Yuba City-Marysville $PM_{2.5}$ Second Maintenance Plan

Released for Public Review March 3, 2023

Public Hearing April 3, 2023

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I. Executive Summary

The Yuba City-Marysville $PM_{2.5}$ Second Maintenance Plan is intended to provide necessary data and analyses to show maintenance of the 2006 24-hour $PM_{2.5}$ national ambient air quality standard from 2024 through 2035. This plan includes updated emission inventories, demonstrates maintenance of the PM2.5 standard, provides updated control measure evaluation, and establishes new motor vehicle emission budgets (MVEB).

The Yuba City-Marysville nonattainment area was redesignated to attainment for the 2006 24-hour $PM_{2.5}$ standard effective January 8, 2015[1]. In the same action, the United States Environmental Protection Agency (US EPA) approved the Yuba City-Marysville PM2.5 maintenance plan and motor vehicle emission budgets.

To be reclassified as an attainment area, the Clean Air Act (CAA) section 175A requires attainment and maintenance of the standard for 20 years, demonstrated in two consecutive 10-year maintenance periods. Section 175A(b) requires the second maintenance plan be submitted 8 years after redesignation to attainment, or January 8, 2023.

This Second PM2.5 Maintenance Plan (Plan) has been prepared to incorporate all of the requirements in section 175A of the Clean Air Act (CAA). The data in the Plan shows that the Yuba City-Marysville nonattainment area continues to meet the 24-hour standard, and will meet the standard throughout the maintenance period until 2035.

The Yuba City-Marysville area has maintained the standard since designation to attainment. The attainment year, intermediate year, and final year inventories use winter-time emissions due to the seasonality of the $PM_{2.5}$ exceedances, as described in Chapters IV and V. The maintenance demonstration includes emissions of directly emitted $PM_{2.5}$, NOx, and SOx, and includes conservative assumptions such as the inclusion of all available emission reduction credits of NOx and PM_{10} applied to the final year inventory and use of a starting design value affected by wildfire smoke events. Even with the conservative assumptions the area demonstrates attainment of the standard through 2035.

[1] 79 FR 72981

II. Introduction and Background

Planning Area

On October 8, 2008, the US EPA designated the Yuba City-Marysville $PM_{2.5}$ Planning Area as nonattainment for the 24-hour $PM_{2.5}$ NAAQS. The designations and classifications were printed in the Federal Register on November 13, 2009 (74 FR 58688) and became effective on December 14, 2009. The Yuba City-Marysville $PM_{2.5}$ Planning Area (Planning Area) is located in the southeastern portion of the Sacramento Valley Air Basin (SVAB) and includes all of Sutter County and a portion of Yuba County, as described in Appendix A. Figure 1 shows the location of the SVAB.

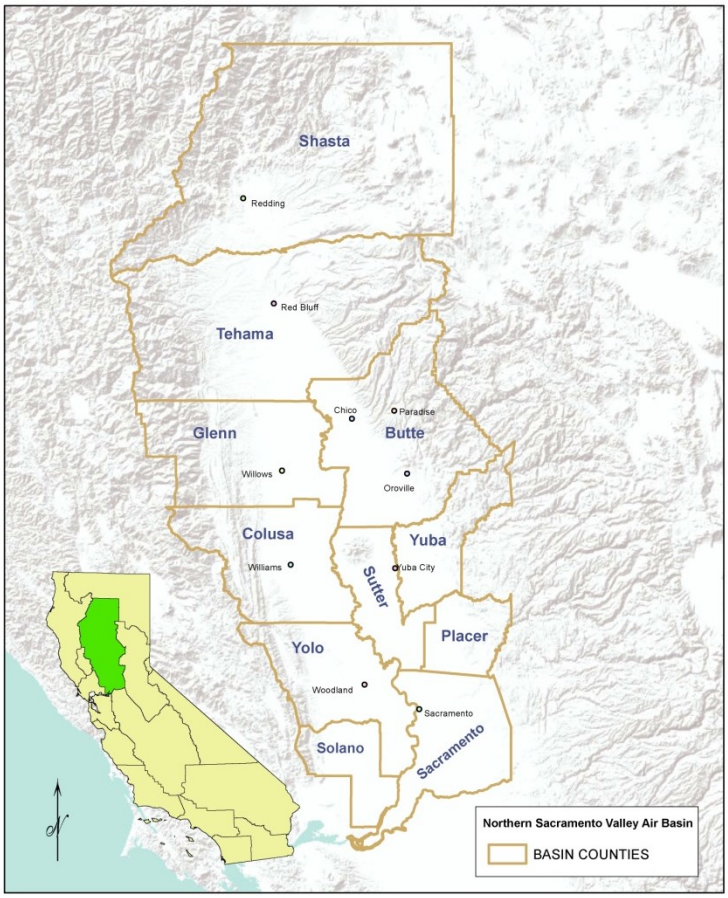
The SVAB is bound on the north and west by the Coastal Mountain Range, on the east by the southern portion of the Cascade Mountain Range and the northern portion of the Sierra Nevada Mountains, and on the south by the San Joaquin Valley Air Basin. These mountain ranges reach heights in excess of 6,000 feet above mean sea level (MSL), with individual peaks rising much higher. Although a portion of the Planning Area is at elevations higher than 1,000 feet above MSL, the vast majority of its populace lives and works below that elevation. The four incorporated cities of Marysville (population just over 12,000), Wheatland (population just above 3,000), Yuba City (population approximately 65,000), and Live Oak (population of about 8,000) are located on the valley floor between 59-92 feet elevation and are located in the Yuba City – Marysville PM2.5 Planning Area.

Summers are typically dry and warm. Average summer temperatures range from an average high of 93°F to an average low of 60°F. Winter conditions are characterized by occasional rainstorms interspersed with stagnant and sometimes foggy weather. During winter, north winds become more frequent, but winds from the south predominate. Rainfall occurs mainly from late October to early May, averaging 17.2 inches per year, but varies significantly each year. Average winter temperatures range from an average high of 57°F to an average low of 39°F[2].

In addition to prevailing wind patterns that control the rate of dispersion of local pollutant emissions, Yuba and Sutter counties experience two types of inversions that affect the air quality. The first type of inversion layer contributes to photochemical smog problems by confining pollution to a shallow layer near the ground. This occurs in the summer when sinking air forms a “lid” over the region. The second type of inversion occurs when the air near the ground cools while the air aloft remains warm. These inversions occur during winter nights and can cause localized air pollution “hot spots” near emission sources because of poor dispersion.

[2] Climate data obtained from https://wrcc.dri.edu/ covering 1981-2010 measurements from the Marysville station.

Figure 1:Map of the Northern Sacramento Air Basin



Background on Particulate Matter Air Pollution

Fine particulate matter, referred to as $PM_{2.5}$, is that portion of particulate matter that is 2.5 microns and smaller in diameter. $PM_{2.5}$ pollution can be small particles or liquid aerosols. $PM_{2.5}$ pollution is classified in terms of primary and secondary particles. All primary particles are emitted directly from a stack, volume source, or area source as either filterable or condensable particulate matter (PM). Primary PM is the sum of filterable and condensable PM. Examples include particulate from combustion sources (both filterable and condensable), fugitive dust sources, and sea salt spray. Filterable and condensable PM are further discussed in Chapter V.

Secondary particles are those formed through chemical reactions involving atmospheric oxygen, water vapor, hydroxyl radicals, nitrates, sulfates, sulfur dioxide (SO_2), oxides of nitrogen (NO_X), ammonia (NH_3) and organic gases from natural and anthropogenic sources. Particulate matter may be produced by natural causes (e.g., pollen, ocean salt spray, wind-blown dust and soil erosion) and by human activity (e.g., road dust, agricultural operations, fuel combustion products, wood burning, rock crushing, cement production and motor vehicles).

Health studies have shown a significant association between fine particles and premature death from heart or lung disease. Fine particles can aggravate heart and lung disease and have been linked to effects such as: cardiovascular symptoms; cardiac arrhythmias; heart attacks; respiratory symptoms; asthma attacks; and bronchitis. These effects can result in increased hospital admissions, emergency room visits, absences from school or work, and restricted activity days. Individuals that may be particularly sensitive to fine particle exposure include people with heart or lung disease, the elderly, and children[3].

[3] Air Quality Designations for the 2006 24-hour Fine Particles (74 FR 58688)

III. Regulatory History/Plan Elements

Pursuant to the federal Clean Air Act, the U.S. Environmental Protection Agency (US EPA) sets primary air quality standards to protect public health including protection of sensitive populations such as asthmatics, children and the elderly, and secondary standards to protect public welfare including the protection against decreased visibility and damage to crops, animals, vegetation and buildings. Achieving the federal standards protects public health, reduces the region's health care costs, and improves the quality of life for residents. This chapter describes US EPA's process for setting health-based standards and designating areas based on those standards, the history of the $PM_{2.5}$ standard and the Planning Area's designations, the CAA requirements for areas based on those designations, and the statutory requirements an area must meet to be redesignated to attainment.

National Ambient Air Quality Standards

The Clean Air Act (CAA) was adopted in 1970. The legislation authorized the development of comprehensive federal and state regulations to limit emissions from stationary and mobile sources. The CAA was amended in 1977 and again in 1990. The CAA and amendments require the US EPA adopt national ambient air quality standards (NAAQS) for six criteria pollutants: ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. US EPA formally designates areas as "nonattainment" (not meeting the standard), "unclassifiable/attainment" (meeting the standard or expected to be meeting the standard despite a lack of monitoring data), or "unclassifiable" (insufficient data to classify).

Once nonattainment designations take effect, the state and local governments have usually three years to develop implementation plans outlining how areas will attain and maintain the standards by reducing air pollutant emissions. The CAA requires US EPA to conduct a periodic review of the science upon which the standards are based and the standards themselves.

Overview of Particulate Matter NAAQS

The US EPA issues NAAQS for particulate matter, one of the six criteria pollutants. The US EPA first issued standards for particulate matter in 1971 and has subsequently revised the standards in 1987, 1997 and 2006. The 2006 revision addressed two categories of particle pollution: *fine particles* ($PM_{2.5}$), which are 2.5 microns in diameter and smaller; and *inhalable coarse particles* (PM_{10}) which are smaller than 10 microns and larger than 2.5 microns.

The US EPA established the separate annual and 24-hour standards for $PM_{2.5}$ in 1997[4]. The annual standard was set at 15 micrograms per cubic meter ($\mu g/m^3$). The 24-hour

[4] 62 FR 38652, Jul 18, 1997

standard was set at 65 µg/m^3, based on a 3-year average of the 98th percentile of 24-hour $PM_{2.5}$ concentrations.

In 2006, the US EPA lowered the 24-hour $PM_{2.5}$ standard from 65 µg/m^3 to 35 µg/m^3, and retained the annual $PM_{2.5}$ standard at 15 µg/m^3. The revised 24-hour $PM_{2.5}$ standards were published on October 17, 2006[5] and became effective on December 18, 2006.

In 2012, the US EPA revised the primary annual PM2.5 standard to 12 µg/m3, and retained the secondary annual standard at 15 µg/m3and the 24-hour standard at 35 ug/3[6]

The US EPA reviewed the PM2.5 primary and secondary standard in 2020 and retained the current standards, without revision, effective December 18, 2020[7]. On June 10, 2021, US EPA announced it will reconsider the December 2020 decision.

