individual vehicle” waiver if a motorist has paid at least \$600 in emissions-related repairs

Under 37 TAC § 23.53(a), time extensions are also available:

- A “low-income time extension” is available if the motorist has income at or below the federal poverty level and the motorist hadn’t previously received a time extension in the same cycle
- A “parts-availability time extension” is available if an applicant can show problems in obtaining the needed parts for repair

Some of the key metrics for the I/M program year-to-year are the number of emissions inspections and the failure rates. Table 3-1 summarizes the number and disposition of emissions inspections in 2022:

Table 3-1. I-M Program Statistics for 2022²¹

Metric	Travis County	Williamson County	Combined
Total Emission Tests	846,471	429,862	1,276,333
Initial Emission Tests	799,563	407,356	1,206,919
Initial Emission Test Failures	50,489	23,822	74,311
Initial Emission Test Failure Rate	6.3%	5.80%	6.2%
Initial Emission Retests	41,573	20,158	61,731
Initial Emission Retest Failures	4,959	2,060	7,019
Initial Emission Retest Failure Rate	11.90%	10.20%	11.4%
Other Emission Retests	5,335	2,348	7,683
Other Emission Retest Failures	1,520	627	2,147
Other Emission Retest Failure Rate	28.50%	26.70%	27.9%

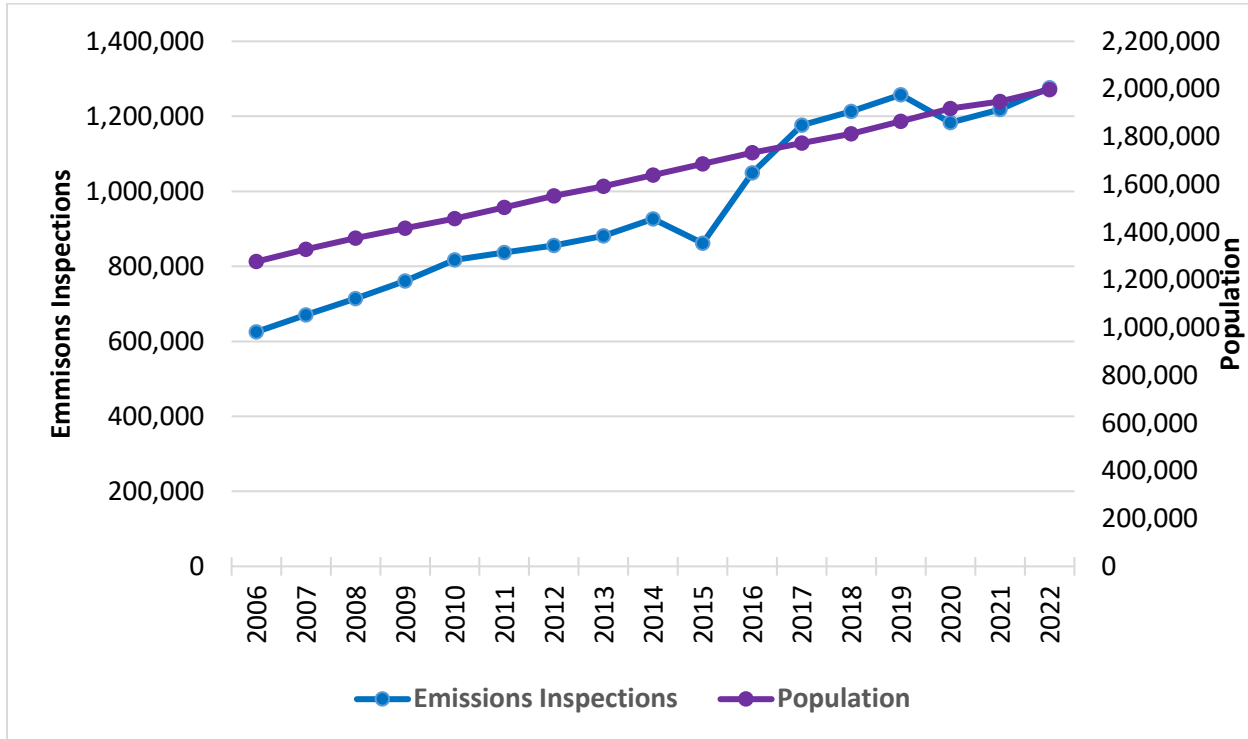
In general, there have been year-over-year increases in the number of emissions inspections tracking with population increases, except for 2015 and 2020. The difference in 2015 was due to a transition period in the state’s move from a two-sticker (registration and inspection) system to a one-sticker system, some vehicles were able to skip a cycle of inspections if they had a January 2015 or February 2015 registration renewal deadline. By March 1, 2016, however, all vehicles should have “caught up.” However, due to the COVID-19 pandemic, there were fewer emissions inspections in 2020 and 2021 than in 2019. This decrease in inspections was most likely due to the statewide vehicle registration renewal waiver.²² The waiver allowed vehicle owners to avoid penalties for failure to timely register a

²¹ Data e-mailed from David Serrins, TCEQ, to CAPCOG staff on 5/5/2022.

²² <https://gov.texas.gov/news/post/governor-abbott-waives-certain-vehicle-registration-titling-and-parking-placard-regulations-in-texas>

vehicle. The waiver began on March 16, 2020, and it was in place until April 14, 2021.²³ Overall, emissions inspections increased from 2021 to 2022.

Figure 3-1. Trend in Emissions Inspections Compared to Population in Travis and Williamson Counties 2006-2021



The initial failure rate for 2022 increased slightly from 2021. This follows a trend of an increase in failed tests since 2019. This increase in the failure rate could be attributed to people’s hesitancy to visit mechanics for vehicle repairs or maintenance because of the COVID-19 pandemic issues, either financial, medical, or other.

²³ http://ftp.txdmv.gov/pub/txdmv-info/media/2021/02_12_21-End_of_Vehicle_Title_Registration_Waiver.pdf

Figure 3-2. Initial Emissions Inspection Failure Rate Trend 2006-2022

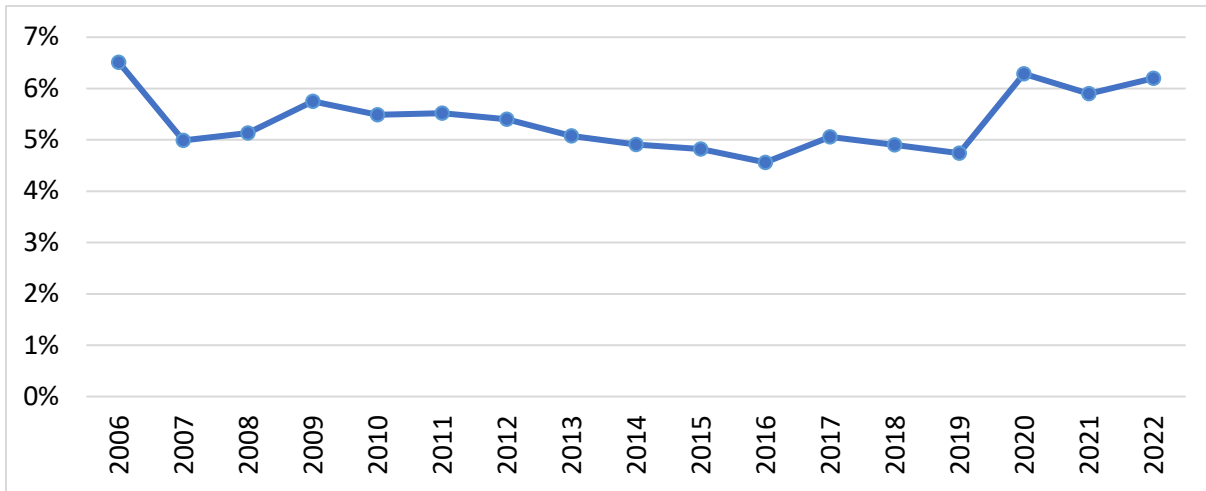
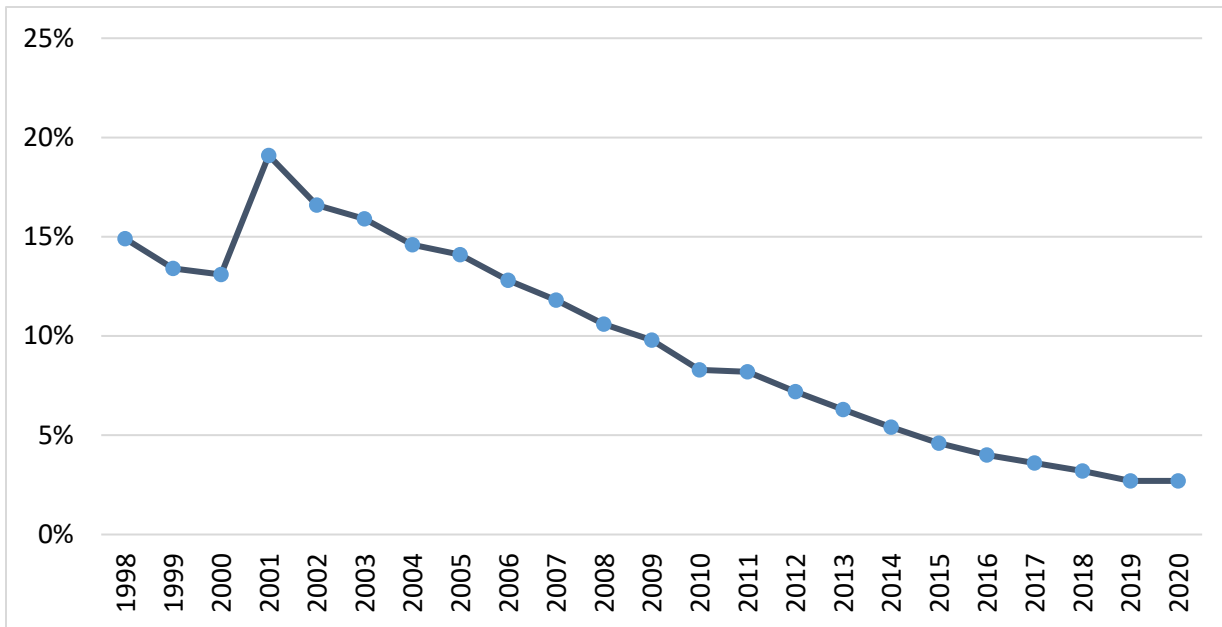


