

Draft
Triennial Assessment and Plan Update



YOLO-SOLANO
AIR QUALITY MANAGEMENT DISTRICT

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Triennial Assessment and Plan Update

Prepared for:

California Air Resources Board

Prepared by:

Yolo-Solano Air Quality Management District
1947 Galileo Court, Suite 103
Davis, CA 95618
Phone: 530-757-3650

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Yolo-Solano Air Quality Management District

Executive Director/APCO

Gretchen Bennitt

The following individuals contributed to the preparation of the Triennial Assessment and Plan Update for the Yolo-Solano Air Quality Management District:

Benjamin Beattie, Deputy Air Pollution Control Officer

Mike Breuning, Air Quality Monitoring Technician

Eden Winniford, Associate Air Quality Planner

Executive Summary

The California Clean Air Act (CCAA) of 1988 requires submission of a plan for attaining and maintaining state ambient air quality standards for ozone with subsequent updates every three years. This Triennial Assessment and Plan Update (Plan) discusses the progress the Yolo-Solano Air Quality Management District (District) has made towards improving the air quality in its jurisdiction since its last Triennial Plan Update, which addressed the 2015-2017 time period. This Plan will examine the years 2018 through 2023.

This is the ninth update to the District's original 1992 Air Quality Attainment Plan (AQAP) and includes:

- Information about emission reductions achieved during the 2018 – 2023 period;
- District emission inventory and emission forecasts;
- Air quality data and analysis of air quality trends; and
- Proposed commitments for the 2024-2026 period.

The State has set two health-based standards for ozone. The 1-hour standard is exceeded when monitored ground-level ozone exceeds 0.09 parts per million (ppm) during a one-hour period. The 8-hour standard is exceeded when levels exceed 0.070 parts per million over any 8-hour period. From 2018 through 2023, the State 1-hour standard was exceeded twice at the District's Woodland monitoring site, once at the Vacaville site, and once at the Davis site. Over the same time period, the State 8-hour standard was exceeded on nine days at the District's Woodland monitoring site, five days at the Vacaville site, and five days at the Davis site. Examining the actual number of exceedances of State standards over time, the District has shown a steady improvement in air quality. This improvement is also evident when looking at ozone exposure indicators over the last 20 years.

The CCAA requires air districts to adopt all feasible control measures¹. The District conducted an "all feasible measure" analysis for ozone control measures as part of the Sacramento Regional 2015 NAAQS 8-Hour Ozone Attainment & Reasonable Further Progress Plan². The District believes that this analysis represents the most up-to-date information currently available and is adequate for the all-feasible-measures requirement for this Triennial Plan update. The ozone trend analysis indicates that the District will need to rely heavily on mobile source control measures implemented by the State to make significant further progress towards achieving the state ozone standard.

The District is not required to prepare an attainment plan for particulate matter measuring 10 microns or less in diameter (PM10) or 2.5 microns or less in diameter (PM2.5). However, the District continues to work to reduce particulate emissions through rules affecting stationary sources, the construction industry, and the District's agricultural burning program. The District also works with the California Air Resources Board (CARB) to identify measures that can, where possible, reduce both ozone and particulate emissions. The District has been proactive in its attempt to implement the most readily available, feasible, and cost-effective measures that can be employed to reduce emissions of PM10 and PM2.5.

¹ California Health and Safety Code (H&SC) §70600(a)

² <https://www.ysaqmd.org/wp-content/uploads/2023/08/Sac-Regional-2015-NAAQS-8-hr-O3-Attainment-and-RFP-with-Appendices.pdf>

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1. Introduction

1.1 District Background

The Yolo-Solano Air Quality Management District (District) is one of 35 air districts in California established to protect air quality. The District includes Yolo County and the northeastern portion of Solano County. Figures 1 and 2 illustrate the District's jurisdiction in relation to the Sacramento Valley Air Basin.

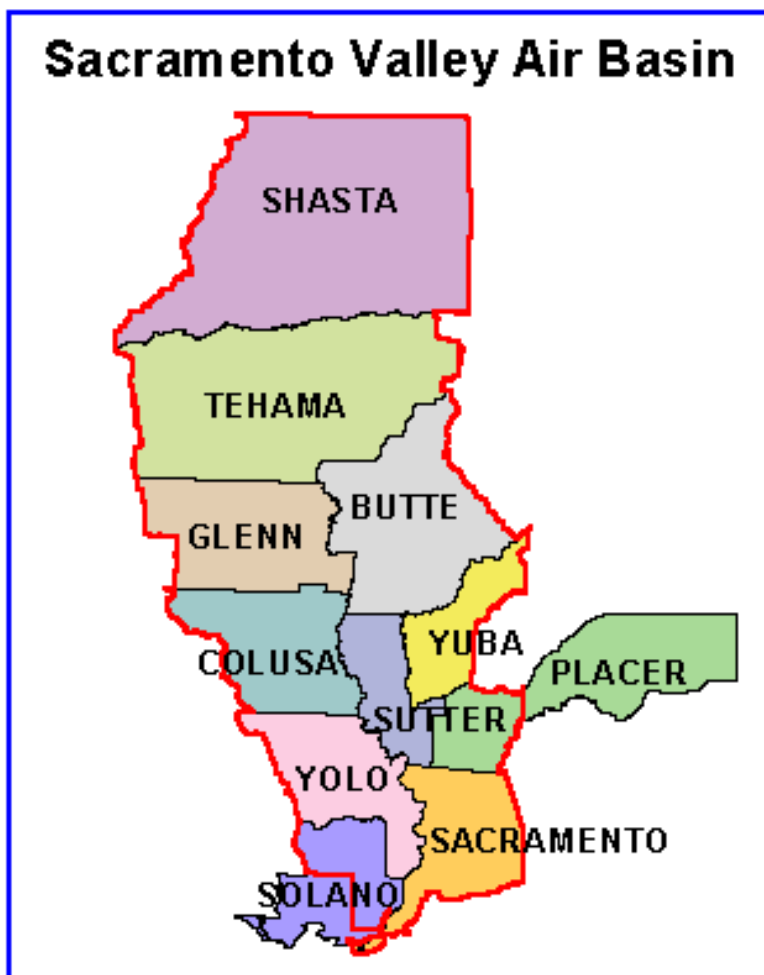
The District is responsible for achieving and maintaining healthful air quality for its residents. The District accomplishes this by establishing and enforcing emission control rules for stationary and area-wide sources of air pollution. Although the District does not have direct jurisdiction over mobile source emissions, which make up a large portion of the District's emissions inventory, the District provides financial incentives and employs public education campaigns to encourage mobile source emission reductions. These efforts further the District's goals of limiting public exposure to air pollution and attaining all state and federal health-based ambient air quality standards.

The California Clean Air Act (CCAA) includes provisions requiring areas to attain State ambient air quality standards for ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, and particulate matter (PM₁₀ and PM_{2.5}). The District has attained each of these standards, with the exceptions of ozone and the particulates. The CCAA includes provisions requiring areas that have not attained State ambient air quality standards for ozone, carbon monoxide, sulfur dioxide, or nitrogen dioxide to prepare plans to attain these standards by the earliest practicable date³. A plan for particulates is not required.

Accordingly, the District's original Air Quality Attainment Plan (AQAP) was developed pursuant to the CCAA requirements and identified feasible emission control measures to provide for expeditious progress towards attaining the State ozone standard. The District's Board of Directors adopted the AQAP on February 19, 1992 and CARB approved it on May 28, 1992. The District updated the AQAP by the end of 1994 and is required to provide reports once every three years thereafter describing the progress the District has made towards attaining the state standard. Control measures included in the original AQAP and all AQAP updates focus on stationary and some area-wide sources because they are under the District's authority.

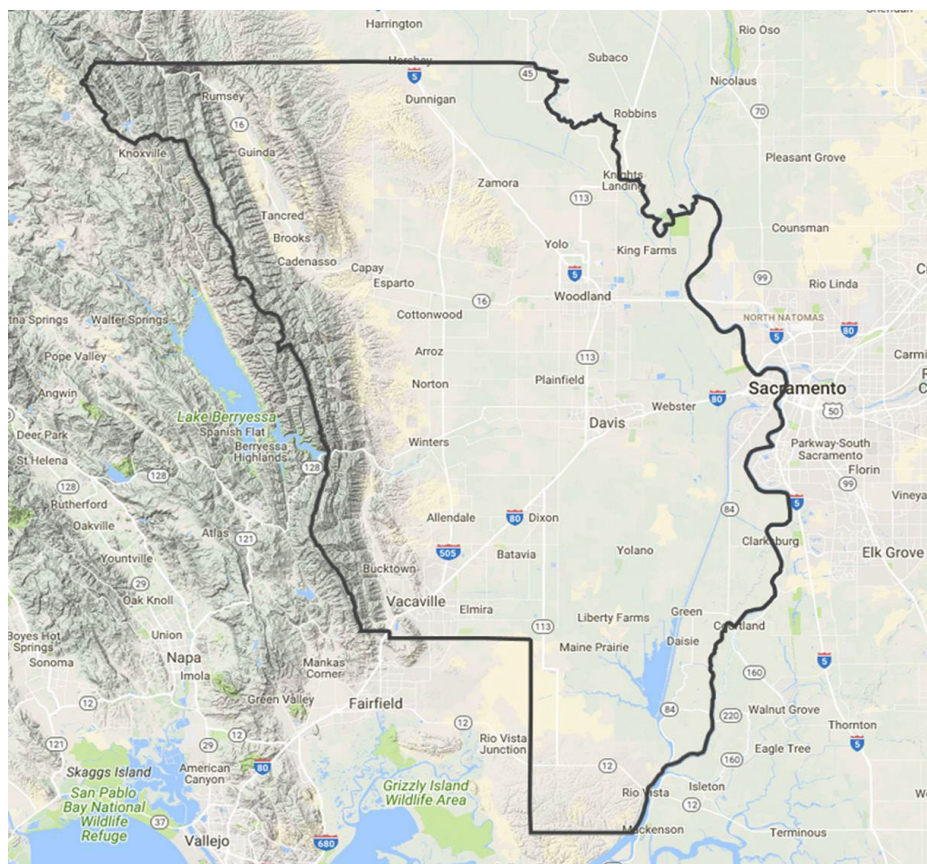
³ H&SC §40911(a)

Figure 1: Sacramento Valley Air Basin⁴



⁴ <https://ww2.arb.ca.gov/sites/default/files/classic/isd/fuels/gasoline/rvp/airbasinbw.pdf>

Figure 2: District Jurisdiction



1.2 Ozone

At certain levels, ozone can impact lung function by irritating and damaging the respiratory system. Ozone can also be harmful to crops and vegetation and can damage rubber, plastic, and other materials. Ozone is not a directly emitted pollutant, but is formed in the atmosphere by certain “precursor” pollutants. Consequently, the pollutants addressed by the AQAP are the ozone precursors, volatile organic compounds (VOC) and oxides of nitrogen (NOx).