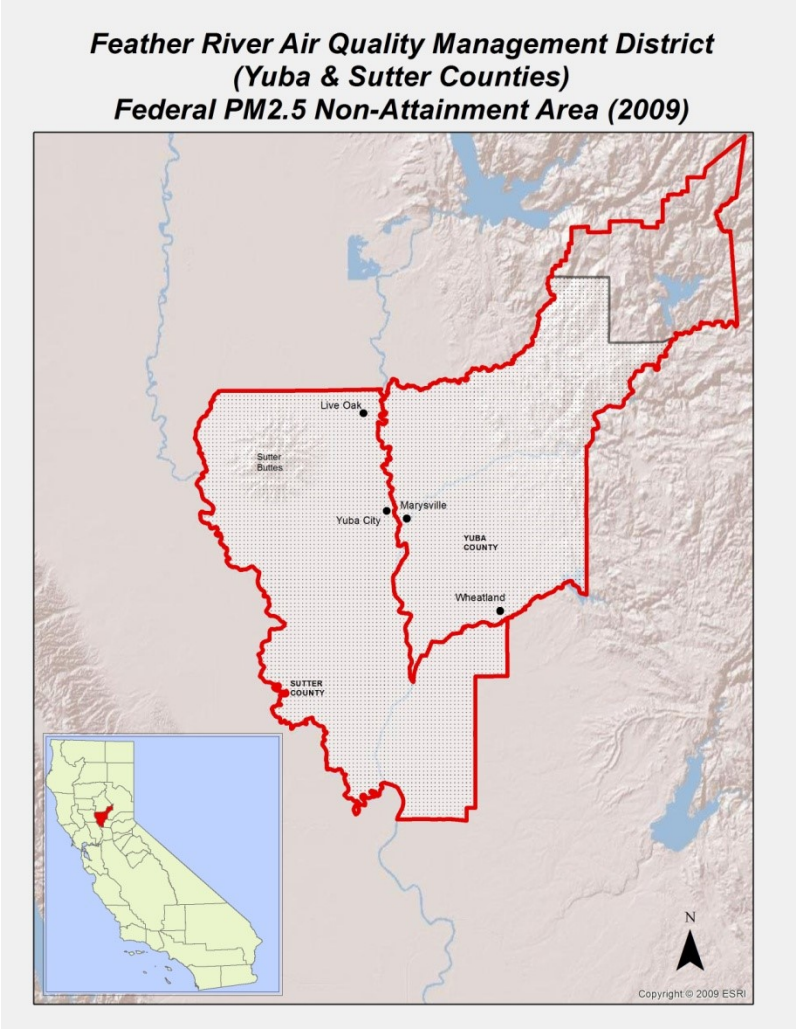
On January 27, 2023, the US EPA announced it is reconsidering the NAAQS for particulate matter. The US EPA is proposing to retain the current primary and secondary 24-hour PM2.5 and PM10 standards and lower the primary annual average PM2.5 standard. The US EPA will be taking comments on the reconsideration and proposed actions until March 28, 2023.

Designations

On November 13, 2009[8] the US EPA promulgated air quality designations for all areas in the U.S. for the 2006 $PM_{2.5}$ NAAQS, effective on December 14, 2009. The Yuba City-Marysville area was designated nonattainment for the 24-hour $PM_{2.5}$ NAAQS based on 2005-2007 monitoring data. State Implementation Plans (SIPs) were due to the US EPA by December 14, 2012. Figure 2 shows the nonattainment area which consists of all of Sutter County and the majority of Yuba County. Appendix A contains the description of the Yuba City-Marysville nonattainment area from the federal register notice.

[5] 71 FR 61144, Oct 17, 2006
[6] 78 FR 3085, Jan 15, 2013
[7] 85 FR 82684, Dec 18, 2020
[8] 74 FR 58688, Nov 13, 2009

Figure 2: Nonattainment Area Map



Redesignation to Attainment

The Yuba City – Marysville Planning Area met the standard based on 2006-2008 monitoring data and continued to monitor attainment in 2009, 2010, and 2011. On January 10, 2013, the US EPA determined that the area met the standard based on 2009-2011 data[9], known as a Clean Data Finding. The Board of Directors adopted a Redesignation Request and Maintenance Plan in April 2013. US EPA approved the redesignation to attainment effective January 8, 2015.

[9] Determination of Attainment for the Yuba City-Marysville Nonattainment Area for the 2006 Fine Particle Standard; California; Determination Regarding Applicability of Clean Air Act Requirements, 78 FR2211, January 10, 2013.

Requirements for a Second 10-Year Maintenance Plan

Clean Air Act section 175A(b) requires the submittal of a second 10-year maintenance plan that continues to show attainment and maintenance of the standard for an additional 10 years following the first 10-year period. This revision is submitted eight (8) years after the original redesignation request/maintenance plan has been approved. The deadline to submit the Second 10-Year PM2.5 Maintenance Plan for Yuba City-Marysville is January 8, 2023.

The District's Second Maintenance Plan will demonstrate continued attainment and maintenance from 2025 through 2035 for Yuba City-Marysville area and address the CAA requirements specified in section 175A and US EPA Guidance (Calcagni, 1992). The Plan includes the following:

- A contingency plan to ensure continued maintenance from 2025 through 2035 and prompt correction of any unforeseen violations
- Emission inventories for the base year (2020), first year of the second 10-year maintenance plan (2025), interim year (2026), and last year of the second 10-year maintenance plan (2035)
- Development of motor vehicle emission budgets for 2026 and 2035
- Maintenance demonstration
- Approved monitoring network plan
- Verification of continued attainment

Table 1: CAA Requirements for PM2.5 Second Maintenance Plan

Section In Plan	Description
Section 2	Introduction and Background: Provides an introduction that contains background information on PM2.5 air pollution, the Yuba City – Marysville nonattainment area, Clean Air Act requirements.
Section 3	Regulatory History and Plan Elements: Provides a background on the NAAQS for PM2.5, regulatory actions, requirements for a second maintenance plan
Section 4	Air Quality: Provides PM2.5 monitoring information and data, analyzes PM2.5 data and trends, describes exceptional events impacting the area
Section 5	Emission Inventory: Provides PM2.5 and precursor pollutants (NOx) baseline emission inventory (2020), maintenance years (2024 and 2035), and milestone year (2026) projections.
Section 6	Maintenance Demonstration: Describes the control measure requirements and identifies control measures that will provide for the maintenance of the PM2.5 standard; Emission Reduction Credits and limitations for use.
Section 7	Contingency Plan: Discusses contingency plan requirements and the maintenance contingency plan.
Section 8	Conformity: Describes the transportation conformity and general conformity requirements and development of the motor vehicle emission budgets.
Section 9	Summary and Conclusions
Appendix A	Definition of Yuba City – Marysville Planning Area
Appendix B	Emission Inventories
Appendix C	Emission Inventory Information

IV. Air Quality

On January 10, 2013, the US EPA determined that the area has attained the 2006 24-hour PM2.5 standard based on 2009-2011 monitoring data. The final action also included a review of the quality assured, and certified $PM_{2.5}$ ambient air monitoring data and found the data to be complete[10]. The area has continued to meet the standard since the determination in 2013, excluding data affected by exceptional events which will be described further in this chapter.

Monitoring Site Information

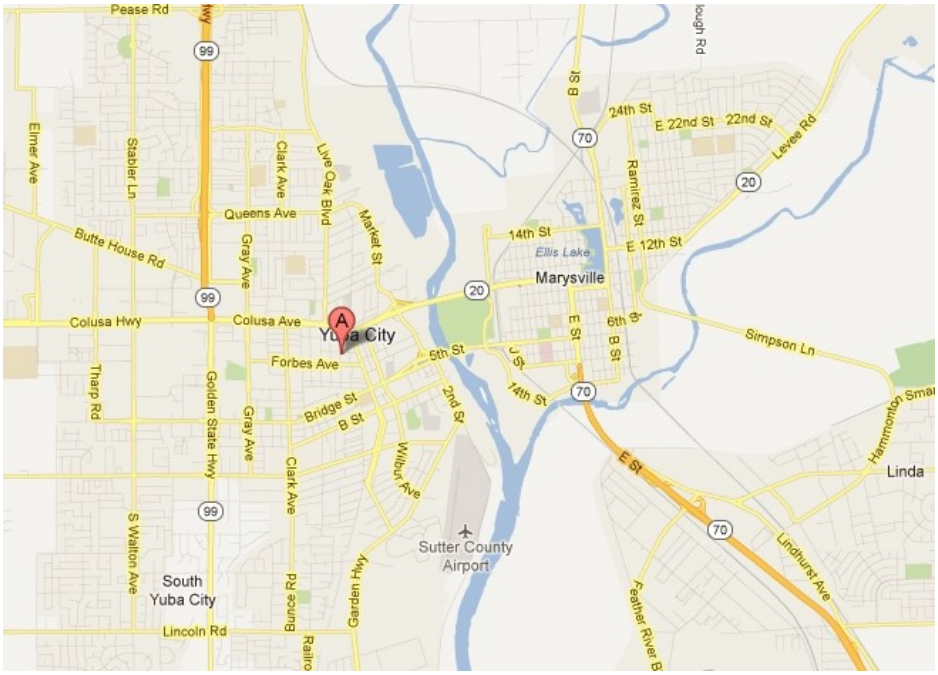
The Yuba City-Maysville Planning Area has one monitoring site, Yuba City-Almond Street (site number 06-101-0003), that collects $PM_{2.5}$ air quality data for a comparison to the NAAQS. This site is operated by the California Air Resources Board. The monitoring site used to be equipped with a Federal Reference Monitor (FRM). Through January 18, 2007, the monitor collected samples on a one in six days schedule. On January 19, 2007, the frequency was increased to daily sampling. The FRM monitor at Yuba City collected daily PM2.5 until April 9, 2020, when it was replaced with a Federal Equivalence Method (FEM) Beta Attenuation Monitor (BAM) 1020 continuous monitor.

$PM_{2.5}$ data are submitted to the US EPA database, Air Data: Air Quality Data Collected at Outdoor Monitors Across the US: http://www.epa.gov/outdoor-air-quality-data and are also available via ARB's web site: http://ww2.arb.ca.gov/air-quality-and-emissions-resources.

Figure 3 shows the location of the Yuba City – Almond Street monitoring site.

[10] Determination of Attainment for the Yuba City-Marysville Nonattainment Area for the 2006 Fine Particle Standard; California; Determination Regarding Applicability of Clean Air Act Requirements, 78 FR 2211, January 10, 2013.

Figure 3: Location of Yuba City - Almond Street Monitor



Design Values and Monitoring Data

A monitoring site is in attainment of the 24-hour standard when the 24-hour design value is less than or equal to 35 µg/m^3. The 24-hour design value is the three-year average of the annual 98th percentile of 24-hour values recorded at each site. The design values for the Yuba City-Almond Street monitor for 2000 through 2021 are summarized in Table 2. The US EPA regulations require at least 75 percent of data capture in each quarter of a consecutive 3-year period for a design value to be valid. Unfortunately, third quarter of 2014 reached only 70 percent data capture. This deemed 2014, 2015, and 2016 PM2.5 design values invalid. Since concentrations during the third quarter are typically low, both the annual and 24-hour design values are considered representative and therefore are used in depicting trends.