Figure 3-3 shows the emissions test failure rates of each model year based on tests conducted in 2021. As the figure below shows, the chances of older model-year vehicles failing an emissions test are significantly higher than a newer model year vehicle failing a test. In 2022, model-year 2020 vehicles had a failure rate of only about 2.1%, whereas the failure rate for model year 2001 vehicles was 18.1%.

Figure 3-3. 2022 Emission Test Failure Rate by Model Year



As described above, under certain circumstances, a vehicle subject to annual testing requirements is allowed to continue operating under an I/M program waiver. Table 3-2 summarizes the waivers issued in 2020, 2021, and 2022.

Table 3-2. 2020, 2021, and 2022 I-M Program Waivers

Waiver Type	2020	2021	2022
Total Tests	1,114,305	1,152,576	1,211,610

Waiver Type	2020	2021	2022
Failing Vehicles	50,274	48,643	52,772
Total Waivers	31	74	66
Total Waiver Rate	0.06%	0.15%	0.13%
Individual Waivers	11	30	29
Low Mileage Waivers	8	27	22
Low-Income Time Extensions	12	17	14
Parts Availability Time Extensions	0	0	0
Other (Special Test)	0	0	1

5.1.2 Texas Emission Reduction Plan Grants

Texas Emission Reduction Plan (TERP) grants provide funding for a variety of types of projects designed to reduce emissions, particularly NO_x. These include:

- The Diesel Emissions Reduction Incentive (DERI) program, designed to achieve emission reductions by incentivizing the early replacement or repowering of older diesel-powered engines with newer engines:
 - The Emission Reduction Incentive Grant (ERIG) program is a competitive grant program based on the cost/ton of NO_x reduced.
 - The Rebate Grant program is a first-come, first-served grant program based on fixed rebate dollar amounts based on fixed cost/ton of NO_x reduced assumptions.
- The Texas Clean Fleet Program (TCFP) incentivizes owners of large fleets to replace a significant portion of their conventionally fueled vehicles with alternative-fueled vehicles, achieving emission reductions by replacing the older, dirtier engines with newer, cleaner engines.
- The Texas Natural Gas Vehicle Grant Program (TNGVGP) incentivizes the replacement of diesel-powered trucks with natural gas vehicle-powered trucks, with the newer engine needing to achieve at least a 25% reduction in emissions compared to the diesel power it is replacing.
- The Seaport and Rail Yard Areas Emission Reduction (SPRY) Program provides funding for the early replacement of drayage trucks and equipment at eligible in ports and class I railyards in nonattainment areas (this program was formerly known as the Drayage Truck Incentive Program or DTIP). The Austin area is not eligible for this program.
- The Alternative Fueling Facilities Program (AFFP) provides grants for the construction, reconstruction, or acquisition of public and private facilities to store, compress, or dispense alternative fuels including CNG, LNG, LPG, biodiesel, hydrogen, methanol (85 percent by volume), and electricity. To be eligible, facilities must be in an area designated as the Clean Transportation Zone²⁴.
- The Texas Clean School Bus (TCSB) program provides funding for the retrofit and replacement of older school buses.

²⁴ Map of the Clean Transportation Zone: <https://www.tceq.texas.gov/downloads/air-quality/terp/map-20-clean-transportation-zone.pdf>

- The Light Duty Motor Vehicle Purchase or Lease Incentive Program (LDPLIP) provides rebate incentives statewide to purchase or lease an eligible new light-duty motor vehicle powered by natural gas, propane, hydrogen fuel cell, or electric drive.
- The Governmental Alternative Fuel Fleet (GAFF) Program was a new TERP program in 2021. The GAFF Program assists state agencies or political subdivisions, that own or operate a fleet of >15 vehicles, in purchasing or leasing new alternative fuel or hybrid vehicles.
- The New Technology Implementation Grants (NTIG) program provides funding for new/innovative technology to reduce emissions from stationary sources.
- Energy Efficiency Programs
 - Goal for Energy Efficiency requires electric utilities to acquire energy efficiency savings through the administration of standard offer programs, market transformation programs, pilot programs, and self-directed programs.
 - Energy Efficiency Programs in Institutions of Higher Education and Certain Government Entities are required to report to the State Energy Conservation Office (SECO) within the Comptroller of Public Accounts on the implementation of energy efficiency measures that meet the standards established for a contract for energy conservation measures.
 - Texas Building Energy Performance Standards requires local governments to administer and enforce the standards found in the International Energy Conservation Code and the Energy Efficiency chapter of the International Residential Code. The ESL is responsible for determining the energy savings from energy code adoption and, when applicable, form more stringent or above-code performance ratings

In May 2022, TCEQ posted a series of reports on their program website that summarizes the estimated OSD weekday NO_x emission reductions achieved by each program for 2022 – 2027, based on grants awarded through August 31, 2022. Table 3-3 summarizes these data for the Austin area.²⁵

Table 3-3. Austin Area Quantified OSD Weekday NO_x Emissions from TERP Grants by Program from Grants Awarded through August 31, 2021 (tpd).

Program	2022	2023	2024	2025	2026	2027
DERI ²⁶	2.08	1.93	1.70	1.23	0.78	0.61
TCFP ²⁷	0.02	0.02	0.00	0.00	N/A	N/A
TNGVGP ²⁸	0.03	0.03	0.01	0.01	0.00	0.00

²⁵ TCEQ develops OSD weekday NO_x emission reduction estimates by dividing the annual NO_x reductions by 260, which corresponds roughly to the number of weekdays in a year.

²⁶ TCEQ. “Diesel Emission Reduction Incentive (DERI) Program Projects by Area 2001 through August 2022” Prepared by Air Grants Division, May 2022. Available online at: <https://www.tceq.texas.gov/downloads/air-quality/terp/reports/reports-projects-by-program-deri.pdf> , Accessed 7/18/2023.

²⁷ TCEQ. “Texas Clean Fleet Program Projects by Area 2010 through August 2022.” Prepared by Air Grants Division, May 2022. Available online at: <https://www.tceq.texas.gov/downloads/air-quality/terp/reports/reports-projects-by-area-tcfp.pdf>. Accessed 7/18/2023.

²⁸ TCEQ. “Texas Natural Gas Vehicle Grant Program (TNGVGP) Projects by Area 2012 through August 2021.” Prepared by Air Grants Division, May 2022. Available online at: <https://www.tceq.texas.gov/downloads/air-quality/terp/reports/reports-projects-by-area-tngvgp.pdf>. Accessed 7/18/2023.

Program	2022	2023	2024	2025	2026	2027
TCSB-Replace ²⁹	0.01	0.01	0.01	0.01	0.01	<0.01
TOTAL	2.14	1.99	1.72	1.25	.79	0.61

Table 3-4 shows the TERP funding awarded to the Austin-Round Rock-San Marcos MSA in FY 2021, along with any quantified NO_x emissions reductions from those grants. TCEQ does not provide NO_x estimates for funding awarded for the NTIG, AFFP, or LDPLIP grant programs.

Table 3-4. TERP Grants Awarded in the Austin Area in FY 2021³⁰

Grant Program	Total Funding Awarded ³¹	Funding Awarded to the Austin Area	Percent of Funding Going to MSA	Austin Area NO _x Emissions Reductions (tons)	Cost Per Ton of NO _x Emissions Reductions in Austin Area
AFFP ³²	\$31,936,737	\$5,166,249	16%	N/A	N/A
DERI	\$1,192,434,745	\$97,274,205	8%	11,278	\$8,625
GAFF ³³	\$6,000,000.00	\$0.00	0%	0.00	N/A
LDPLIP ³⁴	\$16,361,015	\$5,119,435	31%	N/A	N/A
NTIG ³⁵	\$16,296,259	\$1,000,000	6%	N/A	N/A
SPRYP ³⁶	\$28,702,701	\$0.00	0%	0.00	N/A
TCFP	\$69,363,635	\$17,879,757	26%	165	\$108,519
TCSB - Replace	\$18,495,003	\$1,558,125	8%	13.73	\$113,467
TCSB - Retro ³⁷	\$29,864,522	\$2,081,715	7%	N/A	N/A

²⁹ TCEQ. "Texas Clean School Bus (TCSB) Program Replacement Projects by Area 2018 through August 2021." Prepared by Air Grants Division, May 2022. Available online at: <https://www.tceq.texas.gov/downloads/air-quality/terp/reports/reports-replacement-projects-by-area-tcsb.pdf>. Accessed 7/18/2023.