In 1988, CARB adopted a 1-hour ozone standard of 0.09 parts per million (or 180 µg/m³). In 1997, CARB assigned designations to individual counties for this standard, and the District was determined to be in nonattainment. On July 26, 2007, the State adopted a more stringent 8-hour ozone standard of 0.070 ppm (or 137 µg/m³) in addition to the 1-hour standard. This new 8-hour standard was developed in part to achieve greater protection for sensitive groups. The District was subsequently found to be in nonattainment of the standard by CARB.

1.3 Particulate Matter (PM)

Particulate matter (PM) larger than 2.5 microns and less than 10 microns, often referred to as coarse PM, is mostly produced in the District by automobile tire wear, industrial processes such as cutting and

grinding, and suspension of particles from the ground or road surfaces by wind and human activities such as vehicle operation, construction or agriculture.

In contrast, PM less than or equal to 2.5 microns in diameter (fine PM or PM_{2.5}) is mostly derived from fuel combustion sources, such as automobiles, trucks, and other vehicle exhaust, as well as from stationary combustion sources. The particles can be either directly emitted or formed secondarily in the atmosphere when gases such as NO_x and sulfur oxides (SO_x) combine with ammonia.

When the California Legislature passed the CCAA in 1988, it recognized the difficulty in managing PM. Therefore, State law does not require attainment plans for State PM standards. Even so, PM emissions are being reduced through enforcement of District rules, technological advancements in industry, and implementation of agricultural burning programs.

1.4 Requirements of the CCAA

The CCAA requires an air quality strategy that will achieve a five percent average annual ozone precursor emission reduction or, if that is not achievable, an expeditious schedule for adopting every feasible emission control measure under air district purview (H&SC §40914).⁵

This Plan Update addresses the progress the District has made towards achieving the 1-hour and 8-hour ozone California Ambient Air Quality Standards (CAAQS). The Plan complies with all of the following applicable progress report and plan revision requirements of the CCAA. The CCAA requires that the plan:

- Assess the extent of ozone air quality improvement achieved during the preceding three years⁶;
- Describe rates of total emission reductions over the preceding three years and incorporate updated projections of population, industry, and vehicle-related emissions growth⁷;
- Identify the proposed and actual dates for adopting and implementing District control measures⁸, and compare the expected emission reductions for each control measure to a newly revised estimate⁹;
- Include an updated schedule for expeditiously adopting every feasible control measure for emission sources under District purview¹⁰;
- Include an assessment of the cost-effectiveness of available and proposed control measures and contain a list which ranks the control measures from the least cost-effective to the most cost-effective¹¹; and
- Determine whether a State-mandated, no-net-increase permitting program (i.e., State emission offset requirements) is necessary to achieve and maintain the State ozone standard by the earliest practicable date¹².

⁵ The term "feasible" is not specifically defined in the CCAA. However, the statutory criteria for assessing a potential control measure include cost effectiveness, technological feasibility, total emission reduction potential, the rate of emission reduction, public acceptability, and enforceability [H&SC 40922(a)].

⁶ H&SC §40924(b)(1)

⁷ H&SC §40925(a)

⁸ H&SC §40924(a)

⁹ H&SC §40924(b)(2)

¹⁰ H&SC §40914(b)(2)

¹¹ H&SC §40922(a)

¹² H&SC §40918.6

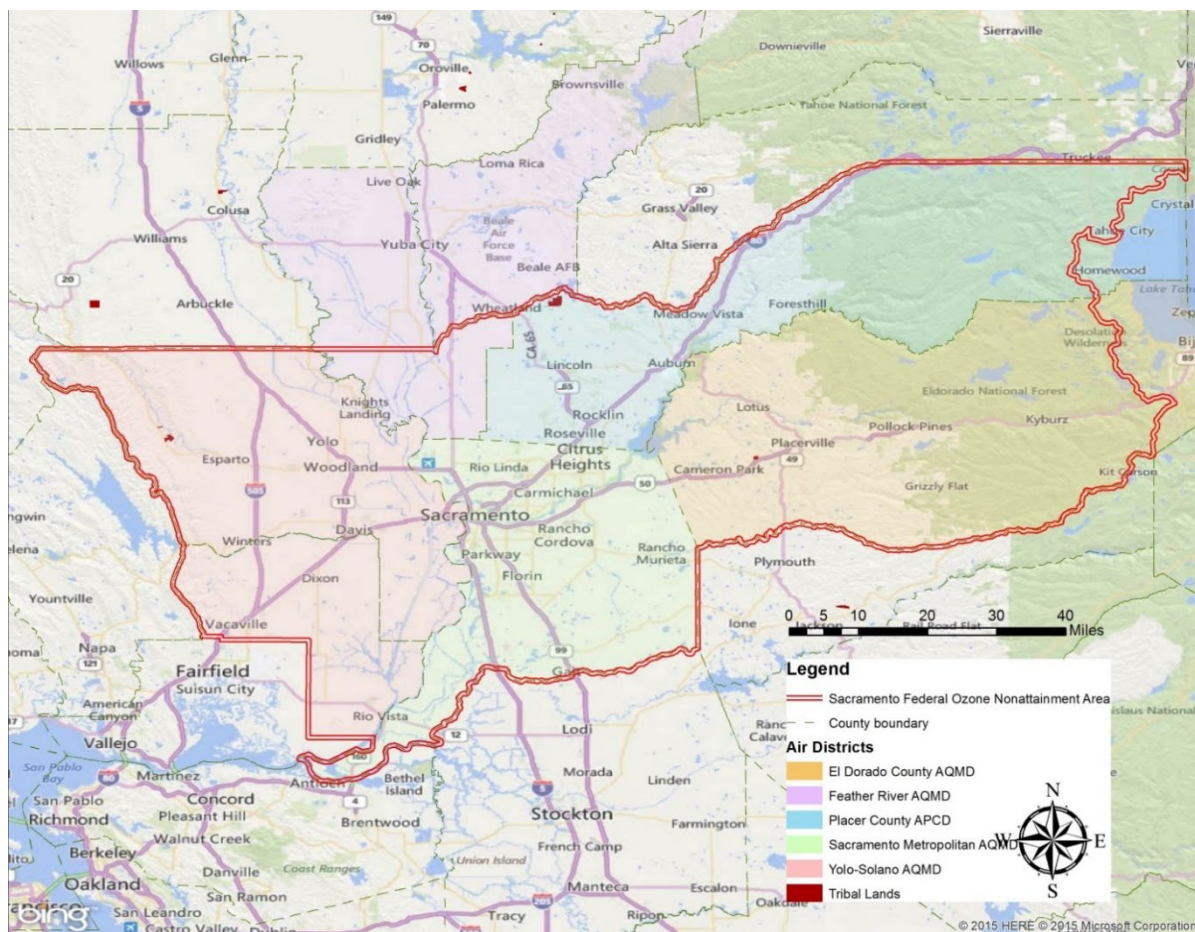
Additionally, pursuant to CARB guidance, this Plan includes sections that:

- Summarize the existing financial incentive programs for reducing emissions;
- Discuss the District's schedule to have the same "no net increase" program as our downwind Districts in order to mitigate transport emissions;
- Document trends in air quality using air quality indicators; and
- Provide a long-term view of emissions projections for future years by four primary source sectors (stationary, area-wide, on- and off-road mobile sources).

1.5 Federal Clean Air Act (FCAA)

Prior to development of the state's regulation of air quality, the Federal Clean Air Act (FCAA) established national ambient air quality standards (NAAQS) and requirements with respect to criteria air pollutants. One of the requirements of the FCAA that applies to areas that violate the NAAQS is the requirement for designated non-attainment areas to create attainment plans. These plans must describe the efforts that will be employed to meet the NAAQS. The District is included in the Sacramento Federal Non-attainment Area (SFNA) for ozone. The Sacramento Regional 2015 NAAQS 8-Hour Ozone Attainment & Reasonable Further Progress Plan was submitted to EPA in August 2023. Figure 3 illustrates the boundaries of the SFNA for the ozone NAAQS which were designated by the EPA.

Figure 3: Sacramento Federal Ozone Non-Attainment Area



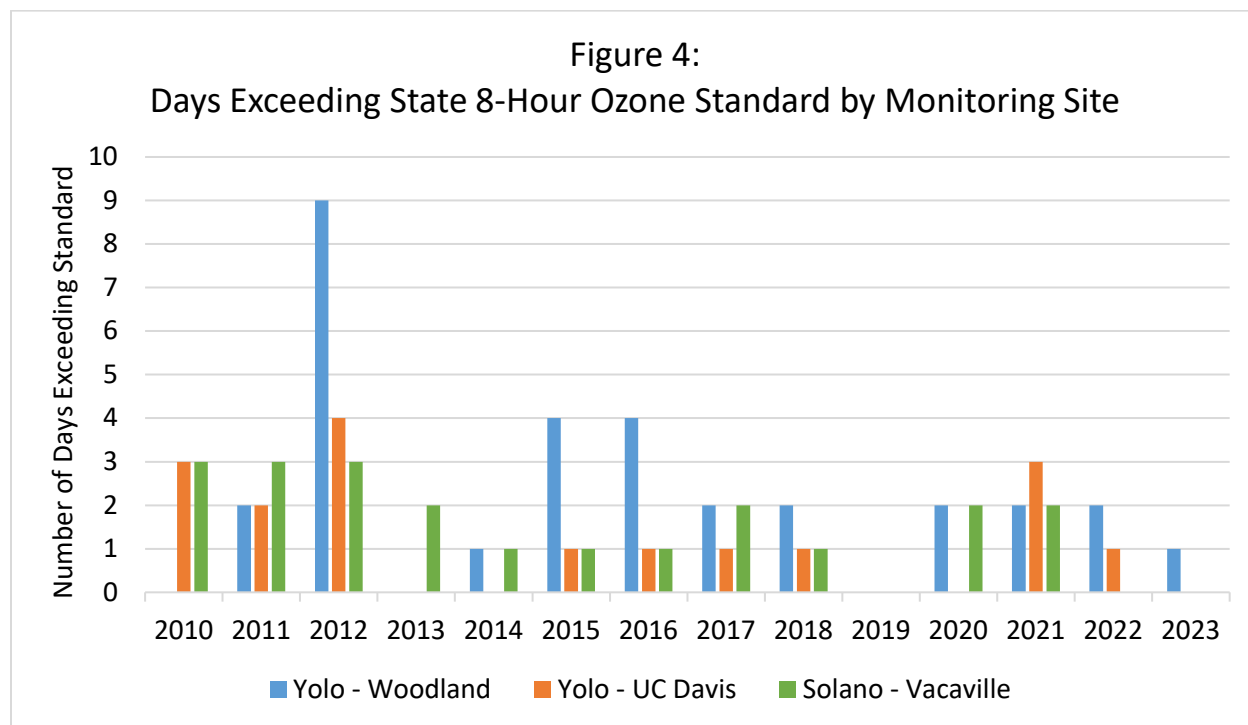
2 Ozone Air Quality Trends

State law requires the triennial assessment of ozone air quality improvements achieved during the preceding three years to be based on ambient pollutant measurements and air quality indicators. Accurate, real-time measurements of ambient air pollution, including ozone, are collected throughout the District at several sites to identify the status and trend of ambient air quality in Yolo and northeast Solano Counties. Appendix B shows the locations of monitoring stations operating in the District which satisfy the federal government's published standards for monitor siting and quality assurance. Three stations in the District monitor for ozone and were used for the purposes of this report: Davis (UCD Campus), Woodland (Gibson Road), and Vacaville (Ulati Road).