Monitoring data from 2016 to 2021 shows wildfire smoke impacts each year except for 2019. Wildfire smoke impacts typically occur between June and October but have occurred as late as November such as during the Camp Fire in 2018 that affected the town of Paradise in Butte County, located about 40 miles north of the Yuba City – Almond Street monitor. For example, in 2017, the District issued a joint air quality health advisory with the Sutter and Yuba County Health Officers for August 31 to September 5 for the Ponderosa Fire and other regional wildfires. Four of the ten highest PM2.5 daily measurements that year were during the advisory period. In 2018, seven of the top ten PM2.5 daily measurements are attributed to wildfires. The Carr Fire in Shasta County, the Mendocino Complex and other regional fires led the District to issue an air quality health advisory with the Sutter and Yuba County Health Officers on July 26, 2018, that was in effect until August 15, 2018. Six of the top ten PM2.5 measurements are during the time that advisory was in effect and a seventh

exceedance was due to the Camp Fire in November. Except for 2018, the wildfire exceptional events in 2016 to 2019 did not cause the 98th percentile to exceed the standard, and overall, do not affect the attainment status of the area. Therefore, these events do not have regulatory significance and a demonstration for the exceptional events caused by wildfires in 2016-2019 will not be prepared. The 2020 and 2021 monitoring data continued to have a large number of exceptional events, which have regulatory significance, and an Exceptional Event Request is under development for submittal to the US EPA.

The 24-hour design values provided in Table 2 are calculated in accordance with 40 CFR part 50, Appendix N (2006, amended 2007) and contain the 98th percentile, 24-hour design value, annual average and annual design value for 2000-2021. The data in Table 2 includes all exceptional event data, including data being requested for exclusion under the Exception Event Rule in 2020 and 2021.

Table 3 shows the 98th percentile for the years 2016-2021 including the days impacted by wildfire smoke and that will be requested to be excluded in the Exceptional Event Request for 2020 and 2021.

Table 2: Summary Statistics for Yuba City 2000-2021, Including Exceptional Events

Year	24-hr Standard ($\mu g/m^3$)		Annual Standard ($\mu g/m^3$)		% Data Capture				Sample Count				
	98th Percentile	DV	AA	DV	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Total
2000	38	53	10.6	23.7	94	93	87	93	15	17	14	16	62
2001	54	49	11.9	12.9	100	100	100	100	15	18	15	15	63
2002	34	42	13.1	11.8	87	87	100	80	14	15	18	15	62
2003	29	39	9.5	11.5	100	100	100	93	15	16	16	15	62
2004	38	34	10	10.8	100	100	100	93	15	15	16	15	61
2005	42	36	9.5	9.6	87	100	100	100	15	16	25	16	72
2006	41	40	11.3	10.3	87	93	93	100	16	15	16	17	64
2007	34	39	8.2	9.7	84	88	93	83	63	80	86	76	305
2008	64.6	47	10.7	10.1	79	97	90	85	72	88	83	78	321
2009	27.5	42	7.9	8.9	92	99	91	97	83	90	84	89	346
2010	17.1	36	5.9	8.2	77	93	89	96	69	85	82	88	324
2011	37.1	27	8	7.3	79	82	95	92	71	75	87	85	318
2012	23.7	26	6.9	6.9	97	96	96	99	88	87	88	91	354
2013	25.1	29	8.2	7.7	81	88	87	89	73	80	80	82	315
2014	24.8	25	9.4	8.2	92	89	70	93	83	81	64	86	314
2015	31.4	27	9.6	9.1	92	85	92	92	83	77	85	85	330
2016	22.2	26	8.1	9.1	95	100	96	93	86	91	88	86	351
2017	31.7	28	9.3	9	91	93	83	99	82	85	76	91	334
2018	37.3	30	10.3	9.2	98	90	98	79	88	82	90	73	333
2019	26.7	32	8.4	9.3	98	97	92	100	88	88	85	92	353
2020	91.1	52	16.4	11.7	88	98	100	97	80	89	92	89	350
2021	45.1	54	14.5	13.1	100	95	100	98	90	86	92	90	358

Data Affected by Wildfires

Data Affected by Wildfires and an Exceptional Event Demonstration was accepted by US EPA as data affects attainment determination

Quarter 3 of 2014 only reached 70% capture

Table 3: 98th Percentiles Including All EE and Wildfire Impacted Data

Year	2016		2017		2018		2019		2020		2021	
Obs Count	351		334		333		353		350		358	
Rank	8		7		7		8		7		8	
	Date	**Conc.**	**Date**	**Conc.**	**Date**	**Conc.**	**Date**	**Conc.**	**Date**	**Conc.**	**Date**	**Conc.**
1	6/30/16	40.1	9/1/17	45	8/6/18	52.8	1/4/19	39.3	9/13/20	252.9	8/7/21	89.9
2	12/30/16	33.8	9/2/17	36.3	8/4/18	49.8	1/30/19	38.7	9/12/20	213.5	8/28/21	82.5
3	12/4/16	31.4	12/8/17	33.6	8/9/18	49.5	1/3/19	31.9	8/20/20	131.2	8/29/21	70.8
4	12/22/16	27.1	12/2/17	33.5	11/20/18	47	12/21/19	31.2	9/11/20	122.8	8/19/21	57.6
5	12/6/16	24.1	12/9/17	32.8	1/1/18	40.6	1/31/19	29.1	9/10/20	103.6	8/18/21	54.6
6	12/29/16	23.6	9/4/17	32.4	1/3/18	38.3	1/29/19	29.1	8/21/20	103.2	8/27/21	49.1
7	12/23/16	22.7	9/3/17	31.7	8/7/18	37.3	10/14/19	28.2	10/3/20	91.1	7/28/21	47.5
8	12/5/16	22.2	10/18/17	31.6	8/10/18	36.7	1/26/19	26.7	10/2/20	87.9	8/6/21	45.1
9	10/8/16	20.4	10/10/17	31.5	8/8/18	34.7	12/28/19	24.6	8/22/20	86.3	8/20/21	40.5
	98th Percentile											

Exceptional Event Demonstration

The District and CARB submitted an Initial Notification of Intent (INI) on April 25, 2022, to the US EPA Region 9 regarding the exclusion of PM2.5 data affected by exceptional events. US EPA R9 acknowledged that exceptional event data would affect the area's demonstration of maintaining the standard in the second 10-year Maintenance Plan, and requested formal submittal of the documentation by March 31, 2023. The District and CARB are concurrently developing the exceptional event demonstration for the 2020 and 2021 wildfire events with this second maintenance plan that will seek to remove data from those years from the design value calculation. Due to limited resources, the demonstration will only include the data and supporting documentation in the exceptional event demonstration in order for the area to demonstrate attainment with the standard and will not include all exceptional event affected monitoring data. This decision impacts the maintenance demonstration as it uses the 2021 design value as a basis and makes the maintenance demonstration more conservative. Many more days were impacted by wildfires than will be included in the demonstration. Without the removal of some of the 2020 and 2021 exceptional events, the area would not show attainment of the standard. The 2020 demonstration will include August 20 – 25, September 5 – 15, and September 30 – October 4. The 2021 demonstration will include August 27 – 29.

Table 4 shows the 98th percentiles and design values for the 24-hour standard with the exceptional event data removed as requested in the pending 2020 and 2021 requests and the 2008 request. Table 4 also shows the 98th percentiles and design values estimated by the District with both the requested exceptional event data removed in addition to all suspected wildfire smoke impacted days. Tables 5 and 6 provide additional detail on how the values in Table 4 were calculated.

Table 4:Monitoring Data with EE excluded

Year	With Regulatory Exceptional Events Removed		With All Wildfire Impacted Data Removed (for trends purposes)	
	98th Percentile($\mu g/m^3$)	DV ($\mu g/m^3$)	98th Percentile($\mu g/m^3$)	DV ($\mu g/m^3$)
2000	38	53	38	53
2001	54	49	54	49
2002	34	42	34	42
2003	29	39	29	39
2004	38	34	38	34
2005	42	36	42	36
2006	41	40	41	40
2007	34	39	34	39
2008	23.1	33	23.1	33
2009	27.5	28	27.5	28
2010	17.1	23	17.1	23
2011	37.1	27	37.1	27
2012	23.7	26	23.7	26
2013	25.1	29	25.1	29
2014	24.8	25	24. 8	25
2015	31.4	27	31.4	27
2016	22.2	26	22.2	26
2017	31.7	28	29.8	27.8
2018	37.3	30	26.2	26.1
2019	26.7	32	26.7	27.6
2020	37.4	33.8	27.8	26.9
2021	38.2	34.1	26.3	26.9

The 98th percentiles and design values estimated in Table 4 with all wildfire smoke impacted data removed is included to provide additional insight into the overall trends in PM2.5 concentrations for the maintenance area. As previously stated, the District will not be seeking removal of all exceptional event impacted data, therefore several of the 98th percentiles and design values for the Yuba City – Marysville area will be higher than what they would be without the exceptional events, including the design value for 2021 that is the base for the maintenance demonstration. This data is used in Figure 9 below to visually portray the estimated design value trend without any wildfire exceptional events. The effects of additional wildfire impacts on the regulatory design value is also mentioned in section VI Maintenance Demonstration when considering the impacts of continued emission reductions and whether the area will continue to meet the standard throughout the 10 year second maintenance period.