³⁰ Based on information provided by Nate Hickman, TCEQ, on 5/13/2022, by e-mail to CAPCOG staff.

³¹ For the purposes of this table, the fiscal year award is identified as the fiscal year in which a grant contract was executed, rather than the fiscal year in which an award announcement was made or the fiscal year in which funding was awarded.

³² <https://www.tceq.texas.gov/downloads/air-quality/terp/reports/reports-projects-by-area-affp.pdf>

³³ TCEQ. List of projects awarded under the GAFF. Access here: <https://www.tceq.texas.gov/downloads/air-quality/terp/reports/reports-project-list-gaff.pdf>. Accessed 7/18/2023.

³⁴ TCEQ. Summary of projects awarded under the LDPLIP by area. Access here: <https://www.tceq.texas.gov/downloads/air-quality/terp/reports/reports-projects-by-area-ldplip.pdf>. Accessed 7/18/2023.

³⁵ TCEQ. Summary of projects awarded under the LDPLIP by area. Access here: <https://www.tceq.texas.gov/downloads/air-quality/terp/reports/reports-project-list-ntig.pdf>. Accessed 7/18/2023.

³⁶ TCEQ. List of projects awarded under the NTIG. Access here: <https://www.tceq.texas.gov/downloads/air-quality/terp/reports/reports-projects-by-area-spryp.pdf>. Accessed 7/18/2023.

³⁷ TCEQ. Summary of retrofit projects awarded under the TCSB program by area. Access here: <https://www.tceq.texas.gov/downloads/air-quality/terp/reports/reports-retrofits-projects-by-area-tcsb.pdf>. Accessed 7/18/2023.

Grant Program	Total Funding Awarded ³¹	Funding Awarded to the Austin Area	Percent of Funding Going to MSA	Austin Area NO _x Emissions Reductions (tons)	Cost Per Ton of NO _x Emissions Reductions in Austin Area
TNGVGP ³⁸	\$54,012,006	\$3,508,264	6%	95	\$36,893
TOTAL	\$1,463,466,623	\$133,587,750	9%	11,551.73	\$11,564.31

5.1.3 Texas Volkswagen Environmental Mitigation Program (TxVEMP)

In 2018, the TCEQ released the final version of their Beneficiary Mitigation Plan which identified the Austin metro area as a “priority” area and allocated \$16,297,602 of the \$169,548,522 total available funds to the Austin-Round Rock-San Marcos MSA. The funds are for the replacement or repower of diesel vehicles and equipment to new diesel, alternative fuel (compressed natural gas, propane, or hybrid electric), or all-electric vehicles and equipment. The Zero Emission Vehicle Supply Equipment Grants are available statewide, and they are a separate funding source from the priority area funds. In spring 2019, TCEQ began opening its grant rounds for the Texas Volkswagen Environmental Mitigation Program (TxVEMP). The table below shows the vehicle types for each grant found, the grant amount available for the MSA, and the total grant amount requested as of 6/30/2022. As of 6/30/2022, the NO_x reduction for Austin area projects is estimated to total 107.38 tons. The Beneficiary Mitigation Plan for Texas and information about the grants can be found at www.TexasVWFund.org.

Table 3-5. TxVEMP Grant Funding for Austin Area as of 6/30/2022³⁹

Vehicle Grants	Grant Amount Available for Austin Area	Grant Amount Awarded in Austin Area as of 6/30/2022
School Buses, Shuttle Buses, and Transit Buses ⁴⁰	\$5,704,161	\$5,660,119.30
Refuse Vehicles including Garbage Trucks, Recycling Trucks, Dump Trucks, Chipper Trucks, Street Sweepers, and Roll-Off Trucks ⁴¹	\$4,074,401	\$1,505,280.00
Local Class 4-8 Freight and Drayage Trucks ⁴²	\$3,259,521	\$995,288.00

³⁸TCEQ. Summary of TNGVGP projects awarded by area. Access here: <https://www.tceq.texas.gov/downloads/air-quality/terp/reports/reports-projects-by-area-tngvgp.pdf>. Accessed 7/18/2023.

³⁹ Includes projects pending execution

⁴⁰ TCEQ. TxVEMP Projects for School Buses, Transit Buses, and Shuttle Buses. Access here: https://wayback.archive-it.org/414/20210527105031/https://www.tceq.texas.gov/assets/public/implementation/air/terp/VW/TxVEMP_Buses_Status_4.27.2020.pdf

⁴¹ TCEQ. TxVEMP Projects for Refuse Grant Round Status. Access here: <https://www.tceq.texas.gov/downloads/air-quality/terp/txvemp/refuse/txvemp-refuse-20-status-report.pdf>

⁴² TCEQ. TxVEMP Projects for Local Freight Trucks and Port Drayage Trucks Grant. Access here: <https://www.tceq.texas.gov/downloads/air-quality/terp/txvemp/freight/txvemp-freight-21-applications-received.pdf>

Vehicle Grants	Grant Amount Available for Austin Area	Grant Amount Awarded in Austin Area as of 6/30/2022
Zero Emission Vehicle Supply Equipment Grants - Level 2 Charging (Available statewide) ⁴³	\$10,465,958	\$7,392,500
Zero Emission Vehicle Supply Equipment Grants - Direct Current Fast Charging (Available statewide) ⁴⁴	\$20,934,042	\$1,800,000
Total	\$44,438,083	\$17,353,187.30

5.1.4 Lone Star Clean Fuels Alliance Clean Cities Program

CAPCOG worked closely with [Lone Star Clean Fuels Alliance \(LSCFA\)](#) in 2022. LSCFA is the region's Clean Cities Coalition hosted by the U.S. Department of Energy (DOE). As part of the DOE's national network of 75+ Clean Cities, LSCFA works with businesses and governments to increase their adoption of cleaner vehicle fuels and technologies and fuel efficiency measures.

In 2022, CAPCOG partnered with LSCFA to host virtual roundtables for organizations and utilities to prepare for electric vehicles (EVs). These roundtables focused on "readiness" for future EV growth and were speakers. The topics of the 2022 roundtables covered the types of planning and costs for Electric Vehicle Charging Equipment and EV funding opportunities. The EV Readiness Roundtables met on the following dates:

- February 17, 2022
- November 9, 2022

LSCFA members include:

- Air Products
- Ayro
- eCab of North America
- Henna Chevrolet-Nissan
- ONE Gas
- Opel Fuels
- Propane Council of Texas
- Roush
- Texas Gas Service
- Texas Natural Gas Foundation
- University of Texas - Parking and Transportation Services
- Xos Electric Trucks

In addition, the LSCFA held several meetings and workshops throughout 2022.

- Board Meetings:
 - January 12, 2022
 - April 14, 2022
 - October 12, 2022

⁴³ TCEQ. TxVEMP LEVEL2 Program: Level 2 Charging Equipment for Light-Duty Zero Emission Vehicles. Access here: <https://www.tceq.texas.gov/downloads/air-quality/terp/txvemp/zev/txvemp-levl2-21-applications-received.pdf>

⁴⁴ TCEQ. TxVEMP Light-Duty Zero Emission Vehicles Supply Equipment Direct Current Fast Chargers and Hydrogen Dispensing Equipment Projects Awarded. Access here: <https://www.tceq.texas.gov/downloads/air-quality/terp/txvemp/txvemp-dcfch-projects-awarded.pdf>

- Conference speaking roles:
 - Everything EV USA- June 22-24, 2022
- Listening Sessions:
 - Electrical Vehicle Charging Equipment - January 18, 2022
 - Electric Vehicle Charging Equipment - January 19, 2022
 - EV Refuse Hauler - August 19, 2023
- Ride and Drives:
 - XL Truck – February 22, 2022
 - Xos Battery-electric Step Band and Box Truck- June 20, June 21, June 22, 2023
- Site Visits and Demonstrations:
 - eCab site Visit - October 28, 2023
 - Power Pod Demo - October 12, 2022
- Webinars:
 - Retroactive Natural Gas & Propane Federal Motor Fuel Tax Incentive Workshop - November 10, 2022
- Grant Projects
 - Department of Energy’s Rural Mobility Project in Bastrop, Texas demonstration project using Low Speed Electric Vehicles as
 - Department of Energy project with The University of Texas demonstrating electric box trucks in real world applications
 - H₂@Scale Hydrogen - DOE, University of Texas at Austin, Frontier Energy and GT Energy

5.1.5 Clean Air Force of Central Texas and the Clean Air Partners Program

In 2022, CAPCOG worked closely with the [Clean Air Force of Central Texas \(CAFCT\)](#) to enhance outreach, education, and technical knowledge of air quality in Central Texas. CAFCT, CAPCOG, and the City of Austin partnered to hold the 2022 CLEAN AIR Luncheon for Meteorologists in Central Texas on June 8, 2022. The luncheon gathered 24 local meteorologists, weather forecasters, and guests from Central Texas news outlets. The presentations during the 2022 luncheon included an overview of Lower Colorado River Authority (LCRA) weather forecasting and a CAPCOG review of the previous year’s regional air quality.