2.1 Ozone Exceedance Trends

The ozone trends for Yolo and northeast Solano Counties are presented in Figure 4, which identifies the number of days the State 8-hour ozone standard was exceeded between 2010 and 2023. An exceedance of the 8-hour ozone standard occurs when the monitored ambient concentration level is 0.070 ppm or greater over an 8-hour period.

Figure 4: Days Exceeding State 8-Hour Ozone Standard by Monitoring Site



As shown in Figure 4, ozone concentrations have been generally trending downward since 2010, and the general pattern suggests that the worst years for air quality are becoming less severe while the best air quality years are becoming cleaner.

Exceedances of the state one-hour standard of 0.090 ppm at the District’s monitoring sites are uncommon. Between 2018 and 2020, there were two exceedance days at the District’s Woodland monitoring site and one exceedance day at the Davis site. There were no exceedances at the Vacaville monitoring site. Between 2021 and 2023, there were no exceedance days at the Woodland and Davis monitoring sites and one exceedance day at the Vacaville monitoring site.

2.2 Other Ozone Improvement Indicators

In addition to the actual number of ozone exceedances that have been observed over time, other statistical indicators can be used to assess air quality improvements for ozone based on the monitored air quality data. These indicators include: 1) population-weighted ozone exposure, 2) area-weighted ozone exposure, and 3) expected peak day concentrations (EPDC). These indicators are discussed in response to recommendations in guidance produced by CARB.

2.2.1 Exposure Indicators: Population-Weighted Exposure

Peak ozone concentrations reflect potential population exposure in areas with the highest ozone levels, but not the exposure of the District’s population as a whole. Therefore, population-weighted (or per capita) exposure to high ozone concentrations is another indicator used to assess progress in reducing public exposure to ozone on a per-capita, region-wide basis. Population-weighted exposure is computed by estimating hourly ozone concentrations for each census tract in the District based on the hourly

values actually measured at District monitoring sites. Concentrations are estimated by averaging ozone from nearby monitors inversely weighted by distance to the tract. In each census tract, for each hour where its estimated ozone exceeds the standard, the estimated amount by which the ozone level exceeds the standard is multiplied by the population of the tract. These values are summed across all hours for a year for each tract, and then for all tracts in each county. The result is divided by the population of each county. The result is per capita exposure, specifically person-ppb-hours above the standard.

Table 1 shows population-weighted exposures for 2011-2014, 2018-2020, and 2021-2023 for the District in relation to the state 1-hour and 8-hour ozone standards. The 1-hour population-weighted exposure increased slightly between 2018 and 2020 from the baseline years of 2011 through 2014 but has since decreased overall. Exposure to ozone concentrations above the 8-hour state standard has decreased consistently since the baseline years.

Table 1: Population-Weighted Ozone Exposure Indicators

Year	1-Hour Ozone Standard (person-ppb-hours)	8-Hour Ozone Standard (person-ppb-hours)
Baseline: 2011 – 2014 3-Year Average	0.001615	0.053242
2018 – 2020 3-Year Average	0.003990	0.040613
2021 – 2023 3-Year Average	0.001055	0.037084

2.2.2 Exposure Indicators: Area-Weighted Exposure

Area-weighted exposure is calculated similarly to population-weighted exposure except with census tract area replacing census tract population. Reductions in area-weighted exposure are important because high ozone levels harm not only humans but also vegetation, other animals, and most surfaces with which it comes in contact, such as architectural finishes, tires and plastics. Table 2 shows area-weighted exposures for 2011-2014, 2018-2020, and 2021-2023 for the District in relation to the state 1-hour and 8-hour ozone standards. The trends shown in table 2 are similar to those in Table 1, with exposure to the 1-hour standard increasing from 2018-2020 before decreasing below the baseline and exposure to the 8-hour standard also decreasing from the baseline.

Table 2: Area-Weighted Ozone Exposure Indicators

Year	1-Hour Ozone Standard (km ² -ppb-hours)	8-Hour Ozone Standard (km ² -ppb-hours)
Baseline: 2011 – 2014 3-Year Average	0.000259	0.053242
2018 – 2020 3-Year Average	0.000920	0.029411
2021 – 2023 3-Year Average	0.000176	0.028606

2.2.3 Expected Peak Day Concentration

The Expected Peak Day Concentration (EPDC) tracks daily 1-hour and 8-hour ozone concentrations at each monitoring site. This indicator represents the potential worst-case for exposure to ozone and acute

adverse health impacts. The EPDC represents a statistically derived value that reflects the concentration expected to be exceeded only once per year, on average, based on the distribution of data for a particular monitoring location.

Figures 5 and 6 display the 1-hour and 8-hour ozone EPDC values and the corresponding yearly trends for the District's ozone monitoring sites. Overall, there have been variations in the EPDC values at each site with both increasing and decreasing values. However, the data indicates that there has been a steady trend in decreasing ozone exposures throughout the District since 1995.

Figure 5: District Monitoring Sites' 1-Hour Expected Peak Day Concentrations

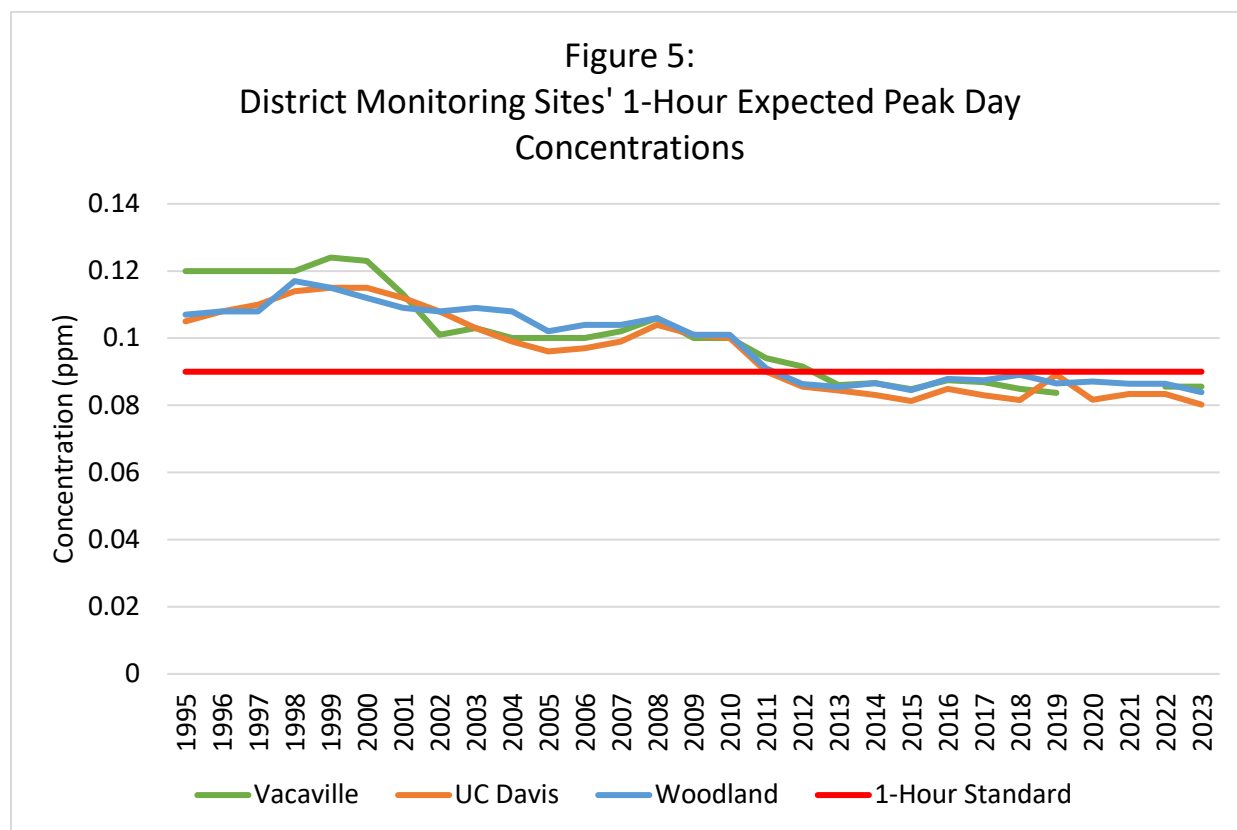
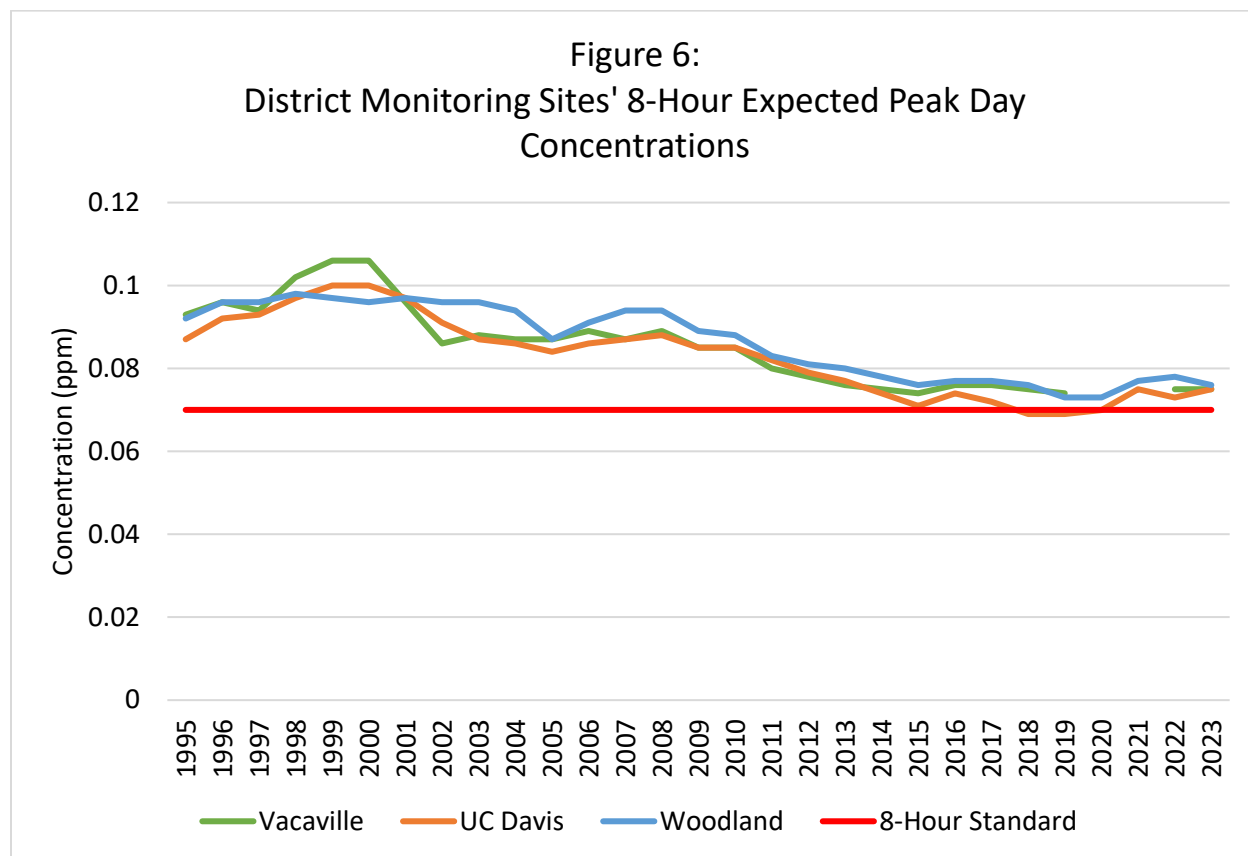


Figure 6: District Monitoring Sites' 8-Hour Expected Peak Day Concentrations



3. Emission Trends

In order to forecast trends in emissions, the District and CARB develop an emission inventory. The emission inventory is an estimate of ozone precursor pollutants (VOC and NO_x) emitted by various sources. Trends in the emission inventory can be used to monitor progress the District is making toward attaining the CAAQS.