Table 5: 98th Percentiles Upon Approval of 2020 and 2021 EE Demonstration

Year	2016		2017		2018		2019		2020		2021	
Obs Count	351		334		333		353		350		358	
Rank	8		7		7		8		7		8	
1	6/30/16	40.1	9/1/17	45	8/6/18	52.8	1/4/19	39.3	9/13/20	252.9	8/7/21	89.9
2	12/30/16	33.8	9/2/17	36.3	8/4/18	49.8	1/30/19	38.7	9/12/20	213.5	8/28/21	82.5
3	12/4/16	31.4	12/8/17	33.6	8/9/18	49.5	1/3/19	31.9	8/20/20	131.2	8/29/21	70.8
4	12/22/16	27.1	12/2/17	33.5	11/20/18	47	12/21/19	31.2	9/11/20	122.8	8/19/21	57.6
5	12/6/16	24.1	12/9/17	32.8	1/1/18	40.6	1/31/19	29.1	9/10/20	103.6	8/18/21	54.6
6	12/29/16	23.6	9/4/17	32.4	1/3/18	38.3	1/29/19	29.1	8/21/20	103.2	8/27/21	49.1
7	12/23/16	22.7	9/3/17	31.7	8/7/18	37.3	10/14/19	28.2	10/3/20	91.1	7/28/21	47.5
8	12/5/16	22.2	10/18/17	31.6	8/10/18	36.7	1/26/19	26.7	10/2/20	87.9	8/6/21	45.1
9	10/8/16	20.4	10/10/17	31.5	8/8/18	34.7	12/28/19	24.6	8/22/20	86.3	8/20/21	40.5
10	12/21/16	20.4	12/15/17	29.8	12/9/18	32.9	11/13/19	24.3	9/14/20	86	9/24/21	40
11	12/31/16	19.9	12/14/17	29.3	12/13/18	31.3	12/29/19	24.3	8/24/20	84.8	6/26/21	38.2
12	12/14/16	18.7	12/10/17	29.1	9/10/18	30.8	11/5/19	24	8/23/20	72.4	8/30/21	34.6
13	11/25/16	18.7	12/31/17	27	8/13/18	29.4	1/28/19	23.1	7/4/20	71.7	8/21/21	34.5
14	11/11/16	18.5	12/26/17	26.8	8/25/18	28.1	11/3/19	22.4	9/15/20	70.4	8/16/21	33.9
15	7/1/16	18	10/17/17	26.8	8/3/18	28	1/2/19	22.2	10/1/20	67.7	9/14/21	30.5
16	11/18/16	17.8	12/18/17	26.8	12/30/18	27.6	11/1/19	20.7	9/30/20	62.3	12/2/21	30.3
17	9/6/16	17.1	12/22/17	26.3	8/24/18	26.7	7/4/19	20.6	10/4/20	53.8	9/13/21	28.9
18	12/28/16	16.9	8/31/17	26.3	1/2/18	26.5	11/6/19	20.3	8/31/20	51.1	7/29/21	28.7
19	12/27/16	16.8	12/28/17	24.8	12/14/18	26.2	10/15/19	20.1	9/9/20	50.4	12/1/21	28.5
20	12/20/16	16.8	12/24/17	24.3	2/4/18	24.5	1/27/19	19.8	9/8/20	49.7	6/29/21	28.4
21	12/3/16	16.8	12/19/17	23.7	8/23/18	23.8	11/2/19	19.5	9/7/20	48.5	7/4/21	27.9
22	9/7/16	16.2	10/11/17	23.3	8/20/18	23.5	11/17/19	19.4	9/6/20	46.7	5/28/21	27.2
23	12/19/16	15.4	1/17/17	23	11/21/18	23.2	11/23/19	19.4	8/25/20	46.4	9/23/21	27.2
24	2/12/16	15.3	12/23/17	22.6	7/31/18	22.8	11/12/19	19.4	9/5/20	45.2	8/22/21	27.1
25	2/11/16	15.3	12/30/17	22.3	1/18/18	22.8	11/7/19	19.2	8/29/20	44.3	9/5/21	27
26									8/28/20	42.8	8/15/21	26.7
27									8/30/20	39.6	9/4/21	26.6
28									8/26/20	39.4	7/13/21	26.3
29									9/20/20	37.4	12/3/21	26.3
30									10/5/20	37.1	11/22/21	26.3

98th Percentile
Part of the 2020 or 2021 Exceptional Event Demonstration

Table 6: 98th Percentiles with Estimated Wildfire Impacted Days Removed

Year	2016		2017		2018		2019		2020		2021	
Obs count	351		334		333		353		350		358	
Rank	8		7		7		8		7		8	
1	6/30/16	40.1	9/1/17	45	8/6/18	52.8	1/4/19	39.3	9/13/20	252.9	8/7/21	89.9
2	12/30/16	33.8	9/2/17	36.3	8/4/18	49.8	1/30/19	38.7	9/12/20	213.5	8/28/21	82.5
3	12/4/16	31.4	12/8/17	33.6	8/9/18	49.5	1/3/19	31.9	8/20/20	131.2	8/29/21	70.8
4	12/22/16	27.1	12/2/17	33.5	11/20/18	47	12/21/19	31.2	9/11/20	122.8	8/19/21	57.6
5	12/6/16	24.1	12/9/17	32.8	1/1/18	40.6	1/31/19	29.1	9/10/20	103.6	8/18/21	54.6
6	12/29/16	23.6	9/4/17	32.4	1/3/18	38.3	1/29/19	29.1	8/21/20	103.2	8/27/21	49.1
7	12/23/16	22.7	9/3/17	31.7	8/7/18	37.3	10/14/19	28.2	10/3/20	91.1	7/28/21	47.5
8	12/5/16	22.2	10/18/17	31.6	8/10/18	36.7	1/26/19	26.7	10/2/20	87.9	8/6/21	45.1
9	10/8/16	20.4	10/10/17	31.5	8/8/18	34.7	12/28/19	24.6	8/22/20	86.3	8/20/21	40.5
10	12/21/16	20.4	12/15/17	29.8	12/9/18	32.9	11/13/19	24.3	9/14/20	86	9/24/21	40
11	12/31/16	19.9	12/14/17	29.3	12/13/18	31.3	12/29/19	24.3	8/24/20	84.8	6/26/21	38.2
12	12/14/16	18.7	12/10/17	29.1	9/10/18	30.8	11/5/19	24	8/23/20	72.4	8/30/21	34.6
13	11/25/16	18.7	12/31/17	27	8/13/18	29.4	1/28/19	23.1	7/4/20	71.7	8/21/21	34.5
14	11/11/16	18.5	12/26/17	26.8	8/25/18	28.1	11/3/19	22.4	9/15/20	70.4	8/16/21	33.9
15	7/1/16	18	10/17/17	26.8	8/3/18	28	1/2/19	22.2	10/1/20	67.7	9/14/21	30.5
16	11/18/16	17.8	12/18/17	26.8	12/30/18	27.6	11/1/19	20.7	9/30/20	62.3	12/2/21	30.3
17	9/6/16	17.1	12/22/17	26.3	8/24/18	26.7	7/4/19	20.6	10/4/20	53.8	9/13/21	28.9
18	12/28/16	16.9	8/31/17	26.3	1/2/18	26.5	11/6/19	20.3	8/31/20	51.1	7/29/21	28.7
19	12/27/16	16.8	12/28/17	24.8	12/14/18	26.2	10/15/19	20.1	9/9/20	50.4	12/1/21	28.5
20	12/20/16	16.8	12/24/17	24.3	2/4/18	24.5	1/27/19	19.8	9/8/20	49.7	6/29/21	28.4
21	12/3/16	16.8	12/19/17	23.7	8/23/18	23.8	11/2/19	19.5	9/7/20	48.5	7/4/21	27.9
22	9/7/16	16.2	10/11/17	23.3	8/20/18	23.5	11/17/19	19.4	9/6/20	46.7	5/28/21	27.2
23	12/19/16	15.4	1/17/17	23	11/21/18	23.2	11/23/19	19.4	8/25/20	46.4	9/23/21	27.2
24	2/12/16	15.3	12/23/17	22.6	7/31/18	22.8	11/12/19	19.4	9/5/20	45.2	8/22/21	27.1
25	2/11/16	15.3	12/30/17	22.3	1/18/18	22.8	11/7/19	19.2	8/29/20	44.3	9/5/21	27
26									8/28/20	42.8	8/15/21	26.7
27									8/30/20	39.6	9/4/21	26.6
28									8/26/20	39.4	7/13/21	26.3
29									9/20/20	37.4	12/3/21	26.3
30									10/5/20	37.1		
31									9/21/20	35.6		
32									12/24/20	34.3		
33									9/1/20	33.6		
34									1/3/20	33.1		
35									10/8/20	30		
36									8/27/20	29.4		
37									12/20/20	28.7		
38									1/1/20	28.4		
39									8/19/20	28.1		
40									10/29/20	28		
41									1/20/20	27.8		

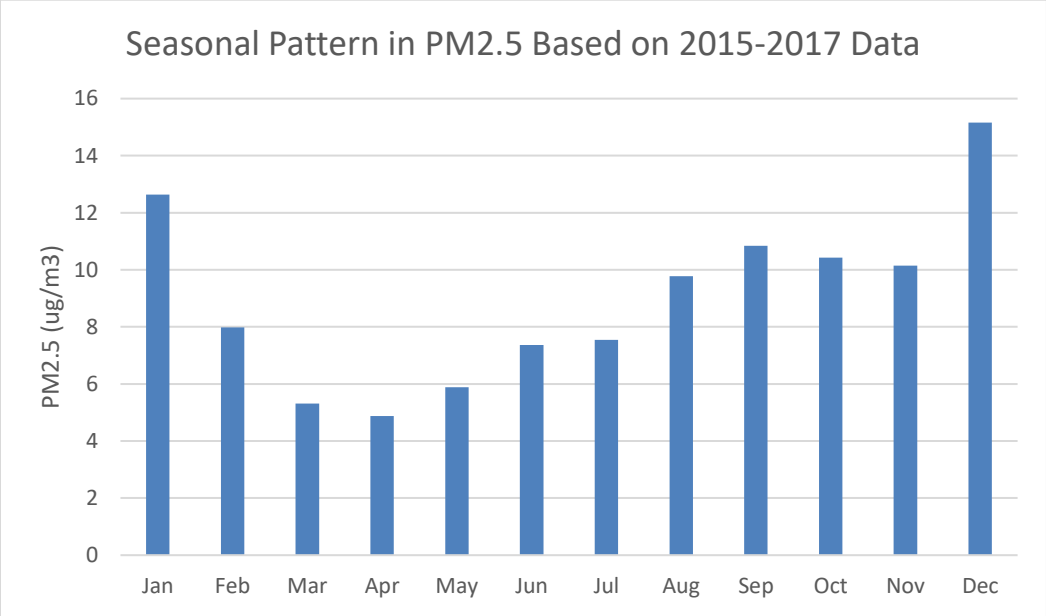
98th Percentile
Wildfire Impacted Day

Air Quality Trends

The PM2.5 air quality data for the Yuba City – Marysville area shows attainment with the standard when exceptional event affected data is removed from consideration.

The winter months of January and December are when concentrations are typically highest. Figure 4 shows the monthly average of PM2.5 24-hour averages during 2015 to 2017 when there were minimal wildfire impacts, showing the highest days during December and January.

Figure 4: Seasonal PM2.5 Pattern



Data for 2015 through 2017 were used to depict seasonal trends to minimize the impact of exceptional events. Additional analyses of January and December data were conducted to reveal the air quality trends without the need to exclude exceptional events data. These two months not only have the highest PM2.5 concentrations but are also void of exceptional events due to lower temperatures and higher moisture. As illustrated in Figure 5, average PM2.5 concentrations during the two highest months declined 57 percent between 2000 and 2021. The number of exceedance days also decreased dramatically during the last ten years, with no days exceeding the standard during six out of the ten years (Figure 6).