In 2022, CAFCT continued its Air Quality Professional’s Forum (AQPF). The AQPF brings together air quality practitioners from CAF’s Clean Air Partners to network and learn. Quarterly lunch meetings with technical presentations by air quality experts provide training and interaction with other professionals from various industries. CAPCOG presented a quarterly regional air quality update of monitoring and NAAQS updates and participated in the 2022 AQPF meetings. The 2022 AQPF meetings were held in January, April, July, and October.

On November 2, 2022, the CAFCT held its annual Awards Luncheon Sponsored by H-E-B. At that Luncheon, Anton Cox, with CAPCOG/Air Central Texas, was named the 2022 “Clean Air Hero.” The Clean Air Hero Award recognizes individual accomplishments in helping maintain healthy air quality in Central Texas.

CAPCOG sits on the CAFCT Board of Directors, representing a broad spectrum of community, business, and government organizations. The CAF Board reviews and makes recommendations on air quality policy, public outreach, and technical issues. In 2022, the CAF Board met in February, May, August, and November

CAF's Clean Air Partners Program includes organizations outside of the CAC. The Clean Air Partners is a way to encourage businesses to act and positively impact air quality. The CAF Clean Air Partners include:

1. AECOM
2. Applied Materials, Inc.
3. Austin Community College
4. Austin FC
5. Austin Independent School District
6. Chemical Logic
7. Earn-A-Bike
8. Emerson Automation Solutions
9. Environmental Defense Fund
10. H-E-B
11. Huston-Tillotson University
12. NXP Semiconductors
13. Power Engineers
14. St. David's Health Care Partnership
15. Tokyo Electron (TEL)
16. University of Texas at Austin

In addition, several CAC members also participate in the Clean Air Partners Program:

1. CAPCOG
2. City of Austin
3. Central Texas Regional Mobility Authority (CTRMA)
4. Movability
5. Lone Star Clean Fuels Alliance (LSCFA)
6. Lower Colorado River Authority (LCRA)
7. Public Citizen – Texas
8. St. Edward's University
9. Travis County

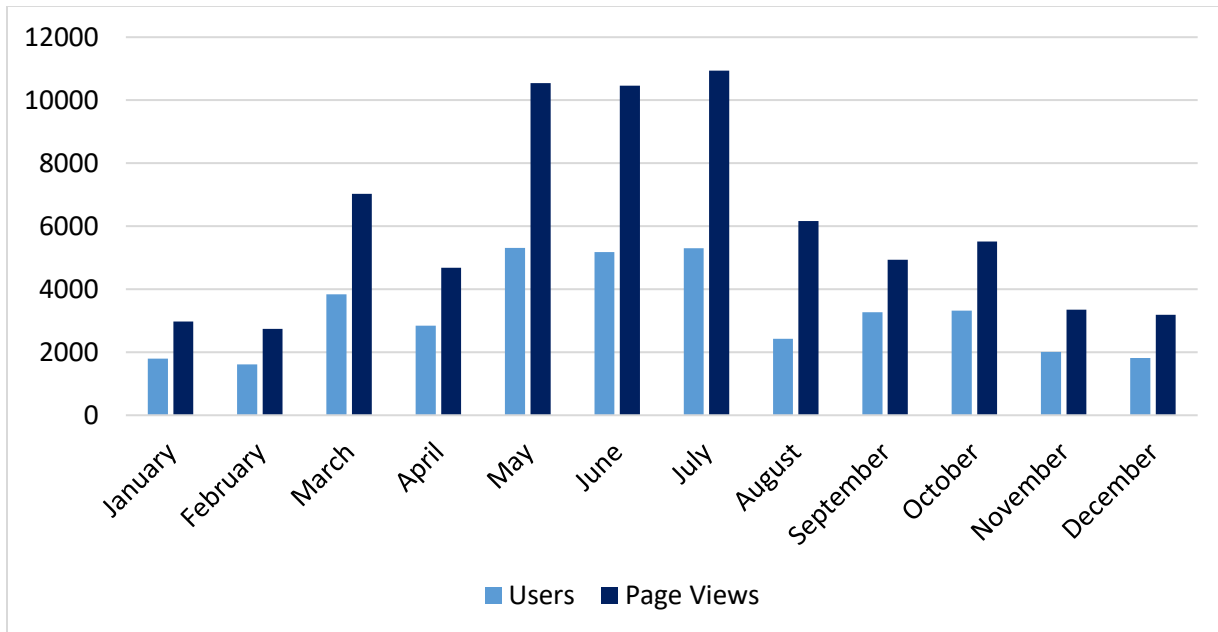
5.1.6 Air Central Texas Program Outreach and Education

One of the primary ways CAPCOG staff accomplished outreach goals during this period was through electronic outreach. Electronic outreach allows the program to provide air quality information to a large audience with limited resources. Electronic outreach completed during this period was carried out through the Air Central Texas (ACT) website, social media accounts, digital advertising, and ACT newsletters.

5.1.6.1 Air Central Texas Website

The ACT website (www.aircentraltexas.org) provides the public with information about Central Texas air quality, supports existing air quality programs, and promotes activities to protect local air quality. The goal is to motivate everyone to make decisions that are "Air Aware." In 2021, CAPCOG continued to maintain and update the ACT website. Figure 3-4 shows the number of users and page views for each month.

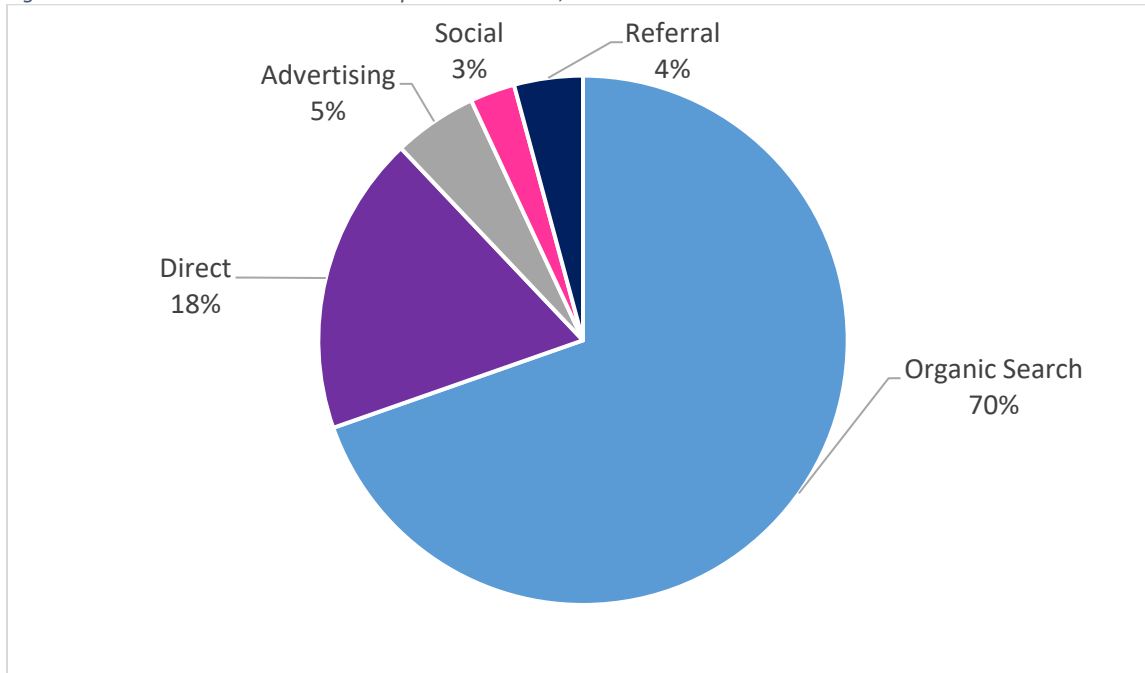
Figure 3-4. Air Central Texas Website Traffic, 2022



The increase in website visits during March coincides with the beginning of the O₃ season. Paid advertising helped increased page views in the summer months. May 2022 was the start of Air Quality Awareness Week and in addition to the first day with O₃ levels reaching “unhealthy” since 2013. An increase in high ozone concentrations, compared to the previous year, continued into June and July.

Figure 3-5 shows how website visitors found the site. 70% of all visitors found the website from an organic search of air quality terms in a search engine (e.g., Google or Bing). 18% of visitors used a direct web search in which the users typed in an ACT URL or were directed from an email or newsletter. Also, visitors found the site through paid advertising, social media links, and referrals from other websites – mainly the City of Austin and CAPCOG websites.

Figure 3-5. Air Central Texas Website Acquisition Method, 2022



The top ACT Webpages viewed in 2022 are listed below. Besides the homepage, the most visited pages were those that detail ground-level ozone in English and Spanish. It is notable that three of the top pages, #3, 9, and 10, are in Spanish.

Table 3-6. Top Air Central Texas Website Pages by Page Views, 2022

Page Rank	Page Title	Page Views
1	Home Page (English)	11,182
2	What is Ground-Level Ozone?	7,706
3	¿Qué es el ozono troposférico?	5,524
4	Air Quality Index (AQI)	1,163
5	2022 Air Quality Awareness Week - Wildfires (link unavailable)	1,130
6	Be Air Smart	1,033
7	2022 Air Quality Awareness Week (link unavailable)	974
8	Drive Cleaner	947
9	Índice de Calidad del Aire (AQI)	937
10	¿Quién está en Riesgo?	795

5.1.6.2 Air Central Texas Newsletter

The ACT newsletter is CAPCOG’s public-facing air quality newsletter. It provides the public with relevant air quality news, events, tips, and AQI data. Table 3-10 shows the data associated with each newsletter. Figure 3-6 displays an example of an ACT newsletter article.