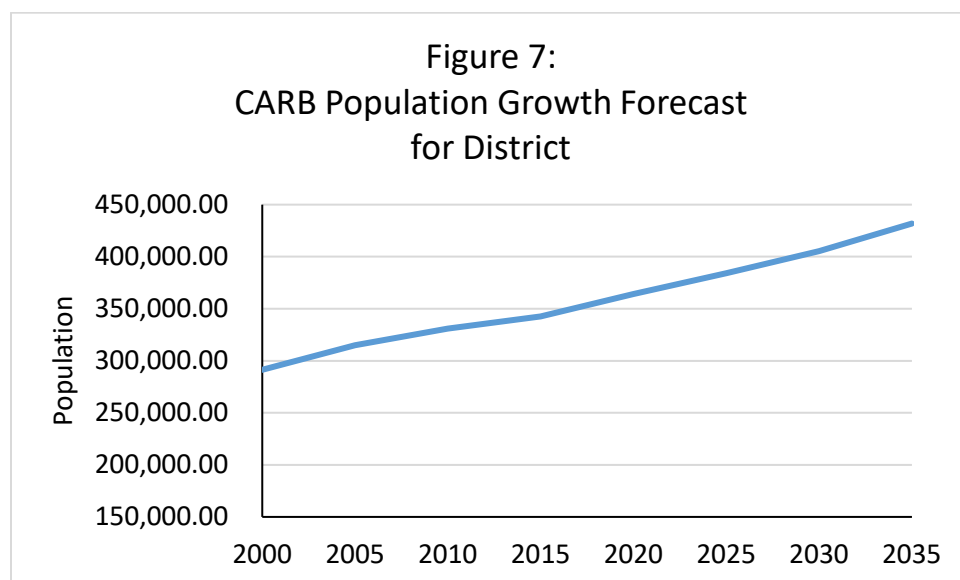
The emission inventory is divided into five major categories. These include stationary, area-wide, on-road mobile, other mobile, and natural source groupings. Stationary sources include facilities at fixed locations such as power plants or landfills, while area-wide sources are composed of individually smaller sources which when aggregated have significant emissions. Architectural coatings, such as house paint, and consumer products are examples of area-wide sources. On-road mobile sources consist of the numerous light and heavy-duty vehicles that travel the streets and highways. Other mobile sources include agricultural and construction equipment, trains, planes, and recreational vehicles. Natural sources include biological and geological sources, wildfires, windblown dust, and biogenic emissions from plants and trees. Within each of these major categories are a number of subcategories. Appendix A at the end of this document shows the inventory at a more detailed level.

The emission inventory represents estimates of actual emissions that are calculated using reported or estimated process rates and emission factors. For example, motor vehicle emission estimates rely on calculations that include consideration of the fleet mix, vehicle miles traveled, trip starts, speeds, and

vehicle emission factors. To derive future-year emission inventories, a current base-year inventory is projected forward in time, based on expected growth rates of population, travel, employment, industrial and commercial activity, and energy use. Reductions from control measures are also accounted for.

CARB estimates population and VMT increases for the various counties and air districts in California. Population for the District in 2025 was projected to be 383,960. This is in conjunction with a projected growth in vehicle miles traveled to just over 13 million total miles traveled in 2025.¹³ Figures 7 and 8 show the forecasted growth in population and VMT in the District in future years. As shown, both population and VMT are expected to increase through 2035.

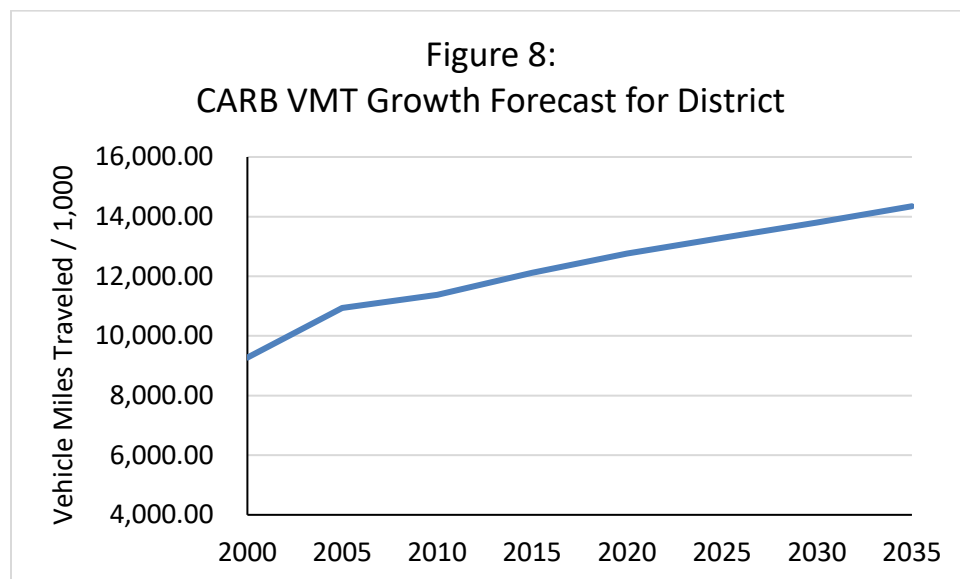
Figure 7: CARB Population Growth Forecast for the District¹⁴



¹³ District estimates for population and vehicle miles traveled are from CARB 2013 California Almanac of Emissions and Air Quality

¹⁴ Source: CARB 2013 California Almanac of Emissions and Air Quality

Figure 8: CARB Vehicle Miles Traveled Growth Forecast for the District¹⁵



3.1 Emission Inventory Updates

Despite the increasing population and vehicle miles traveled as shown in Figures 11 and 12, the forecasted emission trends show decreases in the overall emission inventory. Emission inventories are updated and improved to reflect the conditions within the region and to better determine the contribution of various sources of air pollution. Table 3 and Table 4 provide updated estimated source category emissions in tons per day for VOC and NO_x for 2010, 2015, 2018, 2020, 2023, 2025, and 2030 in the District. These are the latest updated inventories from CARB and include calculated emissions from past years and the projected emissions for future years. Please note that the projected emissions from 2025 to 2030 are based on the most current 2017 base year emission estimates¹⁶, along with the expected growth and control factors, to forecast emission trends.

¹⁵ Source: CARB 2013 California Almanac of Emissions and Air Quality

¹⁶ <https://ww2.arb.ca.gov/applications/cepam2019v1-04-standard-emission-tool>

Table 3: District VOC Emissions Inventory

VOC Emissions (tons per day) Within Yolo-Solano AQMD								
Source Category		2010	2015	2018	2020	2023	2025	2030
Stationary	Fuel Combustion	0.24	0.19	0.15	0.14	0.13	0.13	0.12
	Waste Disposal	5.68	2.52	3.42	3.45	3.34	3.49	3.74
	Cleaning and Surface Coating	1.52	1.63	1.74	1.73	1.82	1.90	1.99
	Petroleum Products	1.99	1.99	1.89	1.80	1.67	1.59	1.45
	Industrial Processes	0.71	2.76	2.52	2.48	2.52	2.63	2.89
Total Stationary Sources		10.14	9.10	9.72	9.60	9.49	9.74	10.19
Area-Wide	Consumer Products	2.15	2.18	2.29	2.41	2.41	2.50	2.68
	Architectural Coatings & Related Process Solvents	0.50	0.51	0.46	0.47	0.48	0.48	0.50
	Pesticides / Fertilizers	0.54	0.74	0.59	0.65	0.63	0.63	0.61
	Asphalt Paving / Roofing	0.13	0.14	0.16	0.16	0.17	0.18	0.19
	Residential Fuel Combustion	2.01	1.99	1.60	1.60	1.60	1.60	1.60
	Farming Operations	0.61	0.64	0.73	0.73	0.74	0.75	0.75
	Miscellaneous Processes	0.29	0.19	0.21	0.20	0.20	0.20	0.20
Total Area-Wide Sources		6.24	6.39	6.05	6.23	6.24	6.34	6.53
On-Road Mobile	Light-Duty Passenger	1.59	1.01	0.72	0.60	0.50	0.45	0.56
	Light-Duty Truck	1.07	0.78	0.60	0.51	0.43	0.39	0.44
	Medium-Duty Truck	0.54	0.47	0.40	0.35	0.29	0.26	0.29
	Heavy-Duty Truck (Gasoline)	0.28	0.23	0.17	0.15	0.12	0.11	0.14
	Heavy-Duty Truck (Diesel)	0.86	0.45	0.31	0.24	0.10	0.10	0.14
	Motorcycles	0.45	0.42	0.39	0.36	0.33	0.32	0.44
	Buses	0.03	0.02	0.01	0.01	0.00	0.00	0.01
	Motor Homes	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Total On-Road Mobile Sources		4.81	3.37	2.60	2.22	1.78	1.63	2.03
Other Mobile	Aircraft	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	Trains	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	Ocean-Going Vessels	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Commercial Harbor Craft	0.05	0.05	0.04	0.03	0.03	0.03	0.03
	Recreational Boats	2.01	1.66	1.45	1.32	1.16	1.07	0.88
	Off-Road Recreational Vehicles	0.16	0.12	0.10	0.10	0.09	0.08	0.06
	Off-Road Equipment	1.42	1.11	1.04	1.04	1.02	0.92	0.59
	Off-Road Equipment (PERP)	0.08	0.06	0.06	0.05	0.04	0.04	0.04
	Farm Equipment	0.74	0.58	0.45	0.39	0.33	0.30	0.23
	Fuel Storage and Handling	0.19	0.15	0.13	0.13	0.12	0.11	0.11
Total Other Mobile Sources		4.72	3.78	3.34	3.12	2.85	2.62	2.00
Total VOC Emissions		25.91	22.64	21.70	21.16	20.36	20.33	20.75