Figure 5: Trends in PM2.5 Winter Concentrations

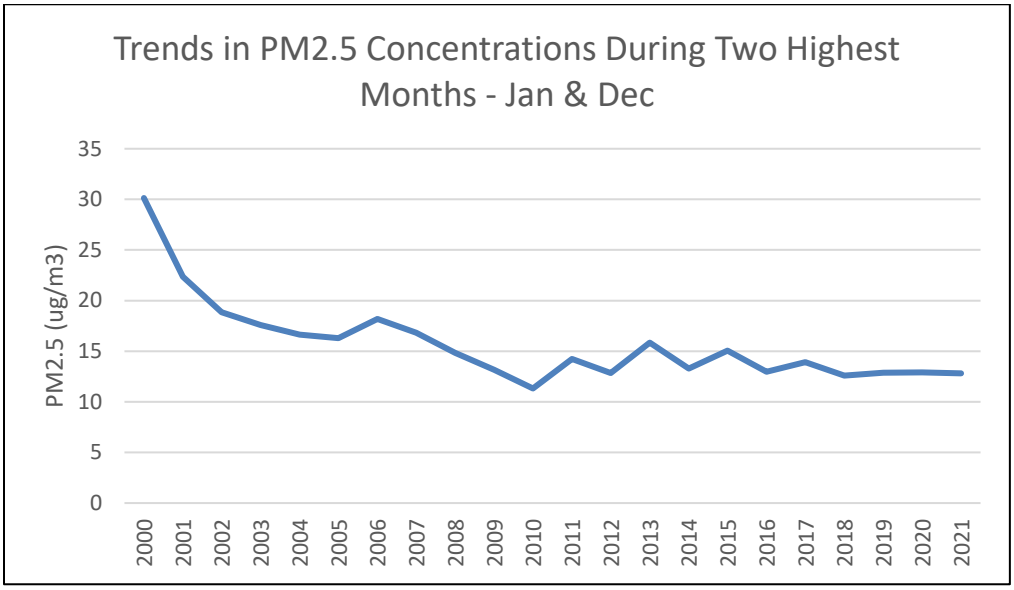


Figure 6: Number of PM2.5 Exceedances by Month

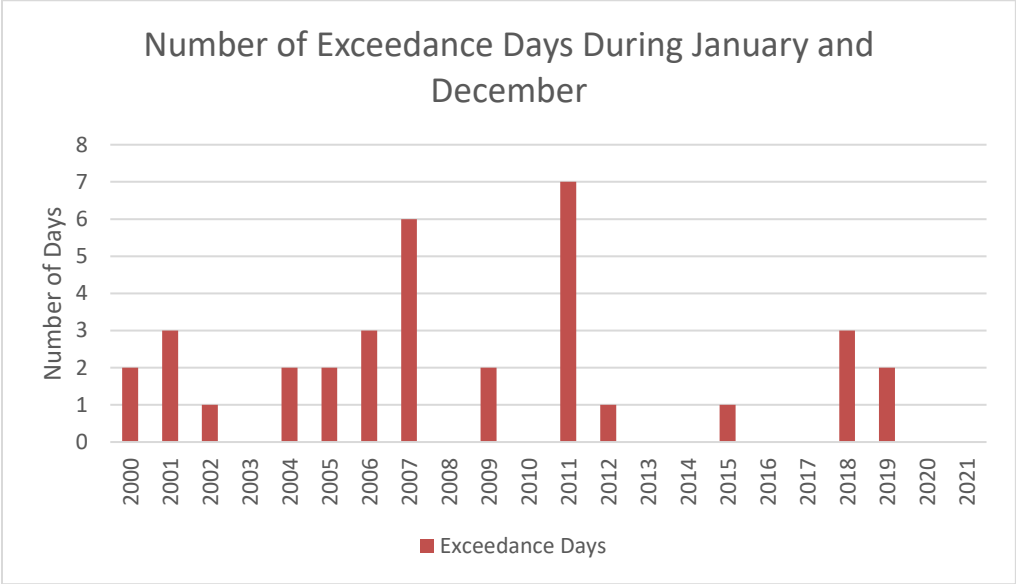


Figure 7 shows the design value trends from 2001 to 2021 that includes all monitoring data, including days affected by exceptional events. Figure 8 shows the design value trends when exceptional events that affect the area's regulatory status are removed, in accordance with US EPA's EER. And Figure 9 shows the design value trends when all suspected exceptional event affected data is removed.

Figure 7: Design Value All Data

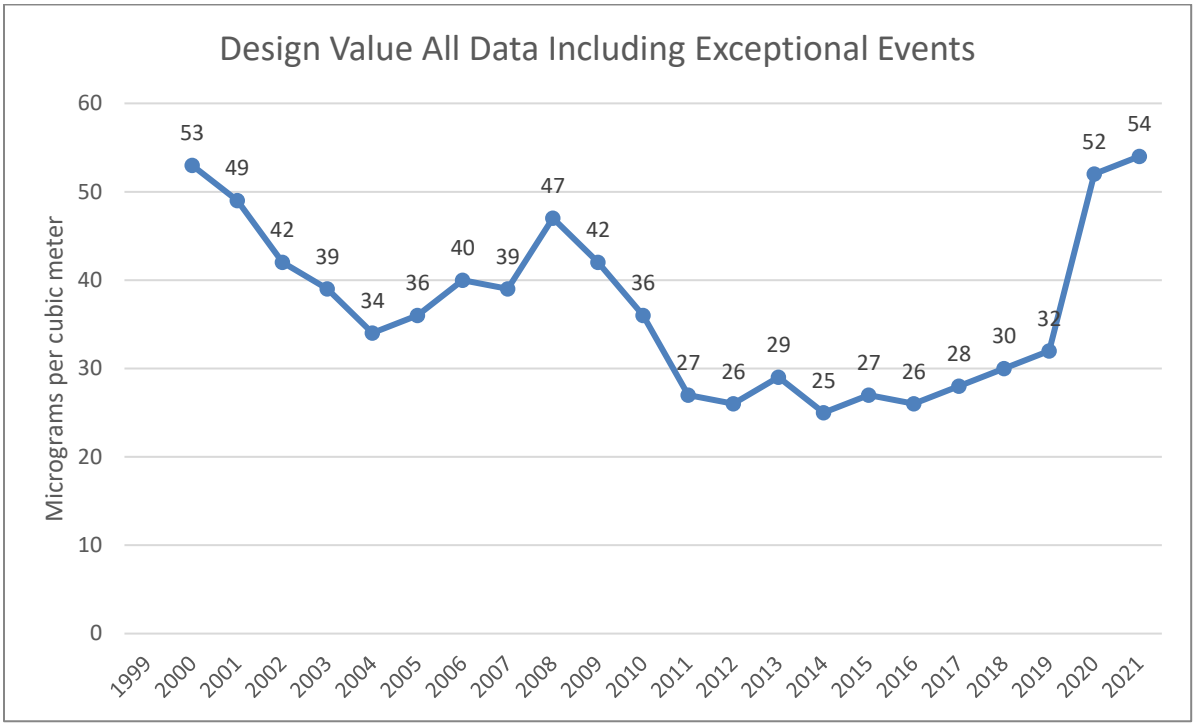


Figure 8: Design Value with Regulatory EE Removed

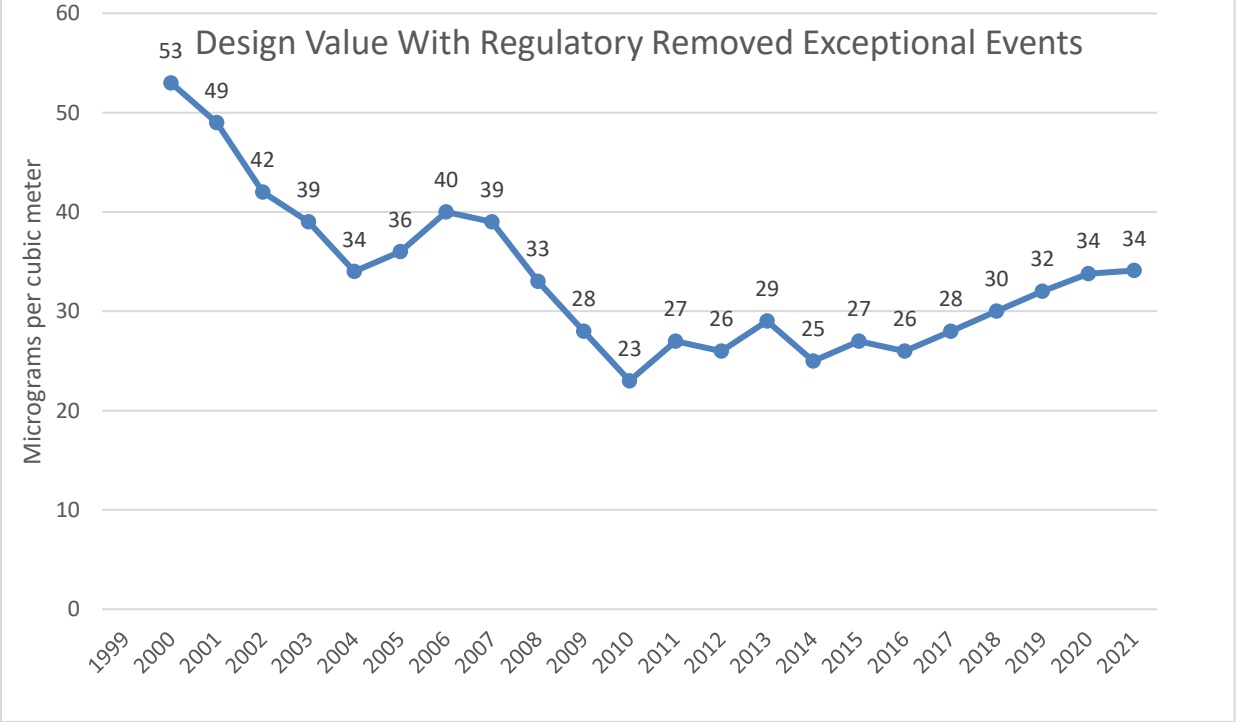
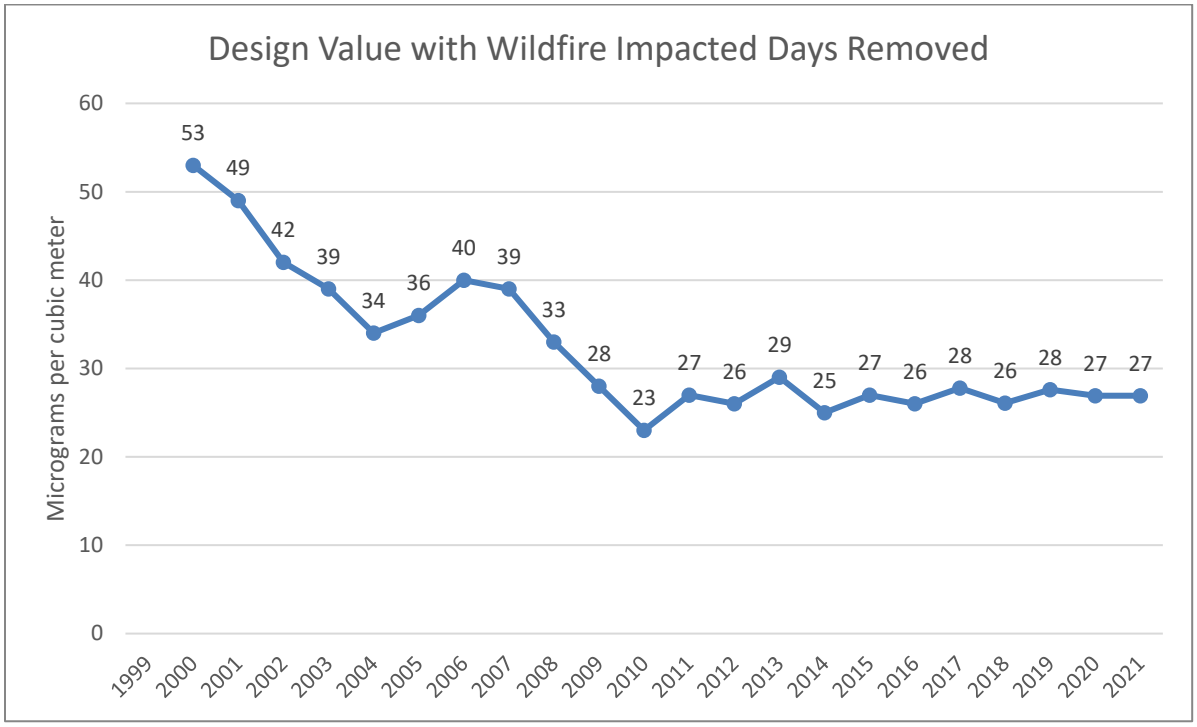