2022 Air Quality Annual Report for the Austin-Round Rock-Georgetown MSA, August 18, 2023

Table 3-10. Air Central Texas Monthly Newsletters Campaign Summary, 2022

Campaign Name	Send Date	Recipients	Opens	Clicks
March 2022 Air Central Texas Newsletter	3/1/2022	187	45.99%	21.39%
April 2022 Air Central Texas Newsletter	4/1/2022	190	31.58%	5.79%
May 2022 Air Central Texas Newsletter	5/2/2022	193	26.84%	6.32%
June 2022 Air Central Texas Newsletter	6/1/2022	192	30.11%	10.75%
July 2022 Air Central Texas Newsletter	7/6/2022	196	32.45%	6.38%
August 2022 Air Central Texas Newsletter	8/9/2022	198	32.45%	9.57%
September 2022 Air Central Texas Newsletter	9/12/2022	193	35.29%	11.23%
October 2022 Air Central Texas Newsletter	10/18/2022	195	31.22%	11.64%
Clean Air Coalition honors 2022 Air Central Texas Awards	12/15/2022	872	26.28%	1.43%

Figure 3-6. Sample Newsletter Article from the August 2022 ACT Newsletter



Less Energy = Cleaner Air



Energy efficiency has everything to do with improving air quality. [Now more than ever](#) it is a great time to look at your home and see where you can improve efficiency. This month we want to share information from our friends at [STEER](#) (The South-central Partnership for Energy Efficiency as a Resource) on Heat Pumps.

Heat pumps offer cooling and heating by removing heat from the home in the summer and pulling heat into the home in the winter months. They are an energy-efficient alternative to traditional furnaces and air conditioners with a lower carbon footprint. Utilizing "staging" and "variable speeds" heat pumps have the ability to control your indoor temperature and humidity with consistency and comfort throughout the year in both hot and cold climates.

5.1.6.3 Social Media

CAPCOG maintains an [ACT Facebook account](#) with 677 followers, an [Instagram account](#) with 102 follows, and an [ACT Twitter account](#) with 235 followers. Figure 3-7 shows an example of a social media post. For 2022, the total impressions – the number of times a user saw a post – was 137,926 for social media.

Figure 3-7. Air Central Texas Facebook Post Example



5.1.6.4 Air Central Texas Advertising

Radio and digital ads were run in 2022 to promote ACT and air quality awareness. These ads are useful to reach people who are not active on social media or the internet. Radio ads were run on 4-5 radio stations per month, including one Spanish station (KLZT-FM). The ads were run from May through October when air quality is expected to be the worst in the MSA. Table 3-7 displays the relevant ad data for the radio ads.

Table 3-7. 2022 ACT Radio Ad Results

Ad Theme	Radio Station	Commercials	Reach ⁴⁵	Frequency ⁴⁶	Impressions ⁴⁷
Air Quality Awareness Week	Radio: KLBj-AM	20	53,300	1.8	97,500
	Radio: KBPA-FM	20	117,900	1.5	171,500
	Radio: KLZT-FM	20	40,800	1.8	71,500
	Radio: KLBj-FM	20	46,800	1.8	82,00
Anti-Idling	Radio: KLBj-AM	20	54,800	1.8	99,000
	Radio: KBPA-FM	20	115,100	1.5	167,000
	Radio KLZT-FM	20	42,500	1.7	70,500

⁴⁵ Reach is the number of unique users that see or hear the ad.

⁴⁶ Frequency is the average number of times a user sees or hears the ad.

⁴⁷ Impressions are the total number of times a user saw or heard the ad.

Ad Theme	Radio Station	Commercials	Reach ⁴⁵	Frequency ⁴⁶	Impressions ⁴⁷
	Radio: KLBJ-FM	20	51,600	1.7	90,000
Particulate Matter	Radio: KLBJ-AM	20	50,000	2.4	86,500
	Radio: KBPA-FM	20	110,900	1.4	160,500
	Radio: KLZT-FM	20	43,900	1.5	67,000
	Radio: KLBJFM	20	52,900	1.6	86,000
Back to School	Radio: KLBJ-AM	20	55,300	1.8	97,500
	Radio: KBPA-FM	20	110,500	1.4	158,500
	Radio: KLZT-FM	20	54,800	1.7	95,500
	Radio: KLBJ-FM	20	43,800	1.8	69,500
Festival Season - Alternative Transportation	Radio: KLBJ-AM	15	39,700	1.6	62,000
	Radio: KBPA-FM	15	97,800	1.3	130
Total		340	1,469,000	1.7	2,403,000

Additionally, ACT ran digital ads, which are ads on websites and Spotify. Spotify is a music streaming service that contains advertisements between songs. Table 3-8 displays the relevant ad data for the digital ads. Figure 3-8 displays an example of a digital ad for ACT.

Table 3-8. 2021 ACT Digital Ad Results

Ad Theme	Ad Display	Impressions
Air Quality Awareness Week	Website	198,163
Anti-Idling	Website	261,170
Particulate Matter	Website	213,065
Back to School	Website	190,799
Air Quality Awareness Week	Spotify	11,917
Anti-Idling	Spotify	26,146
Particulate Matter	Spotify	48,801
Back to School	Spotify	53,775
Ozone Pollution	Spotify	92,413
Total	n/a	1,096,249

Figure 3-8. 2022 ACT Digital Ad Example



5.1.6.5 In-Person Outreach and Education

In addition to electronic outreach, CAPCOG staff usually engages the public in-person at community events. Apart from the Meteorologist's Luncheon described in Section 3.1.5 and the Air Central Texas Awards described below, no in-person outreach occurred in 2022, due to the COVID-19 pandemic. In-person outreach has returned in 2023.

5.1.6.6 2022 Air Central Texas Awards

The Air Central Texas Awards celebrate the positive contributions of organizations and individuals to regional air quality in Central Texas. The goal is to recognize the great work happening across the region and to inspire future actions that support the region's ongoing air quality planning efforts. Below are details about the award recipients:

- **Outstanding Organization Award:** *City of Bastrop, Capital Area Rural Transportation System (CARTS) & Lone Star Clean Fuels Alliance (LSCFA)* - The three organizations coordinated the establishment of transit alternatives that blended electric taxicabs and smaller transit vehicles into an app-based on-demand micro-transit service. They used electric and fuel-efficient vehicles to provide a higher level of service to residents and visitors in Bastrop while reducing vehicle miles traveled and pollutants.
- **Media Award:** *David Yeomans* – for his exceptional media coverage of air quality over the past year as chief meteorologist at KXAN.
- **Environmental Education Award:** *Dr. Amy Concilio* - An Associate Professor of Environmental Science at St. Edward's University where she teaches climate change, natural resource conservation and management, and more. She is a leader in the Environmental Science and Policy program and one of the most popular instructors at the university. As an instructor, she believes strongly in ensuring that her students understand the value of trees in reducing air pollution.
- **2022 Air Central Texas Researcher Award:** *Dr. Paul Walter* - His findings in the field of air quality in Austin, San Antonio, and other areas of Texas. His research included ozonesonde, like a weather balloon but with ozone measurement tools included, launches to understand ozone

formation and concentrations in the atmosphere. His research revealed the ozone concentrations at different altitudes and how ozone is transported within the atmosphere.

- **2022 Air Aware Student Leadership Award:** *Ethan Tobias* – He is an intern with the Office of Sustainability for St. Edwards University. He is a campus leader who promotes renewable energy, the importance of trees, and using public transportation to help reduce air pollution. His work has elevated Climate Justice to one of the pillars of the university's strategic plan.
- **2022 Bill Gill Central Texas Air Quality Leadership Award:** *Christiane Heggelund* - received the for her long-lasting and distinguished work at the Capital Area Council of Governments. Christiane is an environmental scientist with 6+ years of supporting the CAPCOG Air Quality Program. Her work was crucial in implementing the display of CAPCOG air quality monitoring data on EPA's AirNow platform so residents of the region could access air quality data. She performed emissions inventory work to refine and improve the data, that TCEQ and EPA use, for the CAPCOG region in the on-road, non-road, and point source categories. Heggelund was also instrumental in the writing of two EPA grants for fine particulate matter monitoring, which CAPCOG was recently awarded.

Additional details and photos are available at <https://aircentraltexas.org/en/about/act-awards>.