Table 4: District NOx Emissions Inventory

NOx Emissions (tons per day) Within Yolo-Solano AQMD								
Source Category		2010	2015	2018	2020	2023	2025	2030
Stationary	Fuel Combustion	3.51	2.73	2.47	2.45	2.37	2.33	2.25
	Waste Disposal	0.01	0.01	0.02	0.02	0.02	0.02	0.02
	Cleaning and Surface Coating	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Petroleum Products	0.00	0.01	0.01	0.01	0.01	0.01	0.01
	Industrial Processes	0.18	0.08	0.08	0.08	0.08	0.08	0.08
Total Stationary Sources		3.72	2.83	2.59	2.55	2.49	2.45	2.36
Area-Wide	Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Architectural Coatings & Related Process Solvents	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Pesticides / Fertilizers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Asphalt Paving / Roofing	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Residential Fuel Combustion	0.72	0.60	0.58	0.58	0.57	0.56	0.56
	Farming Operations	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Miscellaneous Processes	0.20	0.13	0.13	0.13	0.13	0.12	0.12
Total Area-Wide Sources		0.92	0.73	0.71	0.70	0.69	0.69	0.68
On-Road Mobile	Light-Duty Passenger	1.63	0.92	0.60	0.46	0.34	0.30	0.36
	Light-Duty Truck	1.25	0.77	0.51	0.39	0.27	0.22	0.21
	Medium-Duty Truck	0.82	0.54	0.39	0.30	0.20	0.15	0.13
	Heavy-Duty Truck (Gasoline)	0.31	0.22	0.17	0.14	0.10	0.09	0.09
	Heavy-Duty Truck (Diesel)	11.16	7.08	5.75	5.03	3.57	3.58	5.44
	Motorcycles	0.14	0.13	0.13	0.12	0.11	0.10	0.15
	Buses	0.19	0.19	0.11	0.09	0.07	0.06	0.07
	Motor Homes	0.05	0.04	0.03	0.02	0.02	0.02	0.02
Total On-Road Mobile Sources		15.56	9.89	7.67	6.54	4.68	4.52	6.47
Other Mobile	Aircraft	0.03	0.03	0.03	0.03	0.03	0.03	0.03
	Trains	0.39	0.38	0.41	0.42	0.43	0.44	0.46
	Ocean-Going Vessels	0.09	0.02	0.05	0.05	0.04	0.05	0.05
	Commercial Harbor Craft	0.99	0.62	0.54	0.47	0.46	0.46	0.44
	Recreational Boats	0.33	0.30	0.28	0.28	0.27	0.26	0.25
	Off-Road Recreational Vehicles	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Off-Road Equipment	1.26	1.29	1.18	1.13	0.95	0.84	0.66
	Off-Road Equipment (PERP)	1.03	0.75	0.64	0.51	0.37	0.31	0.26
	Farm Equipment	3.69	3.00	2.15	1.82	1.49	1.31	0.93
	Fuel Storage and Handling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Other Mobile Sources		7.82	6.38	5.29	4.70	4.06	3.70	3.08
Total NOx Emissions		28.02	19.83	16.26	14.50	11.92	11.36	12.59

According to Table 3, the stationary source VOC emissions result primarily from waste disposal and industrial processes, while area-wide emissions result primarily from consumer products and residential fuel combustion. Table 4 shows that the primary stationary source of NOx emissions comes from fuel combustion, while the largest area-wide source of NOx is residential fuel combustion. The emissions estimates for the stationary and area-wide source categories are based on actual throughput data and source test results reported from facilities and population-related methodology developed by CARB and local air districts.

In 2023, the majority of NOx emissions in the District came from mobile sources (on-road and off-road). These mobile source emission categories consist of light-duty automobiles, various truck categories, recreational boats, off-road construction/industrial equipment, farm equipment, and trains. The EMFAC 2021 motor vehicle emission model developed by CARB is designed to estimate on-road mobile source emissions by using a wide variety of on-road motor vehicle types, vehicle emission factors, vehicle population, and VMT. CARB also developed the OFFROAD emission model to estimate average seasonal daily emissions from a large spectrum of diesel-powered off-road equipment, and developed forecasts based on anticipated growth and controls within each equipment category. The emission inventory shows that the major contribution to VOC emissions from mobile sources is from off-road equipment and recreational boats. The major contribution to NOx emissions is from heavy-duty diesel trucks, off-road equipment, and farm equipment.

It should be noted that the U.S. EPA and CARB have jurisdiction over mobile sources of air pollutants, while local districts have jurisdiction over stationary and some area-wide sources. Engine standards for trains and off-road farm equipment are exclusively set by the U.S. EPA. Therefore, the District's rulemaking efforts focus on stationary and area-wide sources of pollutants, such as surface coatings, whereas the District's incentive efforts are focused on the voluntary turnover of mobile sources such as agricultural equipment.

Figure 9: 2023 VOC Emission Inventory by Source Type

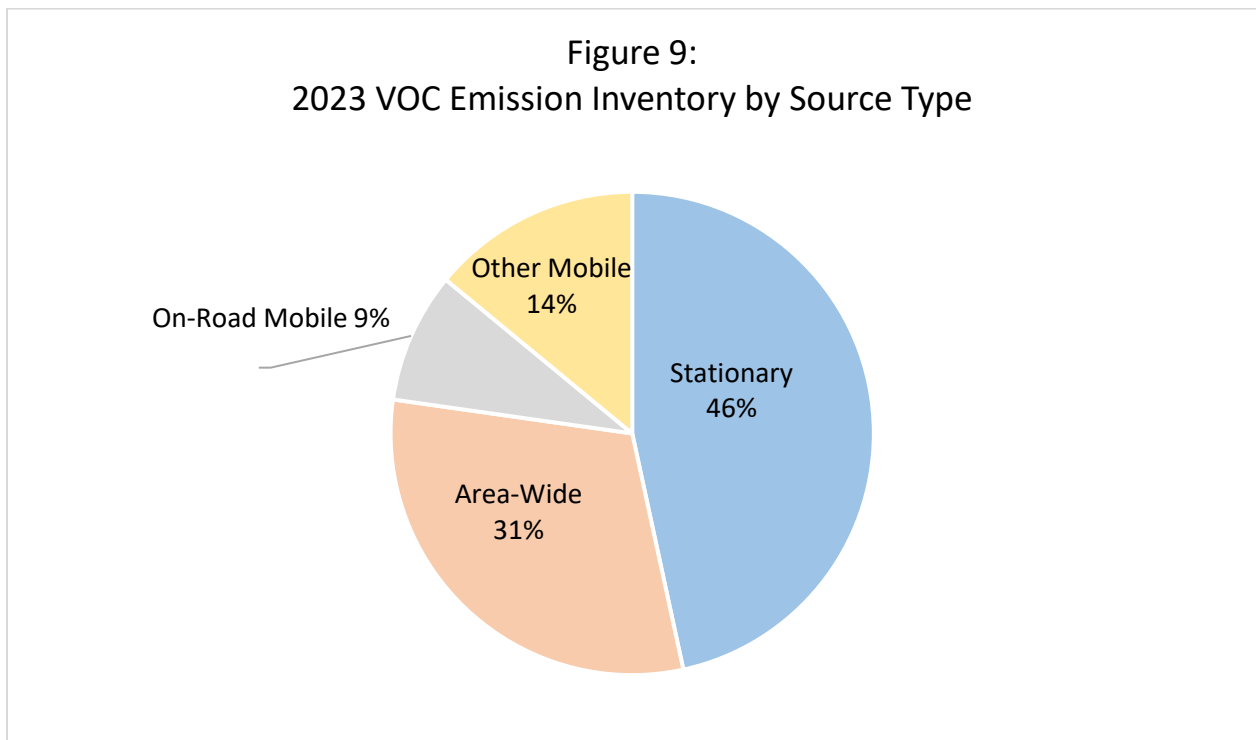
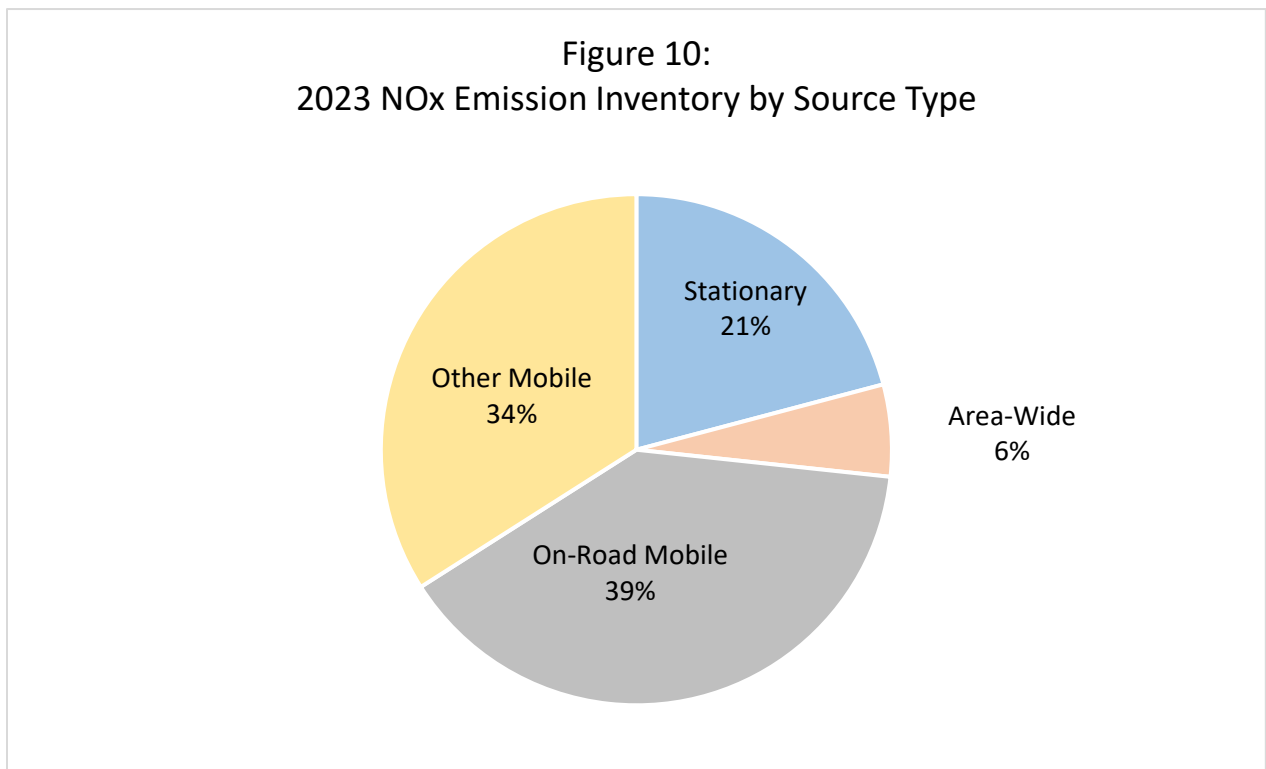


Figure 10: 2023 NOx Emission Inventory by Source Type



3.2 Emission Inventory Trends

Figures 11 and 12 show the declining trend of VOC and NOx emissions, respectively, between 2010 and 2030. Between 2010 and 2030, overall VOC emissions declined by approximately 20%, and NOx emissions decreased by 55%. From 2023 to 2030, VOC emissions are expected to increase by less than 2%, and NOx emissions are expected to increase by 5.5%.