Figure 9: Trends in Design Value with all Wildfire Impacted Days Removed

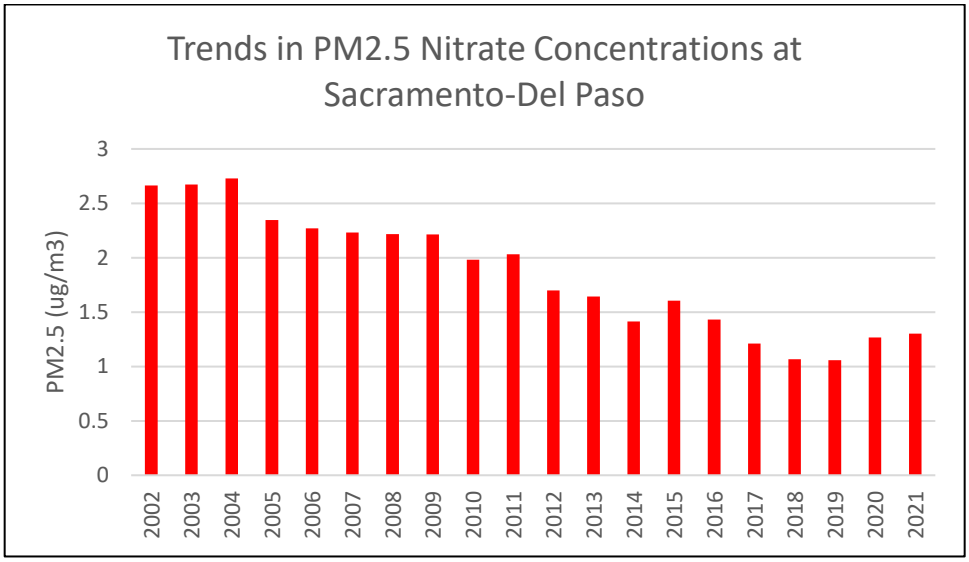


Components of $PM_{2.5}$ in the Planning Area

Analysis by the District, CARB and US EPA indicates the key components of $PM_{2.5}$ in the Planning Area are ammonium nitrate and organic carbon. While ammonium nitrate tends to be regional in nature, organic carbon is more localized. Agricultural and residential open burning as well as smoke from residential wood burning stoves and fireplaces contribute to the $PM_{2.5}$ problem in the Planning Area. Due to meteorological conditions, smoke collects in localized, concentrated pockets. This means that the smoke from just one fire may lead to a localized nuisance and potential health impacts from settling fine PM2.5 particles for the entire neighborhood. Because airborne particles take time to settle, the problem intensifies quickly. Additionally, smoke particles are so tiny that they may seep into homes despite closed doors and windows. Neighbors of wood burners may be breathing unhealthy particles, even if they are not using their own wood burning stoves or fireplaces. Emissions of residential wood burning stoves and fireplaces, agricultural and residential open burning, and other sources are included in Chapter V Emission Inventory.

Nitrate concentrations have decreased in the region, as shown in Figure 10, up to a 50% reduction in concentrations recorded at the Sacramento – Del Paso monitoring site between 2002 and 2021.

Figure 9: Nitrate Concentrations



Speciation Data

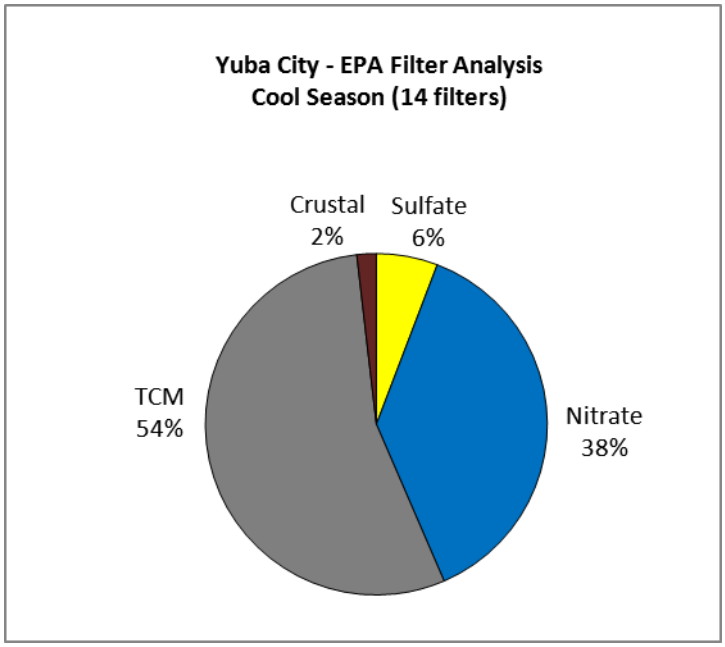
Chemical composition data are helpful in understanding the types of emission sources that contribute to ambient $PM_{2.5}$. Since these kinds of data are not collected in the Yuba City-Marysville nonattainment area, the US EPA arranged for having the limited chemical analysis performed on FRM Teflon filters[11]. These new data were intended to assist US EPA and the States with the identification of boundaries for potential NA areas and to also assist with development of future control strategies if the areas are designated as nonattainment.

A total of 14 filters were analyzed from the Yuba City-Almond Street monitor representing sampling days occurring during the months of October through April from the years 2004, 2005, and 2006. Archived Teflon filters were analyzed by a combination of X-ray Fluorescence (XRF) to provide elemental concentrations and Ion Chromatography (IC) to estimate ions (sulfate, nitrate, potassium, ammonium, etc.). No measure of elemental carbon or organic carbon were made as part of this project as these carbon species cannot be measured on Teflon filters using the thermal optical procedures that are standard in speciation analysis. Carbonaceous mass was estimated by material balance following the SANDWICH method.

The speciation data (summarized in Figure IV-4) show that on high $PM_{2.5}$ days, total carbonaceous mass (TCM) and ammonium nitrate comprise over 90 percent of $PM_{2.5}$ mass. Sulfates and crustal material compose a small portion on high $PM_{2.5}$ days (6% and 2% respectively).

[11] **Availability of New Speciation Data for Some Areas that US EPA Intends to Designate as Nonattainment,** Neil Frank, Office of Air Quality Planning and Standards, September 18, 2008

Figure 10: Speciation Results

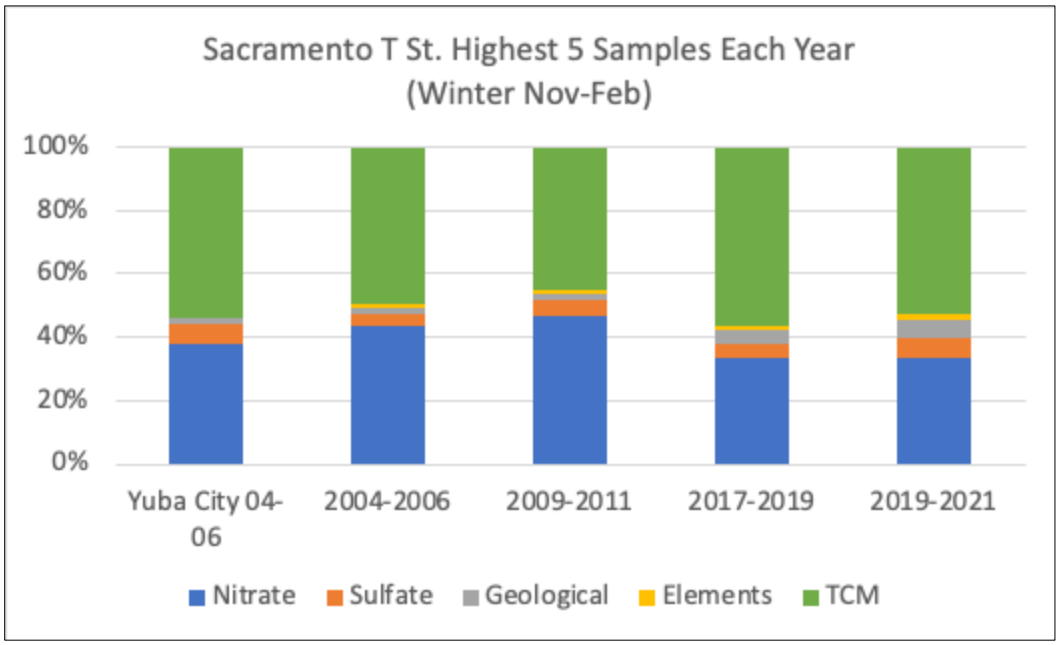


The results from speciation data were also included in US EPA's Technical Support document (TSD) for the designations[12]. The TSD concluded that the speciation data support the idea that localized residential wood combustion on stagnant winter nights is what pushes the monitor into violation. This conclusion is consistent with observed hourly monitoring data and emissions inventory data in that residential wood combustion is a main contributor to wintertime $PM_{2.5}$ exceedances in the Planning Area.

Updated speciation data for the Yuba City monitor is not available, however the chemical composition on a typical high PM2.5 winter day is not expected to change significantly since the speciation data was analyzed. The closest monitoring site with chemical composition data and similar meteorological conditions is Sacramento – T Street. Chemical composition during the five highest PM2.5 wintertime days (Nov-Feb) is compared in Figure 12 at the Sacramento – T Street station and the 2004-2006 speciation data from the Yuba City – Almond Street station. Despite the decrease in NOx emissions over the years, the chemical composition does not vary significantly as high PM2.5 days occur due to the formation of secondary pollutants and accumulation of primary-emitted PM2.5 under stagnant winter weather.

[12] **Technical Support for State and Tribal Air Quality 24-hour Fine Particle ($PM_{2.5}$) Designations**, US EPA Office of Air Quality Planning and Standards, December, 2008.

Figure 11 Chemical Composition on High PM2.5 Days



V. Emission Inventory

This chapter provides $PM_{2.5}$ and precursor pollutants (NOx, ROG, SOx, and NH_3) baseline emission inventory (2020), maintenance years (2024 and 2035), and milestone year (2026) projections. This inventory year has been selected to comply with CAA requirements. The winter inventory has been prepared due to the nature of the $PM_{2.5}$ exceedances, as explained in Chapter IV. More detailed information about the Emission Inventory is included in Appendices B and C.

The emission inventory is divided into four main categories: stationary sources, area sources, off-road mobile sources, and on-road mobile sources. Biogenics and soil NOx have also been included at US EPA's request.