5.1.6.7 Be Air Smart Program


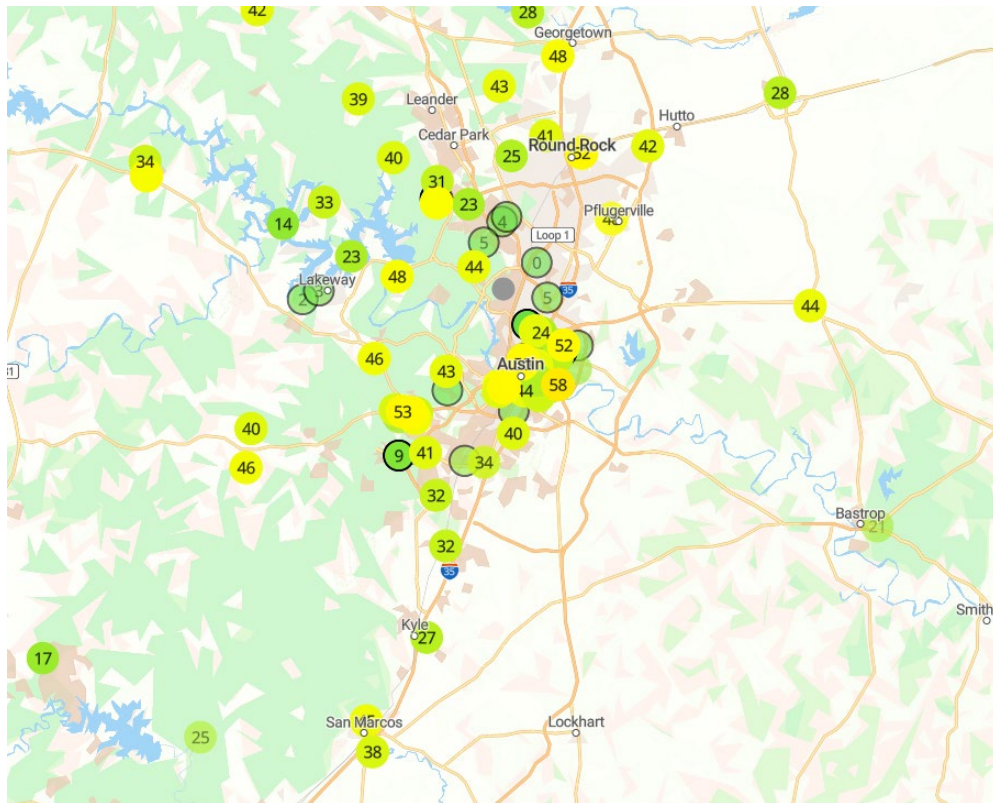
In 2022, the Air Central Texas Program launched the Be Air Smart program, an ongoing collaboration with the Clean Air Force of Central Texas, and Austin FC |Atlas to support air quality education by providing free Particulate Matter (PM) sensors to local organizations throughout Central Texas. This program empowers children, a sensitive group to air pollution, with the tools to better understand air quality by using a hyper-local outdoor particulate matter (PM) sensor that provides real-time information on air quality conditions. The program uses [PurpleAir](#) sensors that provide real-time PM concentrations with built-in Wi-Fi that enables the device to transmit data to the PurpleAir map, where it is stored and made publicly available  online.

Figure 3-9. PurpleAir Real Time Data Map, captured on July 26, 2023



5.1.6.8 Air Quality Permit Notice Map

In 2022, we created the Air Quality Permit Notice Map⁴⁸ which provide the public data about air quality permit request that is filed with the TCEQ. The map shows residents the locations of the permit requests and provides general information about what is being requested in the permits. Note that this map only includes the permit request that are required to complete public notice which per [30 TAC Chapter §122.320\(a\)](#), applies to all initial issuances, significant permit revisions, reopenings, and renewals.

5.1.7 Commute Solutions Program

The Commute Solutions program is the region-wide Travel Demand Management (TDM) program that promotes activities to increase the efficiency and use of existing roadways. This goal encourages shifts from less efficient travel behaviors like single-occupant vehicle use, vehicle use during peak congestion hours, and travel on high-congestion roadways, to more efficient behaviors like the use of public transit, carpools, vanpools, walking, biking, teleworking, alternative work schedules, and travel on less

⁴⁸ Access the Permit Notice Map here:

https://capcog.maps.arcgis.com/apps/Embed/index.html?webmap=73da9259d0de409da8e07a7e8543375c&extent=-102.167,27.7982,-94.2513,31.7403&zoom=true&scale=true&search=true&searchextent=true&legendlayers=true&disable_scroll=false&theme=light

congested roadways. Apart from air quality, other benefits of the program and other TDM activities include:

- Improved regional mobility;
- Improved safety outcomes;
- Reduced fuel consumption;
- Reduced time wasted in traffic;
- Improved workforce and economic development outcomes;
- Improved public quality of life; and
- Reduced space needed to service the transportation system

CAMPO operates the program; however, Movability’s “Get There Central Texas” and Travis County’s “Trip Reduction Incentive Program” are the main users to the Commute Solutions program’s main element for reaching its goal – myCommuteSolutions⁴⁹.

5.1.7.1 Movability’s “Get There Central Texas”

Movability is a 501(c)6 non-profit in Central Texas that is dedicated to working with employers and individuals to improve the region through TDM solutions. Movability’s “Get There Central Texas” program uses myCommuteSolutions to incentive sustainable trip modes like carpool, vanpool, bike, and transit trips. Below are 2022 stats from the program:

Table 3-9. Get There Central Texas Usage Stats, 2022

Mode	Trips Logged	Vehicle Miles Travel (VMT)	NO _x Emissions Saved (grams)	CO ₂ Emissions Saved (grams)	PM _{2.5} Emissions Saved (grams)
Bike	1,117	4,270	14,474	22,096,009	8,996
Bikeshare	105	330			
Bus	976	7,937			
Rail	84	1,304			
Telework	3,254	42,585			
Carpool	471	7,923			
Vanpool	1	11			
TOTAL	6,008	20,999,942	14,474	22,096,009	8,996

The Get There Central Texas is open to individuals but there is added focus given to Movability Member. Movability’s membership includes CAC members, Austin Community College, CAPCOG, CapMetro, CTRMA, City of Austin, and City of Round Rock. See all their members on the Movability website⁵⁰.

⁴⁹ myCommuteSolutions Website: <https://mycommutesolutions.com/#/>

⁵⁰ Movability Members: <https://movabilitytx.org/members>

5.1.7.2 Travis County's "Trip Reduction Incentive Program"

Travis County's "Trip Reduction Incentive Program" uses myCommuteSolutions to offer County employees incentives to use and record sustainable commutes. Below are 2022 stats from the program:

Table 3-10. Trip Reduction Incentive Program Usage Stats, 2022

Mode	Trips Logged	Vehicle Miles Travel (VMT)	NO _x Emissions Saved (grams)	CO ₂ Emissions Saved (grams)	PM _{2.5} Emissions Saved (grams)
Bike	3,030	10,401	1,181,452	417,200,707	115,124,113
Bikeshare	2	21			
Bus	22,646	343,549			
Rail	2,862	49,649			
Telework	99,702	726,606			
Carpool	6,470	94,822			
Vanpool	302	16,975			
TOTAL	135,014	1,242,023			

5.1.8 PACE Program

The PACE program provides an innovative mechanism for financing renewable energy and energy-efficiency improvements to industrial, commercial, multi-family residential, and non-profit buildings in participating jurisdictions. To address pay-back periods for energy efficiency and renewable energy (EE/RE) projects that may not align properly with a private property owner, the PACE program enables jurisdictions to put a property tax lien on a piece of property where an EE/RE improvement is made using private financing until the loan for the project has been paid back. PACE is authorized under state law in Section 399 of the Texas Local Government Code Chapter 399.51 Projects include:

- HVAC modification or replacement;
- Light fixture modifications such as LED;
- Solar panels;
- High-efficiency windows or doors;
- Automated energy control systems;
- Insulation, caulking, weather-stripping or air sealing;
- Water-use efficiency improvements;
- Energy- or water-efficient manufacturing processes and/or equipment;
- Solar hot water;
- Gray water reuse; and
- Rainwater collection systems.

In 2022, Bastrop, Hays, Travis, and Williamson Counties participated in PACE. Travis County and Williamson County adopted PACE in 2016. Hays County adopted it in 2017. Lastly, Bastrop County

⁵¹ <http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.399.htm>

adopted PACE on September 24, 2018. Therefore, Caldwell County is the only county in the MSA that does not participate in PACE.

As of July 2023, 11 of the 79 completed PACE projects in the state were in Bastrop, Hays, Travis, and Williamson Counties. Table 3-12 summarizes key data from the projects for each county⁵². For more information on PACE, visit <http://www.texaspaceauthority.org/>.

Table 3-12. PACE Project Summary for Austin-Round Rock-San Marcos MSA as of July 2023

County	Projects	Investments	Jobs Created	CO ₂ Reduced (tons/yr.)	Water Saved (gallons/yr.)	Energy Saved (kWh/yr.)
Bastrop	1	\$120,000	2	49	n/a	94,081
Hays	1	\$1,800,000	10	429	3,139,000	824,903
Travis	7	\$17,311,960	211	1,825	3,181,000	3,247,917
Williamson	2	\$1,767,982	14	1,018	1,780,000	1,956,657
TOTAL	11	20,999,942	237	3,321	8,100,000	6,123,558

5.2 ORGANIZATION-SPECIFIC MEASURES AND UPDATES

This section provides updates on measures implemented by CAC members. Supplemental electronic files provide detailed, measure-by-measure, organization-by-organization details. These measures are based on reports collected from CAC members in May and June 2022.