On-road mobile source emissions from heavy-duty diesel trucks, light-duty passenger vehicles, motorcycles, and motor homes are the largest contributors to the projected increase in NOx emissions between 2023 and 2030. Projected population growth and higher VMT are contributing to the modeled increase in mobile source emissions over this period.

Stationary source emissions from waste disposal, cleaning and surface coating, and other industrial processes are the largest contributor to the slight increase in VOC emissions projected in 2030. Other contributing factors include small increases in area-wide and on-road mobile sources' VOC emissions, which are driven primarily by population growth in the District.

Figure 11: VOC Emission Trends – Annual Average

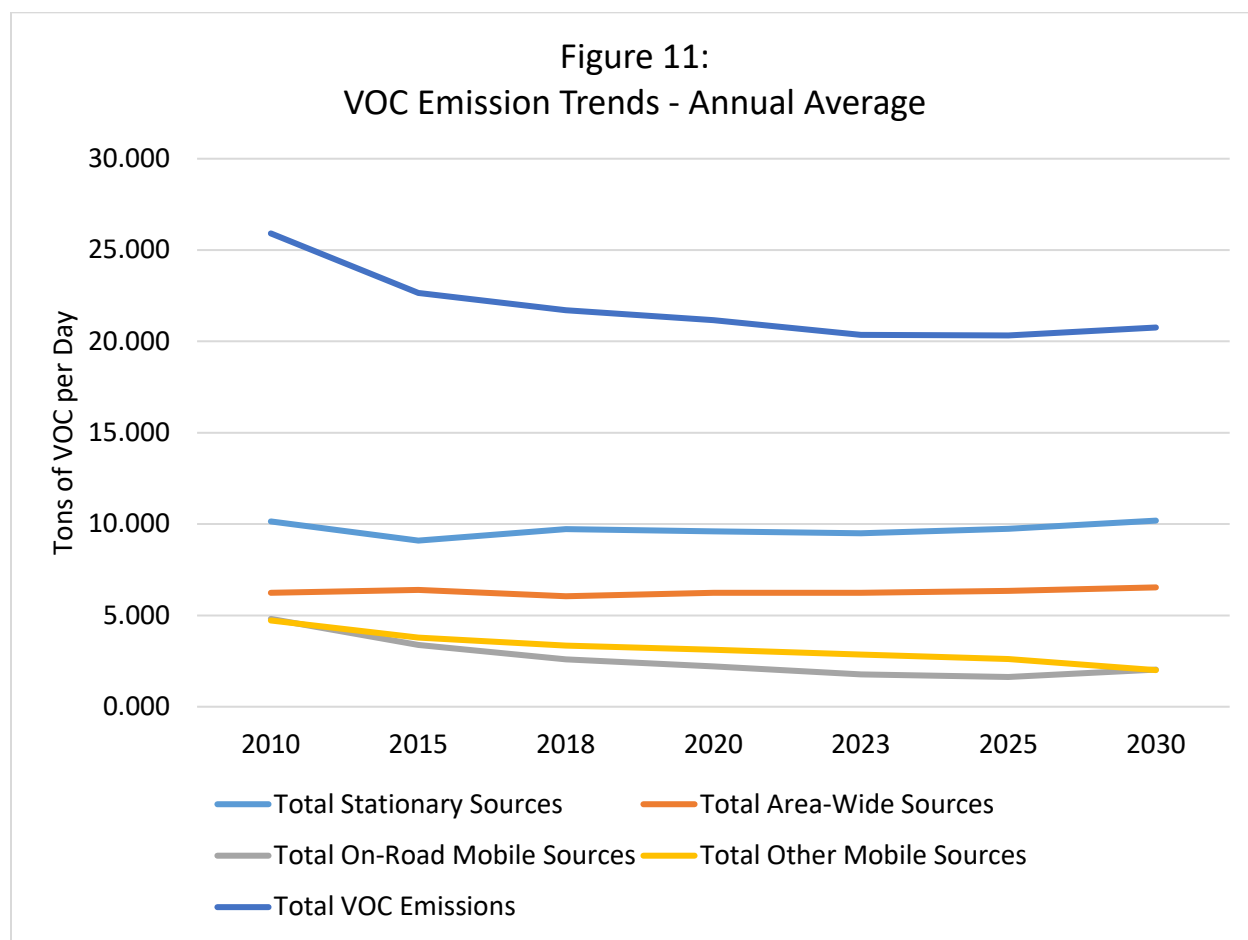
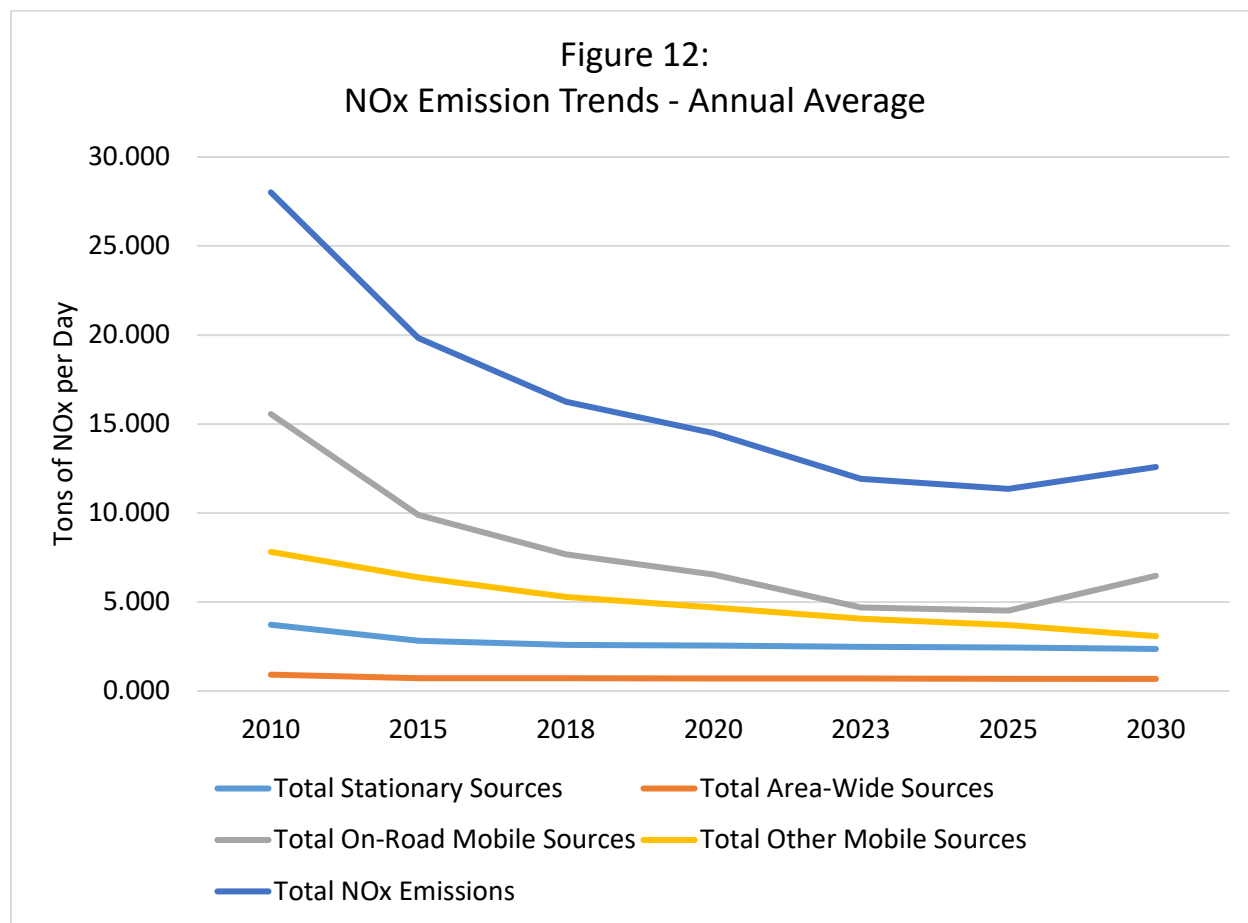


Figure 12: NOx Emission Trends – Annual Average



4. Stationary and Area Source Emission Reduction Efforts

The District has worked with the other SFNA air districts, CARB, the U.S. EPA, and local partners to reduce NOx and VOC emissions from stationary and area-wide sources. Several District rules have been amended or adopted between 2018 and 2023 to control and limit emissions from industrial processes. The District will continue to partner with these stakeholders and others to bring about permanent improvements towards cleaner air.

4.1 Reductions from Area-Wide and Stationary Sources

Table 5 is a comparison of the emissions inventories for area-wide and stationary sources in 2010, 2015, 2018, 2020, and 2023 for VOC and NOx as reported in CEPAM. Although it is important to reduce both VOC and NOx, NOx has historically been the more important precursor in the SFNA in that one ton of NOx reductions can lower ozone concentrations to a greater extent than one ton of VOC reductions.

Table 5: Area-Wide and Stationary Sources of VOC and NOx

	2010	2015	2018	2020	2023
VOC (tpd)	16.380	15.487	15.766	15.830	15.726
NOx (tpd)	4.642	3.557	3.301	3.258	3.183
Total (tpd)	21.022	19.045	19.067	19.088	18.909

The District's emissions inventory for area-wide and stationary sources indicates that NOx emissions from these sources decreased consistently since 2010. VOC emissions increased slightly in 2018 and 2020 but have decreased overall since 2010.

4.1.1 Adopted Rule Since 2018 Triennial Assessment

In the 2015 - 2017 Triennial Plan, the District committed to revising Rule 2.27, Large Boilers, and Rule 2.32, Stationary Internal Combustion Engines, to lower NOx emission limits. Rule 2.27 was amended in May 2019. Rule 2.32 has not yet been adopted.

Between 2018 and 2023, the District adopted Rule 2.45 – Boilers, and amended the following rules: Rule 2.27 – Large Boilers, Rule 2.29 – Graphic Arts Printing Operations, and Rule 2.31 – Solvent Cleaning and Degreasing. Table 6 provides descriptions and expected emission reductions for each rule.