The stationary source inventory is composed of point sources and reflects actual emissions from industrial point sources reported to the District by the facility operators through calendar year 2020. The data elements in the inventory are consistent with the data elements required by US EPA's Air Emissions Reporting Requirements (AERR)[13]. Stationary point sources also include smaller point sources, such as laundering, that are not inventoried individually, but are estimated as a group and reported as a single source category. Emissions from these sources are estimated using various models and methodologies including source testing, direct measurement by continuous emissions monitoring systems, or engineering calculations. Emissions for these categories are estimated by both CARB and the District.

Area-wide sources include categories where emissions take place over a wide geographic area, such as consumer products. Emissions from these sources are estimated using various models and methodologies including source testing, direct measurement by continuous emissions monitoring systems, or engineering calculations. Emissions for these categories are estimated by both CARB and the District.

Emissions from on-road mobile sources, which include passenger vehicles, buses, and trucks, were estimated using outputs from CARB's EMFAC2017 model. The on-road emissions were calculated by applying EMFAC2017 emission factors to the transportation activity data provided by the local MPO.

Emissions from off-road sources are estimated using a suite of category-specific models or, where a new model was not available, the OFFROAD2007 model. Many of the newer models were developed to support recent regulations, including in-use off-road equipment, ocean-going vessels, and others. Appendix C summarizes the updates made by CARB to specific off-road categories.

[13] AERR, 40 CFR part 51, subpart A. https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-51/subpart-A

Table 6: Summary of PM2.5 Emissions by Major Source Category (tons/day)

Average Winter Day Inventory	2020	2024	2026	2035
Total Emissions	4.480	4.401	4.401	4.443
Stationary	0.795	0.835	0.857	0.952
Areawide	3.378	3.305	3.296	3.268
On-Road Motor Vehicles	0.126	0.105	0.103	0.110
Other Mobile	0.181	0.156	0.145	0.113
Stationary				
Fuel Combustion	0.154	0.147	0.147	0.141
Waste Disposal	0.001	0.001	0.001	0.001
Cleaning and Surface Coating	0.007	0.008	0.008	0.009
Industrial Processes Total	0.633	0.679	0.700	0.801
Food and Agriculture	0.436	0.468	0.490	0.583
Areawide				
Residential Fuel Combustion	1.648	1.628	1.618	1.574
Farming Operations	0.498	0.491	0.488	0.473
Construction and Demolition	0.114	0.124	0.127	0.139
Paved Road Dust	0.126	0.130	0.133	0.152
Unpaved Road Dust	0.116	0.116	0.116	0.115
Managed Burning and Disposal	0.705	0.646	0.645	0.640
Cooking	0.087	0.087	0.088	0.093
Fires	0.003	0.003	0.004	0.004
Fugitive Windblown Dust	0.080	0.079	0.078	0.076
On-Road Motor Vehicles	0.126	0.105	0.103	0.110
Other Mobile				
Aircraft	0.039	0.039	0.039	0.039
Trains	0.013	0.013	0.013	0.012
Off-Road Equipment	0.040	0.029	0.025	0.015
Farm Equipment	0.066	0.052	0.046	0.027
Recreational Boats	0.009	0.007	0.007	0.005
Off-Road Recreational Vehicles	0.014	0.014	0.014	0.016

Table 7: Summary of NOx Emissions by Major Source Category (tons/day)

Average Winter Day Inventory	2020	2024	2026	2035
Total Anthropogenic Emissions	8.267	6.517	5.929	4.786
Stationary	1.414	1.329	1.310	1.223
Areawide	0.869	0.869	0.868	0.859
On-Road Motor Vehicles	2.870	1.647	1.270	0.771
Other Mobile	3.115	2.671	2.482	1.932
Total Including Soil NOx	8.535	6.786	6.198	5.055
Stationary				
Fuel Combustion	1.379	1.292	1.273	1.183
Waste Disposal	0.025	0.026	0.027	0.029
Industrial Processes	0.010	0.011	0.011	0.011
Areawide				
Residential Fuel Combustion	0.564	0.566	0.566	0.562
Managed Burning and Disposal	0.305	0.302	0.301	0.296
Fires	0.001	0.001	0.001	0.001
On-Road Motor Vehicles	2.870	1.647	1.270	0.771
Other Mobile				
Aircraft	0.371	0.371	0.370	0.370
Trains	0.575	0.609	0.619	0.624
Off-Road Equipment	0.825	0.629	0.551	0.361
Farm Equipment	1.216	0.944	0.825	0.465
Recreational Boats	0.039	0.037	0.036	0.035
Off-Road Recreational Vehicles	0.051	0.055	0.057	0.058
Soil NOx	0.268	0.269	0.269	0.269

Table 8: Summary of ROG Emissions by Major Source Category (tons/day)

Average Winter Day Inventory	2020	2024	2026	2035
Total Anthropogenic Emissions	13.792	12.875	12.482	11.203
Stationary	3.565	3.347	3.231	2.838
Areawide	5.743	5.658	5.684	5.825
On-Road Motor Vehicles	1.000	0.715	0.646	0.462
Other Mobile	3.484	3.154	2.921	2.078
Total Including Biogenic	29.808	28.891	28.498	27.219
Stationary				
Fuel Combustion	0.173	0.156	0.150	0.126
Waste Disposal	0.012	0.013	0.014	0.015
Cleaning and Surface Coating	0.790	0.858	0.873	0.954
Petroleum Production/Marketing	2.529	2.255	2.128	1.665
Industrial Processes	0.062	0.065	0.067	0.078
Areawide				
Residential Fuel Combustion	2.252	2.222	2.207	2.139
Farming Operations	0.385	0.369	0.362	0.339
Managed Burning and Disposal	0.598	0.542	0.541	0.537
Cooking	0.011	0.011	0.011	0.011
Fires	0.003	0.003	0.003	0.003
On-Road Motor Vehicles	1.000	0.715	0.646	0.462
Other Mobile				
Aircraft	0.780	0.780	0.780	0.780
Trains	0.026	0.026	0.026	0.024
Off-Road Equipment	0.542	0.506	0.438	0.230
Farm Equipment	0.288	0.234	0.208	0.126
Recreational Boats	0.193	0.163	0.151	0.110
Off-Road Recreational Vehicles	1.603	1.397	1.272	0.764
Biogenic ROG	16.016	16.016	16.016	16.016

Table 9: Summary of SOx Emissions by Major Source Category (tons/day)

Average Winter Day Inventory	2020	2024	2026	2035
Total Emissions	0.281	0.280	0.281	0.285
Stationary	0.102	0.106	0.108	0.115
Areawide	0.104	0.101	0.101	0.100
On-Road Motor Vehicles	0.019	0.016	0.016	0.014
Other Mobile	0.056	0.056	0.056	0.056
Stationary				
Fuel Combustion	0.084	0.087	0.088	0.094
Waste Disposal	0.017	0.018	0.018	0.020
Industrial Processes	0.001	0.001	0.001	0.001
Areawide				
Residential Fuel Combustion	0.045	0.045	0.045	0.045
Managed Burning and Disposal	0.059	0.056	0.056	0.055
On-Road Motor Vehicles	0.019	0.016	0.016	0.014
Other Mobile				
Aircraft	0.052	0.052	0.052	0.052
Trains	0.001	0.001	0.001	0.001
Off-Road Equipment	0.001	0.001	0.001	0.001
Farm Equipment	0.002	0.001	0.001	0.001
Off-Road Recreational Vehicles	0.001	0.001	0.001	0.001

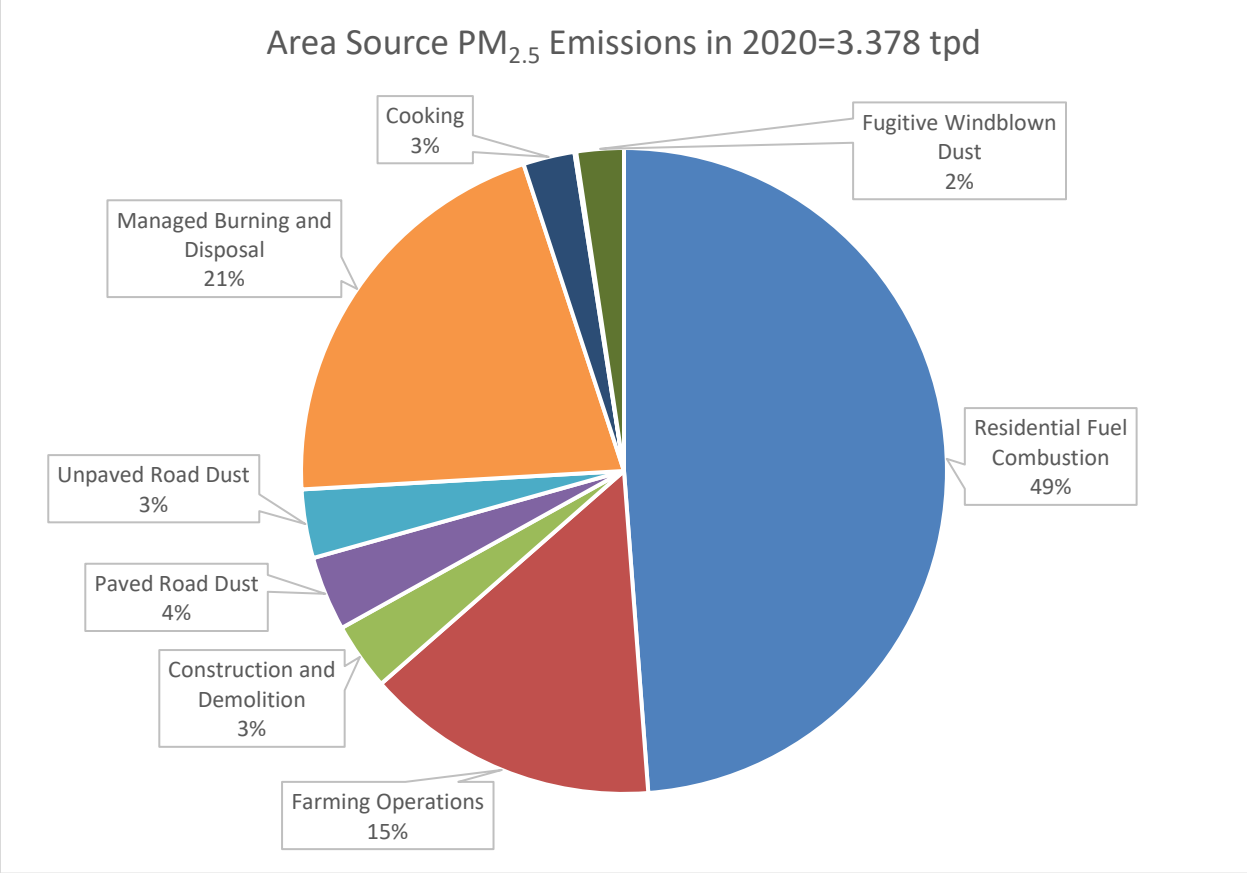
Table 10: Summary of Ammonia Emissions by Major Source Category (tons/day)

Average Winter Day Inventory	2020	2024	2026	2035
Total Anthropogenic Emissions	4.237	4.189	4.174	4.124
Stationary	0.155	0.157	0.159	0.167
Areawide	3.960	3.894	3.871	3.783
On-Road Motor Vehicles	0.119	0.136	0.141	0.171
Other Mobile	0.003	0.003	0.003	0.003
Total Biogenic/Soil NH3	0.238	0.227	0.218	0.183
Stationary				
Waste Disposal	0.155	0.157	0.159	0.167
Areawide				
Pesticides/Fertilizers	2.592	2.556	2.539	2.466
Residential Fuel Combustion	0.104	0.104	0.104	0.104
Farming Operations	0.916	0.894	0.885	0.855
Other Misc Processes	0.265	0.265	0.269	0.284
Managed Burning and Disposal	0.083	0.075	0.075	0.074
On-Road Motor Vehicles	0.119	0.136	0.141	0.171
Other Mobile				
Trains	0.000	0.000	0.000	0.001
Farm Equipment	0.001	0.001	0.001	0.001
Off-Road Recreational Vehicles	0.001	0.001	0.001	0.001
Ammonia from Biogenic and Soils				
Biogenic NH3	0.039	0.039	0.039	0.039
Soil NH3	0.199	0.188	0.179	0.144

Area Source Emission Inventory

Area sources account for the majority of direct $PM_{2.5}$ emissions, contributing 75% of the total winter emissions. The area sources that contribute the most to $PM_{2.5}$ emissions are residential fuel combustion (49% of area total), managed burning and disposal (21%), and farming operations (15%).