Organizations that provided a report to CAPCOG included:

1. Bastrop County;
2. CAPCOG;
3. City of Austin;
4. City of Bastrop;
5. City of Bee Cave;
6. City of Buda;
7. City of Cedar Park;
8. City of Elgin;
9. City of Kyle;
10. City of Lakeway;
11. City of Pflugerville;
12. City of Round Rock;
13. City of San Marcos;
14. City of Taylor;
15. CLEAN Air Force;
16. Hays County;
17. Movability;
18. Lone Star Clean Fuels Alliance (LSCFA);
19. Lower Colorado River Authority (LCRA);
20. Texas Commission on Environmental Quality (TCEQ);

⁵² <https://pace.harcresearch.org/>

21. Texas Department of Transportation (TxDOT);
22. Texas Lehigh Cement Company;
23. Travis County; and
24. Williamson County.

Organizations that did not report as of the date of this report included:

1. Austin White Lime Company;
2. Caldwell County;
3. CAMPO;
4. CapMetro;
5. Central Texas Regional Mobility Authority (CTRMA);
6. City of Hutto;
7. City of Georgetown;
8. City of Lago Vista;
9. City of Leander;
10. City of Lockhart;
11. City of Luling;
12. City of Sunset Valley;
13. Huston-Tillotson University;
14. Federal Highway Administration;
15. Lone Star Chapter of the Sierra Club;
16. Public Citizen;
17. St. Edwards University; and
18. Texas Parks and Wildlife Department (TPWD)

5.2.1 Emission Reduction Measures

A total of 23 CAC members reported on their implementation of Tier 1 and 2 NO_x emissions reduction measures as well as PM_{2.5} emission reduction measures in 2022. A summary of the number of organizations that implemented each measure is listed below. Organization-specific information is available in the Appendix.

- Tier 1
 - Educating employees about regional air quality and encouraging them to sign up for daily air quality forecasts and Ozone Action Day alerts = **14 organizations**
 - Where feasible, encourage employees to telecommute at least once a week and on all Ozone Action Days = **13 organizations**
 - When employees are not telecommuting, encourage them to take low-emission modes of transportation, such as carpooling, vanpooling, transit, biking, and walking = **11 organizations**
 - Where flexible schedules are allowed, encourage employees to consider work schedules with start times earlier than 8 am rather than later in the morning due to the higher impact of emissions on O₃ levels later in the morning = **18 organizations**
 - Conserve energy, particularly on Ozone Action Days = **16 organizations**
 - Establish and enforce idling restriction policies for use of organization's vehicles, equipment, and property = **12 organizations**

- Establish fleet management policies that prioritize the use of vehicles and equipment with low NO_x rates = **11 organizations**
- Educate fleet users on driving and equipment operation practices that can reduce NO_x emissions = **12 organizations**
- Reschedule discretionary emission-generating activities such as engine testing and refueling to late afternoon rather than the morning, particularly on Ozone Action Days = **10 organizations**
- Seek funding to accelerate replacement of older, higher-emitting vehicles and equipment with newer, cleaner vehicles and equipment, such as Texas Emission Reduction Plan (TERP) grants = **8 organizations**
- Tier 2
 - Establish low-NO_x purchasing policies for new on-road vehicles, non-road equipment, and stationary equipment = **5 organizations**
 - Establish “green” contracting policies to encourage the use of low-NO_x vehicles and equipment and avoid the use of engines during the morning on Ozone Action Days = **1 organization**
 - Purchase higher-grade gasoline with lower sulfur content in August and September = **2 organizations**
 - Provide incentives to employees to avoid single-occupancy vehicle commuting, particularly on Ozone Action Days = **1 organization**
 - Optimize combustion and pollution controls for NO_x reductions, particularly on Ozone Action Days = **2 organizations**
 - Enforce vehicle idling restrictions within the community [either through an ordinance if a city or a memorandum of agreement with TCEQ if a county] = **5 organizations**
 - Educating the public about regional air quality and encouraging them to sign up for daily air quality forecasts and Ozone Action Day alerts = **16 organizations**
- PM_{2.5} Emission Reduction Measures
 - Reduce PM emissions from construction and demolition activities
 - Implement within own organization’s operations = **9 organizations**
 - Encourage or require 3rd party organizations to implement = **10 organizations**
 - Educate and encourage the public at large to implement = **8 organizations**
 - Reduce PM emissions from commercial cooking/charbroiling
 - Implement within own organization’s operations = **0 organizations**
 - Encourage or require 3rd party organizations to implement = **2 organizations**
 - Educate and encourage the public at large to implement = **1 organization**
 - Reduce PM emissions from road dust
 - Implement within own organization’s operations = **9 organizations**
 - Encourage or require 3rd party organizations to implement = **10 organizations**
 - Educate and encourage the public at large to implement = **6 organizations**
 - Reduce PM emissions from mining and quarrying activities
 - Implement within own organization’s operations = **1 organization**
 - Encourage or require 3rd party organizations to implement = **1 organization**

- Educate and encourage the public at large to implement = **1 organization**
- Reducing PM emissions from open burning
 - Implement within own organization’s operations = **7 organizations**
 - Encourage or require 3rd party organizations to implement = **9 organizations**
 - Educate and encourage the public at large to implement = **8 organizations**
- Reduce PM emissions or impact of PM emissions from prescribed burning on high PM days
 - Implement within own organization’s operations = **6 organizations**
 - Encourage or require 3rd party organizations to implement = **7 organizations**
 - Educate and encourage the public at large to implement = **7 organizations**
- Reduce emissions from mobile sources year-round
 - Implement within own organization’s operations = **7 organizations**
 - Encourage or require 3rd party organizations to implement = **5 organizations**
 - Educate and encourage the public at large to implement = **5 organizations**
- Reduce emissions from stationary combustion sources year-round
 - Implement within own organization’s operations = **5 organizations**
 - Encourage or require 3rd party organizations to implement = **4 organizations**
 - Educate and encourage the public at large to implement = **3 organizations**
- Installation additional PM_{2.5} monitors/sensors within the region
 - Implement within own organization’s operations = **7 organizations**
 - Encourage or require 3rd party organizations to implement = **6 organizations**
 - Educate and encourage the public at large to implement = **4 organizations**
- Promote awareness of health effects of PM air pollution
 - Implement within own organization’s operations = **13 organizations**
 - Encourage or require 3rd party organizations to implement = **7 organizations**
 - Educate and encourage the public at large to implement = **9 organizations**

If these organizations provide data after this report, CAPCOG will provide an updated version of this report.

5.2.2 Idling Restrictions

The following jurisdictions implement idling restrictions, either with a local ordinance, through a memorandum of agreement (MOA) with TCEQ, or both.

Table 3-13. Jurisdictions Implementing Idling Restrictions in the Austin-Round Rock-San Marcos MSA, 2022

Jurisdiction	Local Ordinance	TCEQ MOA
City of Austin	<input checked="" type="checkbox"/>	<input type="checkbox"/>
City of Bastrop	<input checked="" type="checkbox"/>	<input type="checkbox"/>
City of Elgin	<input checked="" type="checkbox"/>	<input type="checkbox"/>
City of Georgetown	<input checked="" type="checkbox"/>	<input type="checkbox"/>
City of Hutto	<input checked="" type="checkbox"/>	<input type="checkbox"/>
City of Lockhart	<input checked="" type="checkbox"/>	<input type="checkbox"/>
City of Round Rock	<input checked="" type="checkbox"/>	<input type="checkbox"/>
City of San Marcos	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Bastrop County	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Jurisdiction	Local Ordinance	TCEQ MOA
Travis County	<input type="checkbox"/>	<input checked="" type="checkbox"/>

These idling restrictions are “passive” controls in that the jurisdictions will respond to complaints when they are made, but they don’t devote dedicated resources to idling restriction enforcement.

5.2.3 CapMetro Sustainability Vision Plan

In April 2022, CapMetro approved the Sustainability Vision Plan which outlines the path to integrating sustainability into CapMetro’s operations and capital projects. One of the goals of this plan is to be carbon neutral by 2040. To do this the plan calls for focus on electrifying their fleet and maximizing the amount of renewable wind and solar energy that are used to power vehicles and buildings. The plan also considers construction activities, building materials choices, procurement processes, and employee travel. While this plan is focused on carbon emissions, there are co-benefits for both ozone and PM_{2.5} concentrations.

5.2.4 Shutdown of Decker 2 Steam Unit

Austin Energy announced updates to its generation portfolio in 2021⁵³ which included the shutdown of Decker 2 Steam Unit which occurred in March 2022. This was pushed back from 2021. Austin Energy already met its goal of shutting down steam unit 1 in 2020. Due to its location and high NO_x emissions on high O₃ days (see Section 2.4), despite load-shifting that would be expected to occur that would result in higher output at other fossil-fuel plants in the Electric Reliability Council of Texas (ERCOT) grid, these actions are expected to significantly reduce peak O₃ concentrations in the next few years.

6 ONGOING PLANNING ACTIVITIES

This section documents notable air quality planning milestones and activities completed in 2022.

6.1 EPA ENHANCED AIR QUALITY MONITORING FOR COMMUNITIES GRANT

On December 13, 2021, EPA announced the availability of \$20 million in American Rescue Plan funding through competitive grants to enhance ambient air quality monitoring in and near underserved communities across the United States. CAPCOG applied for and received funding for two projects under this grant:

1. Fund seven continuous PM_{2.5} research-grade monitors and 20 PurpleAir PM sensors to improve the understanding of PM concentrations around the region.
2. Fund one speciated PM_{2.5} research-grade monitor to understand the composition of PM_{2.5} in the region.