Table 6: Summary of Rules Adopted or Amended Between 2018 and 2023

Rule No.	Rule Name	Status	Description	Emission Reductions
2.27	Large Boilers	Revised May 2019	Lowered NOx limits for new and existing boilers, steam generators, and process heaters with rated heat inputs of greater than or equal to five million BTU per hour.	14.36 tpy of NOx
2.29	Graphic Arts Printing Operations	Revised July 2018	Lowered the VOC limit for fountain solutions used in graphic arts printing operations.	0.00
2.31	Solvent Cleaning and Degreasing	Revised July 2018	Removed the exemption for sources subject to Title 40, CFR, Part 63, Subpart T – National Emissions Standards for Halogenated Solvent Cleaning.	0.00
2.45	Boilers	Adopted May 2019	Lowered NOx limits for new boilers with a heat input rating between one and five MMBtu/hr.	7.25 tpy of NOx

Only one graphic arts facility in the District was subject to Rule 2.29 in 2018. That facility already used zero-VOC fountain when Rule 2.29 was revised; therefore, the District does not expect the Rule 2.29 revisions to have resulted in any emission reductions. Rule 2.31 was also not expected to result in any emission reductions because no exempt source became subject to the rule due to the amendment at the time of revision. Although these rule amendments resulted in no emission reductions, the revisions prevented future emissions from occurring and demonstrated the District's efforts to improve air quality.

Between 2018 and 2023, the District also amended Rule 2.43, Biomass Boilers, to add numerical emission limits for periods of start-up and shutdown. This rule is not expected to result in any emission reductions.

4.2 District Incentive Programs for Area-Wide and Stationary Sources

The District offers various incentive programs to reduce emissions from area-wide and stationary sources of air pollution.

4.2.1 Woodsmoke Reduction Program

The District's Woodsmoke Reduction Program offers monetary vouchers to residents who want to replace their operational, uncertified woodstove with a cleaner heating device, such as a certified woodstove, pellet stove, gas insert, or electric insert. Between 2018 and 2023, the District provided vouchers to replace 40 uncertified woodstoves and fireplaces with cleaner heating devices. Although the primary focus of this program is to reduce PM 2.5 emissions, VOC and NOx emissions are also reduced as a co-benefit.

4.2.2 Agricultural Chipping Program

The District offers an Agricultural Chipping Program to eligible farmers who would have otherwise burned their agricultural waste following an orchard removal. Funding for the Agricultural Chipping Program is provided by the U.S. EPA's Targeted Airshed Grant and the District's local funding sources. In 2023, the District awarded over \$150,000 to agricultural chipping projects, resulting in emission reductions of approximately 35 tons of VOC and 30 tons of NOx.

4.2.3 Commercial Lawn and Garden Program

The District's Commercial Lawn and Garden Program offers monetary vouchers to businesses, schools, nonprofits, and public agencies that apply to replace their existing gas- and diesel-powered landscaping equipment with electric equipment. Funding is provided by the Carl Moyer Program.

5. Mobile Source Emission Reduction Efforts

As discussed in the previous section, the District does not have any direct regulatory control over the mobile source portion of its emission inventory. Nevertheless, providing financial incentives can encourage the accelerated introduction of lower emission mobile-source technologies into the SFNA. Incentive programs can also help to fund projects that reduce traditional vehicle trips and encourage alternative modes of transportation. Incentive programs are implemented either locally by the District, regionally, or sometimes at the State level. Descriptions of recent and ongoing incentive programs in the District are described below.

5.1 District Incentive Programs for Mobile Sources

The District administers several incentive programs that focus on reducing emissions from the mobile source sector. Programs assist with funding for projects that encourage cleaner on-road and off-road vehicles, alternative fuels, and alternative transportation. Funding is provided by fees provided to the

District by the Department of Motor Vehicles for vehicle registrations, state grant programs, and federal grant programs.

5.1.1 AB 923 Funds

The District uses AB 923 funds to incentivize the purchase of clean mobile equipment and EV charging installation. Since 2018, the District has used AB 923 funds to replace two school buses for the Vacaville Unified School District, one school bus for the Winters Joint Unified School District, four school buses for Esparto Unified School District, one agricultural harvester, and install five EV charging stations at local low-income apartment complexes.

5.1.2 Carl Moyer Program

In 2022, the District began its first year of funding grant projects using Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) funding. Authorized by the California Health and Safety Code (CH&SC) § 44275 – 44299.2, the Moyer Program operates statewide with implementation by California's 35 local air districts. Eligible projects types include on- and off-road equipment replacement and EV charging infrastructure installation.

Projects are eligible for reimbursement for up to a maximum of 80 percent of total eligible equipment costs or the District's current cost-effectiveness threshold (as determined by CARB's Carl Moyer Guidelines), whichever is less. Since 2022, the District has used Moyer Program funds to incentivize the installation of two EV charging stations, and the replacements of one school bus, 20 pieces of heavy-duty agricultural equipment, and 253 pieces of lawn and garden equipment. These projects have resulted in annual emission reductions of 9.95 tons of NOx and 2.82 tons of VOC.

5.1.3 Clean Air Funds Program

In June 1993, the District began its first year of funding projects using Clean Air Funds (CAF) Program criteria. Public or private agencies, groups, or individuals can apply for funding from the District under this program. Funding for the CAF program is generated through a vehicle registration surcharge of \$4.00 per vehicle. In the Solano County portion of the District, AB 8 funds are also used to supplement the CAF program. AB 8 funds are property tax proceeds collected from the northeast portion of Solano County (Dixon, Rio Vista, and Vacaville).

The following list shows the CAF program categories under which projects can receive funding. Projects are funded based on their emission reduction potential, cost-effectiveness, community acceptance and potential for successful implementation.

- Clean Technologies/Low Emission Vehicles
- Alternative Transportation
- Transit Services
- Public Education/Information

5.1.4 Community Air Protection Incentives Program

In July 2017, the California Assembly and Senate passed Assembly Bill (AB) 617 (C. Garcia, Chapter 136, Statutes of 2017) directing the CARB to develop the Community Air Protection Incentives Program (CAP

Incentives). AB 617's focus is to reduce exposure in communities most impacted by air pollution and uses a variety of strategies, including community-level air monitoring, uniform emission reporting across the State, stronger regulation of pollution sources, and incentives for both mobile and stationary sources. To support AB 617 requirements, the Legislature appropriated CAP Incentives funding to be administered by air districts in partnership with local communities to support early actions to address localized air pollution. The District works collaboratively with CARB and actively engages members of impacted communities in Yolo and northeast Solano Counties to create a community-focused action framework to address emission impacts, respond to concerns, improve air quality, and reduce exposure to criteria air pollutants and toxic air contaminants.

Funded by Cap-and-Trade auction proceeds, projects funded by CAP Incentives must align with the goals and requirements of California Climate Investments (CCI). These include targeting funds to projects that meaningfully reduce local pollutant exposure in disadvantaged communities disproportionately impacted by air pollution, tribal areas, and low-income communities. Project decisions follow extensive outreach by the District to the public in those communities, and community members are given the opportunity to propose and comment on specific projects.

Since 2023, the District has used CAP Incentives funds to incentivize the replacement of 10 pieces of heavy-duty agricultural equipment and 21 pieces of lawn and garden equipment. These projects have resulted in annual emission reductions of 31 tons of NOx and 5.8 tons of VOC.

5.1.5 FARMER Program

This program provides incentives to farmers to replace older off-road agricultural equipment using funding provided by CARB. Eligible project types include tractors, harvesters, combines, balers, and certain other types of off-road agricultural equipment.

Projects are eligible for reimbursement for up to a maximum of 80 percent of total eligible equipment costs or the District's current cost-effectiveness threshold (as determined by CARB's Carl Moyer Guidelines), whichever is less. Since 2017, the District has incentivized the replacement of 59 pieces of heavy-duty off-road equipment and 2 utility terrain vehicles using FARMER funds. These replacement projects have resulted in emission reductions equal to 282.5 tons of NOx.

5.2 Regional Incentive Programs

A number of regionally administered programs also provide funding to emission reduction projects within the District.

5.2.1 Sacramento Emergency Clean Air Transportation (SECAT)

The SECAT Program is a partnership between the air districts of the SFNA and SACOG. The program is administered by SMAQMD with the goal of reducing harmful emissions from on-road heavy-duty vehicles operating in the SFNA.

Eligible types of projects include the following:

- Replacing older, higher polluting vehicles with newer, lower-emission vehicles (Fleet Modernization);

- Purchasing new, low or zero-emitting vehicles;
- Retrofitting existing heavy-duty vehicles with after-treatment systems to reduce NOx; and
- Implementing any other verifiable, enforceable, and cost-effective technology for reducing NOx emissions from heavy-duty on-road vehicles.

5.2.2 SACOG Regional Funding

The Sacramento Area Council of Governments (SACOG) conducts programming rounds every two years to allocate funds to projects based on available apportionments of regional funds. Project applications are solicited from public agencies and their partners located in the SACOG region. Projects funded under these programs have helped to improve bicycle and pedestrian infrastructure and generally encourage alternative modes of transportation. Municipalities, agencies, and organizations that have received SACOG funding for bike/pedestrian and community design projects in the 2018 to 2023 period include:

- UC Davis Unitrans to purchase electric buses and charging infrastructure;
- City of Davis for road and bike lane improvements;
- City of West Sacramento for road rehabilitation and bicycle and pedestrian improvements;
- City of Winters for road and pedestrian improvements;
- City of Woodland for pedestrian improvements;
- Yolo County for road and bike lane rehabilitation; and
- Yolo County Transportation District for public transit upgrades, pedestrian enhancements, and clean vehicle projects.

5.3 State and Federal Incentive Programs

State and Federal funds are also spent within the District on projects to achieve emission reductions from mobile sources.

5.3.1 Congestion Mitigation and Air Quality Improvement (CMAQ) Program

The federally funded CMAQ Program provides funding to projects or programs that will contribute to attainment or maintenance of the national ambient air quality standards (NAAQS) for ozone, CO and PM. The CMAQ program supports two important goals: improving air quality and relieving congestion. This can include projects such as transit improvements, high-occupancy vehicle lanes, ridesharing services, public education and information, and pedestrian and bicycle programs.

Federal CMAQ funds are allocated to states, and ultimately to local regions, based on population and air quality needs. As the federally designated Metropolitan Planning Organization, SACOG is responsible for determining which local projects receive CMAQ funding in Yolo County. For the District's portion of Solano County, CMAQ funds are distributed through a process administered by the Solano Transportation Authority (STA). The District participates in selecting projects that receive CMAQ funding during the applicable public review processes.

5.3.2 Hybrid and Zero-Emission Truck and Bus Voucher Incentive (HVIP) Program

The HVIP program is funded by the state and was formed as a result of the California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007. The HVIP program offers funding for projects that support the development and deployment of advanced technologies

needed to meet California’s longer-term air quality goals. HVIP funds can provide financial support for the purchase of zero-emission trucks and buses by offering point-of-sale incentives. Since 2015, 150 vehicle replacement vouchers have been issued for vehicles located within the District, for a total funding amount of over \$22,000,000. 120 of these vouchers funded fully zero-emission vehicles, and 34 funded zero-emission school buses.

5.4 Transportation Control Measures

The CCAA defines transportation control measures (TCM’s) as “... any strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions.” The District coordinates with the regional transportation agencies such as Yolo County Transportation District (YCTD), Solano Transportation Authority (STA), and Sacramento Area Council of Governments (SACOG) to implement reasonable measures to reduce emissions from vehicles. This coordinated effort is producing emission reductions that will help to achieve the State health-based ambient air quality standards and the mandates of the CCAA.