CAPCOG anticipates that work on both projects will begin in Fall 2023.

⁵³ <https://austinenergy.com/ae/about/news/news-releases/2021/austin-energy-announces-generation-portfolio-update>

6.2 CLEAN AIR COALITION MEETINGS

During 2022, there were a total of five Clean Air Coalition meetings:

- February 9, 2022
- March 2, 2022
- May 5, 2022
- August 10, 2022
- November 9, 2022

Significant policy-related actions taken by the CAC in 2022 included:

- A comment letter to EPA regarding a revised Heavy Duty Vehicle Engine Standard
- A comment letter to EPA regarding the Cross State Air Pollution Rule Revision

The Clean Air Coalition Advisory Committee (CACAC) met four times:

- January 27, 2022
- May 2, 2022
- July 25, 2022
- October 10, 2022

6.3 STATEWIDE AND REGIONAL COLLABORATIVE INITIATIVES

CAPCOG participated in several statewide and regional air quality-related initiatives in 2022, which are listed below.

6.3.1 Air Quality, Equity, and EV Working Group

CAPCOG participated in a statewide “Air Quality, Equity, and EV Working Group” that is comprised of staff from other COGs, non-profits, universities, and other stakeholders. The group discusses air quality-related issues as it pertains to general air quality, EVs, and equity. The group met at least monthly in 2022.

6.3.2 SPEER’s City Efficiency Leadership Council

CAPCOG participated in the [South-central Partnership for Energy Efficiency as a Resource’s \(SPEER’s\) City Efficiency Leadership Council \(CELC\)](#). The CELC is a collaborative network of Texas cities, school districts, and other government entities engaged in partnership and resource exchange in an effort to expand the adoption of energy management best practices in the public sector. CAPCOG participated in quarterly CELC meetings and participated in several CELC webinars.

6.3.3 Texas Clean Air Working Group

CAPCOG participated in Texas Clean Air Working Group (TCAWG) meetings in 2022. This is a state-wide group that presents and discusses local air quality planning efforts across the state of Texas.

6.4 REGIONAL AIR QUALITY TECHNICAL RESEARCH ACTIVITIES

CAPCOG completed several air quality technical research activities in 2021 including:

- 2021 Austin-Round Rock-San Marcos MSA Air Quality Report
- Monitoring Projects:
 - Continued O₃ and meteorological data collection at eight CAPCOG-owned monitoring stations in the region to supplement the two TCEQ O₃ monitors in the region.
 - Collection of PM monitoring data from PurpleAir sensors at all CAPCOG CAMS
 - 2022 Air Quality Monitoring Report
- Modeling and Data Analysis Project:
 - 2021 Air Quality Monitoring Data Analysis
- Emission Inventory Projects:
 - Review of 2020 Emissions and Activity Data
 - Review of 2020-2021 Point Source Emissions Inventory
 - Point Source Emissions Inventory Refinement

7 PLANNING FOR THE FUTURE

This section details some important issues to note for the region's air quality plan moving forward, including new issues that have arisen between the end of 2022 and the completion of this report.

7.1 EPA RECONSIDERATION OF NAAQS FOR O₃ AND PM

Two of the key issues that CAPCOG is tracking is the EPA's reconsideration of its decisions in late 2020 to retain the 2012 PM NAAQS and 2015 O₃ NAAQS. Some of the ranges being considered for these NAAQS could put the region at risk of being designated nonattainment at some point in the coming years.

7.1.1 PM NAAQS Reconsideration

On January 6, 2023, the EPA announced its proposed decision to revise the primary (health based) annual PM_{2.5} standard from its current level of 12.0 µg/m³ to within the range of 9.0 to 10.0 µg/m³. EPA also proposed not to change the current:

- secondary (welfare based) annual PM_{2.5} standard,
- primary and secondary 24-hour PM_{2.5} standards, and
- primary and secondary PM₁₀ standards.

Travis County currently has a 2020-2022 annual PM_{2.5} design value of 9.3 µg/m³ which places the region at serious risk of exceeding the revised standard. CAPCOG is currently awaiting the final proposal from the EPA which is expected to be announced in the second half of 2023.

The CAC is currently working to put more focus on PM_{2.5} planning which will help the region better understand the pollutant and develop strategies to reduce concentrations. We are doing this by looking to install eight PM_{2.5} monitors around the region, as detailed in section 4.1, and using state air quality funds on PM_{2.5} planning, detailed in section 5.3.

7.1.2 O₃ Reconsideration

On November 1, 2021, EPA announced that it will reconsider the previous administration's decision to retain the O₃ NAAQS.⁵⁴ In March 2023, EPA released their draft policy assessment v2 for reconsideration of the 2020 O₃ NAAQS and in this document, they concluded that "the newly available evidence does not lead to different conclusions regarding the respiratory effects of O₃". This finding suggests that the EPA is unlikely to revise the current O₃ NAAQS, however, there are still several milestones that the EPA must complete before the reconsideration is concluded, which include releasing the final version of the policy assessment, a draft proposal from the EPA administrator, and allowing and responding to public comments. CAPCOG anticipates that the O₃ reconsideration will not be complete until the first half of 2024.

7.2 RIDER 7 GRANT PROGRAM

The "Rider 7 Grant Program" refers to Rider 7 in the TCEQ's budget, which directs the agency to award grants for local/regional air quality planning in "near-nonattainment areas". In the 88th State of Texas Legislative Session, the legislator approved updates to this rider which expands the eligible uses of the funds from O₃ emissions inventories and O₃ monitoring to include PM_{2.5} emissions inventories, PM_{2.5} monitoring, PM_{2.5} modeling, and PM_{2.5} data analysis. The overall budget of the rider also increased from \$4.5 million to \$7 million. These changes apply to FY 2024 and FY 2025.

TCEQ has not yet announced how the rider will be allocated across the state, however, based on how the agency has previously allocated the rider, CAPCOG is anticipating additional funding for the region. Rider 7 funding from the FY 2022 – FY 2023 biennial was \$1.1 million, for the FY 2024 – FY 2025 biennial CAPCOG has estimated \$1.3 million to \$1.5 million. This increase is mainly due to the increased size of the rider but also the reduced number of O₃ near nonattainment areas in the state, and the rapid growth of the region.

7.3 PM_{2.5} PLANNING

After many years of working towards increasing the region's focus on PM_{2.5} issues, like adding PM to the 2019 – 2026 Regional Air Quality Plan in 2021 and the new funding sources detailed in section 4.1 (EPA Enhanced Air Quality Monitoring for Communities Grant) and 5.2 (Rider 7 Grant Program), the region is expected to have increased support to launch more robust PM_{2.5} planning projects. Upcoming projects are expected to include expanding the PM_{2.5} monitoring network beyond the TCEQ monitoring network detailed in section 4.1 (EPA Enhanced Air Quality Monitoring for Communities Grant), performing emissions inventory projects that will help us refine our understanding of PM emissions from specific activities, and using PM_{2.5} models to better understand where and how the emissions move across our region.

This will be critically important to the region as the EPA continues to review the current PM NAAQS and is expected to lower the annual PM_{2.5} standard from 12.0 µg/m³ to a level that would position the region much closer to exceeding it. The EPA NAAQS decision will likely not be finalized until early 2024 at the

⁵⁴ <https://www.epa.gov/ground-level-ozone-pollution/epa-reconsider-previous-administrations-decision-retain-2015-ozone>

soonest and it is likely the nonattainment designation will not be announced until up to two years after that. This provides the region with a short but important amount of time to launch projects that will help avoid a nonattainment designation or if designated a nonattainment area, allow the region to reach compliance more efficiently with the standard.

8 CONCLUSION

In general, 2022 air quality conditions in the Austin metro were among the worse the region experience in the last 12 years. It was the first time the region recorded ozone concentrations that reached the “unhealthy” AQI levels since 2013. In addition, the region had the most days in which ozone concentrations reached an AQI level considered “unhealthy for sensitive groups” or worse since 2011.

While the region remains in compliance with all federal air quality regulations, the poor ozone season in 2022 and the likely upcoming revision of the annual PM_{2.5} NAAQS, could significantly increase the region’s potential to exceed federal regulations for the first time.

It will be important to monitor PM_{2.5} concentrations in the region. The PM NAAQS are currently under reconsideration and there is a possibility that the region could be closer to or exceeding the standard soon. Compared to O₃ there has been a lot less investment in PM planning monitoring efforts in the region and thus there is a lot more uncertainty about the conditions that lead to greater PM levels.

Emissions in the region continue to decline as older equipment is replaced with newer cleaner technologies. There was an increase in vehicles inspected in Travis and Williamson County indicating that while the region grows, improvements in vehicle emissions may be enough to see continued decreases in on-road emissions.

Moving forward, CAPCOG and the CAC should work to:

- Expand the monitoring network for both PM_{2.5} and O₃ in the region.
- Promote activities that reduce NO_x emissions in the region.
- Work to better understand PM emissions in the region.
- Continue to monitor regulatory activities at the state and federal levels.

9 APPENDIX

CAC members reported on their implementation of Tier 1 and 2 emissions reduction measures in 2022. Organization-specific measures and information that were implemented are provided in this Appendix as an Excel workbook.

[2022 Clean Air Coalition Membership Actions Survey Results](#)