YoloBus (Yolo County), Unitrans (Davis), City Coach (Vacaville), Delta Breeze (Rio Vista), Solano Express, Sacramento Regional Transit, and Fairfield-Suisun Transit operate fixed route bus services in the District. Solano County and West Sacramento also have on-demand ridesharing programs. Amtrak’s Capital Corridor connects the Sacramento region to the Bay Area and has stops in Davis and Vacaville. Collectively, these services provide opportunities for alternative travel by servicing school trips, commuter trips, and providing links to paratransit services.

The District supports these programs as part of its overall mission to improve air quality. Examples of TCM programs for which the District has provided financial support over the past several years include:

- STA’s Solano Mobility program, which offers discounted and incentivized alternative transportation options for residents
- City of West Sacramento’s Via Rideshare Program
- STA’s Solano County Safe Routes to School Program

5.5 CEQA and Land Use

District staff works with land use jurisdictions to implement air quality mitigation measures for projects under the California Environmental Quality Act. Through this process, the District can realize VOC and NOx reductions by encouraging project design features that promote walking, biking, and transit to help reduce VMT. While mitigation measures that are implemented for land use projects reduce air pollution emissions, these emissions are difficult to quantify with any real accuracy and accrue benefits over the entire life of a project.

6. Public Outreach Programs

As a required element under the District’s AQAP, the District continues to support public outreach programs within Yolo and Solano Counties. This includes a range of regional and local efforts to reduce the emissions of ozone precursors and to make the public aware of daily air quality conditions.

6.1 Sacramento Spare The Air Campaign

The District participates in the regional Spare The Air (STA) campaign in coordination with Sacramento Metropolitan AQMD and the other air districts of the SFNA. The campaign is an emission-reduction and public awareness initiative that has run for more than 20 years, with the intent of affecting behavioral changes on a regional basis.

STA includes a seasonal push for residents and businesses to reduce vehicle trips during peak ozone season. This seasonal campaign encourages the public to reduce transportation emissions by promoting bicycling, walking, carpooling, taking public transit, and driving zero-emission vehicles. If a particularly high ozone day is forecasted, the campaign makes a direct request for the public to reduce their vehicle trips specifically to prevent unhealthy levels of ozone from forming. According to survey data from the most recently completed season (2023), on a typical Spare the Air day, 2.1% fewer driving trips were taken in the Sacramento Region.

The campaign is distributed to the public through multiple avenues, including radio spots, TV commercials, informational handouts, public outreach events, local partnerships, and social media channels. More than 3,481 schools, businesses, and organizations have partnered with STA.

6.2 Don't Light Tonight Program

From November 1 through the end of February, the District runs the Don't Light Tonight (DLT) outreach program that focuses on woodsmoke reduction. The DLT program asks residents to refrain from burning wood when PM is forecasted to reach 25 micrograms or higher to help reduce peak soot levels and protect public health. Residents can find out whether there is a DLT advisory by calling the designated phoneline with a pre-recorded message, visiting the District's website where a notification bar will appear at the top of the page, or visiting any of the District's social media pages. Residents can also file complaints to the District if they smell smoke in their neighborhood. District Air Quality Specialists will investigate the source of the smoke and, if necessary, send notification post cards with information about the health impacts of PM and the DLT program to the homes around the source of the woodsmoke.

6.3 Clean Air Calendar Contest

The District runs an annual calendar art contest in which K-12 students who live within the District's boundaries can submit artwork expressing why clean air is important to them. This program engages youth and encourages them to think about the health effects of air pollution. Twelve student winners are chosen. They receive gift cards, certificates of achievement, are highlighted in a press release, and have their artwork featured in the following year's calendar.

6.4 General Clean Transportation and Air Quality Awareness

The District employs public messaging to spread awareness and use of clean transportation methods, including by participating in local Safe Routes to School programs, bike and pedestrian events, and transportation demand management efforts.

Through the U.S. EPA's EnviroFlash program, the District sends daily air quality forecasts and action-day alerts to more than 5,000 local residents and employers. This correspondence helps residents stay up-to-date about air pollution levels and offers information on how the public can help to improve air quality.

The District has a robust social media presence. On Facebook, the District has more than 3,000 followers with a monthly reach between 2,000 and 4,000 accounts. On X, the District has more than 1,700 followers and a monthly reach of roughly 1,000 accounts. The District also reaches approximately 20,000 Nextdoor members each month and 400 LinkedIn accounts. Social media posts include alerts, updates, articles, statistics, and other educational information regarding air quality to help boost awareness. The District also sends out a monthly e-newsletter to more than 300 subscribers. It includes articles, updates about District programs, and other news related to air quality.

7. Transport Mitigation Regulation

CARB has provided the following guidance relating to ozone transport:

“The California Clean Air Act (CCAA or Act) requires the Air Resources Board (ARB or Board) to assess the contribution of ozone and ozone precursors from upwind regions on ozone concentrations that violate the State ozone standard in downwind areas. The Act also directs ARB to establish mitigation requirements for upwind districts designed to mitigate their impact on downwind districts.

“ARB originally established mitigation requirements in 1990 which are contained in Title 17, California Code of Regulations, Sections 70600 and 70601. These regulations were amended in 1993 and more recently in 2003. The Board adopted amendments on May 22, 2003, which were approved by the Office of Administrative Law on December 4, 2003, and became effective on January 3, 2004.

“These amendments added two new requirements for upwind districts. These amendments require upwind districts to (1) consult with the downwind neighbors and adopt “all feasible measures” for ozone precursors and (2) amend their “no net increase” thresholds for permitting so that they are equivalent to those of their downwind neighbors no later than December 31, 2004. The amendments clarify that upwind districts are required to comply with the mitigation requirements, even if they attain the State ozone standard in their own district, unless the mitigation measures are not needed in the downwind district.”

For clarification, the California Health and Safety Code §39610 actually required CARB no later than December 31, 1989, to identify each air basin in which transported air pollutants from upwind areas outside the air basin caused or contributed to a violation of the State ambient air quality standard for ozone and to identify the district of origin for the transported air pollutants. Under Title 17, Division 3, Chapter 1, Subchapter 1.5, Article 6, Section 70500, the State did not identify the origin of transport by air district, but by region. CARB has identified the “Broader Sacramento Area” as transporting to the Upper Sacramento Valley, the San Joaquin Valley, the San Francisco Bay Area, and the Mountain Counties. Included in the definition of “Broader Sacramento Area” is the Yolo-Solano AQMD.

The first requirement of all feasible measures was addressed during the consultation and creation of the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan. In this plan, an extensive all feasible measures analysis for each district in the SFNA was completed and is discussed in further detail in the following section. The second requirement was implemented through District Rule 3.20, Ozone Transport Mitigation, which was adopted by the Governing Board on December 8, 2004. This rule implemented a 10 ton per year “no net increase” program for VOC and NOx.

8. All Feasible Measures

The CCAA requires an air quality strategy to achieve a 5% average annual ozone precursor emission reduction when implemented or, if that is not achievable, an expeditious schedule for adopting every feasible emission control measure under District purview¹⁷. Because the District is a NOx-limited area, reductions to NOx emissions have a larger effect on ozone concentrations than reductions to VOC emissions.

In the SFNA's SIP for the 2015 federal ozone standard¹⁸, CARB conducted a sensitivity modeling analysis to determine how the changes of each ozone anthropogenic precursor in the attainment year will change the ozone design value at a particular monitoring site. This analysis was conducted by reducing NOx or VOC by 10% in the SFNA from the 2032 forecasted emission inventories. The VOC to NOx trading ratios resulting from CARB's modeling are shown for the District's monitoring sites in Table 7.

Table 7: VOC to NOx Trading Ratio

Monitoring Site	VOC to NOx Trading Ratio
Davis – UCD	10.4433
Woodland	25.4371
Vacaville	17.9687

The District averaged VOC and NOx emission reductions for the 2018 – 2020 three-year period and the 2021 – 2023 three-year period. Using the Davis – UCD monitoring site's VOC to NOx trading ratio, the District has estimated a weighted average precursor emission reduction of 5.8% for both three-year periods. Although the unweighted average precursor emission reductions were estimated to be 3.9% and 3.8% for these periods, the weighted averages more accurately reflect the impact these reductions will have on ozone concentrations.

Table 8: Ozone Precursor Pollutant Percent Decrease

	2018 – 2020 Three-Year Average	2021 – 2023 Three-Year Average
VOC Percent Decrease	1.4%	1.3%
NOx Percent Decrease	6.3%	6.3%
Unweighted Precursor Percent Decrease	3.9%	3.8%
Weighted Precursor Percent Decrease	5.8%	5.8%

The District is committed to reviewing feasible measures adopted across the state to obtain future emissions reductions. The District, in conjunction with CARB and the other SFNA air districts, underwent a rigorous analysis of all reasonably available control measures (RACM) during the development of the federal SIP for attainment of the 2015 8-hour ozone standard. Any measure that was deemed to be feasible in our jurisdiction was identified, and further analysis of its cost-effectiveness and emissions reduction potential was conducted to determine if the measure could be slated for adoption/amendment into District Rules and Regulations.

¹⁷ H&SC §40914

¹⁸ <https://www.ysagmd.org/wp-content/uploads/2023/08/Sac-Regional-2015-NAAQS-8-hr-O3-Attainment-and-RFP-with-Appendices.pdf>

9. Interagency Consultation

The District will hold an interagency meeting on December 15, 2025 to discuss the proposed plan with neighboring, upwind, and downwind air districts, as well as other interested agencies. A list of the air districts and local agencies that received the document follows. Any comments submitted by these agencies will be included Section 10, Public Review and Workshop.

- Association of Bay Area Governments
- Amador County APCD
- Bay Area AQMD
- Butte County AQMD
- Calaveras County APCD
- California Air Resources Board
- Colusa County APCD
- El Dorado APCD
- Feather River AQMD
- Glenn County APCD
- Mariposa County APCD
- Northern Sierra AQMD
- Placer County APCD
- Sacramento Area Council of Governments
- Metropolitan Transportation Commission
- Sacramento Metropolitan AQMD
- San Joaquin Valley APCD
- Shasta County AQMD
- Tehama County APCD
- Tuolumne County APCD

10. Public Review and Workshop

The District will hold a public workshop to discuss the proposed adoption of the Plan on December 15, 2025 at the District office. Notifications will be sent to surrounding air districts, City Managers within the District, building, planning, and community development departments within the District, all Board members, and all permit or registration holders. The workshop notice will also be published in the local newspapers. A copy of the public workshop notice and draft Plan will be posted on the District's webpage.

11. Conclusion

The District has contributed to the reduction of ozone precursor pollutants by adopting and enforcing air quality control rules, implementing pollution reduction incentives programs, and working with agency partners and local stakeholders. These efforts, along with the regulatory efforts of CARB and the U.S. EPA to reduce mobile source emissions, have gradually improved air quality in the District and reduced residents' exposure to unhealthy levels of air pollution. The District will continue in these efforts to reduce air pollution and attain the state and federal health-based ambient air quality standards.