Figure 12: Contribution of Major Area Sources to Winter PM2.5 Emission Inventory



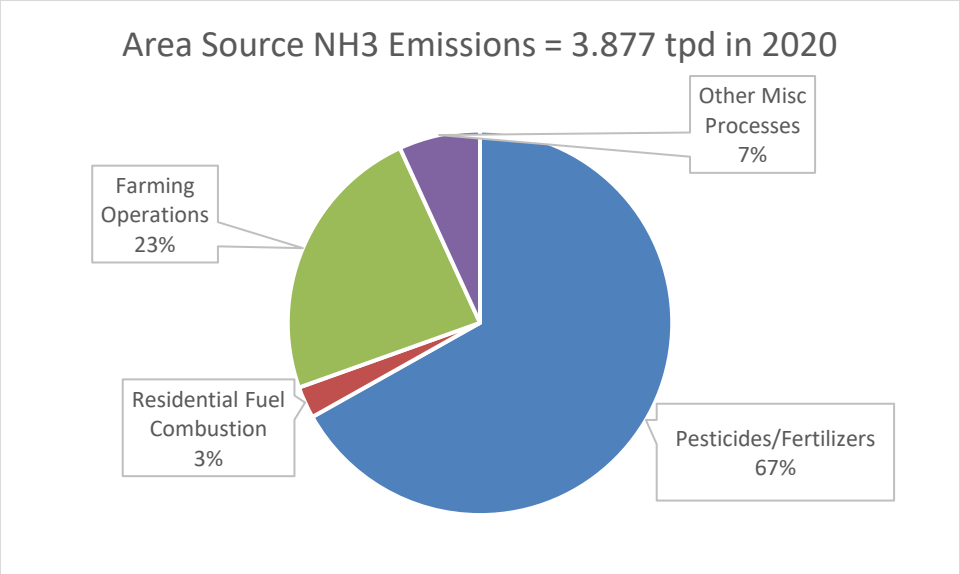
Area sources contribute 42% of the ROG emissions in 2020. The largest portion of area source ROG emissions comes from residential fuel combustion, which accounts for 69% of the area source total.

Area sources contribute 37% of the SOx emission in 2020. Two area source categories, managed burning and disposal and residential fuel combustion, make up the area source SOx inventory, at 57% and 43% respectively.

Area sources contribute a small portion to NOx emissions in 2020 (10%).

Area sources also contribute the most ammonia emissions accounting for 93% of the winter inventory in 2020. Pesticides and fertilizers account for the greatest portion of area source ammonia emissions.

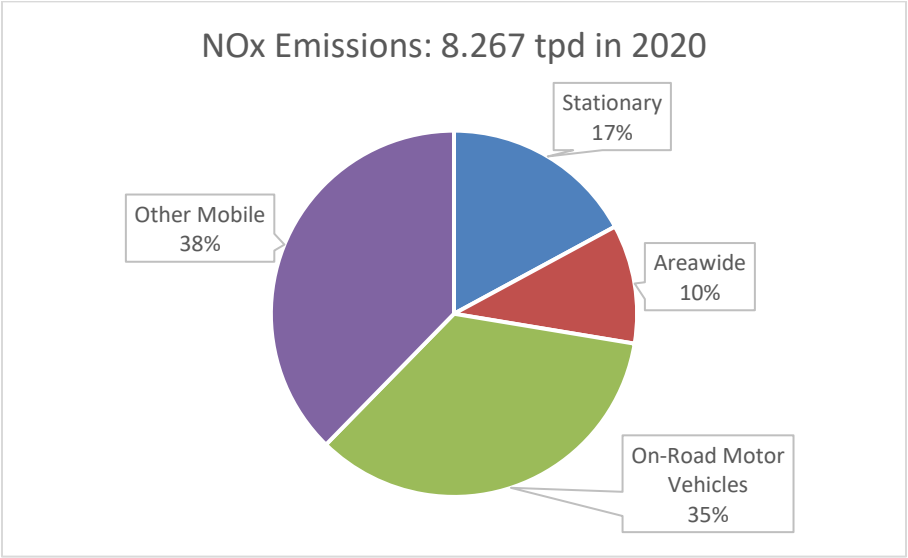
Figure 13: Contribution of Area Sources to Winter NH3 Emission Inventory



Mobile Source Emission Inventory

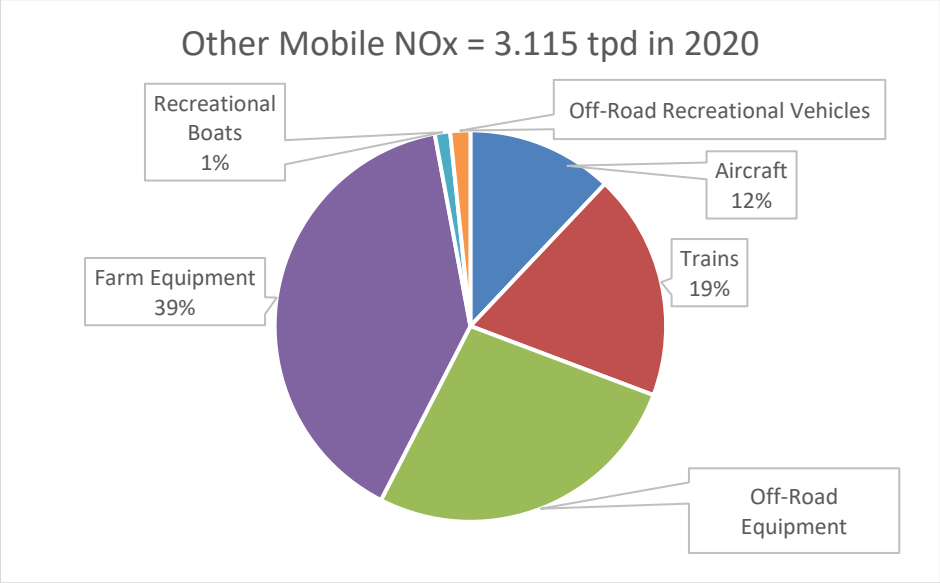
Mobile sources account for the majority of NOx emissions in the area. 73% of the NOx emissions in 2020 are attributed to mobile sources, with on-road vehicles contributing 35% of the total NOx emissions and other mobile contributing 38%.

Figure 14: Contribution by Major Source Category to 2020 Winter Emissions



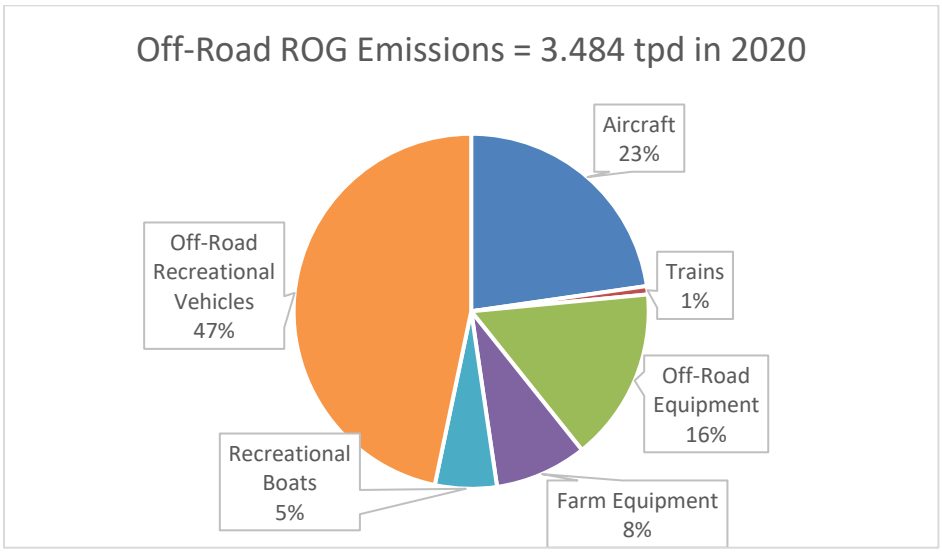
Farm equipment accounts for 39% of the Other Mobile category NOx emissions, off-road equipment is the next highest at 27%, trains account for 19%, and aircraft 12%.

Figure 15: Contribution of Other Mobile Category to 2020 Winter Emissions



On-Road mobile sources make up 7% of the ROG emissions and Other Mobile sources contribute 25% of the total ROG inventory. The Other Mobile category ROG emissions are predominately from off-road recreational vehicles, as shown in Figure 17.

Figure 16: Contribution of Other Mobile to ROG Emissions

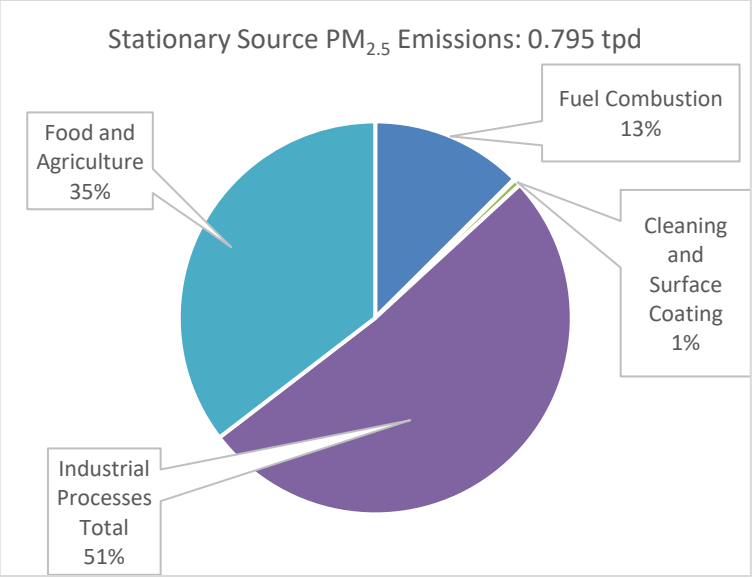


Mobile sources account for 27% of the SOx emissions in 2020 and a small portion of the emissions of $PM_{2.5}$ (7%), and ammonia (3%).

Stationary Source Emission Inventory

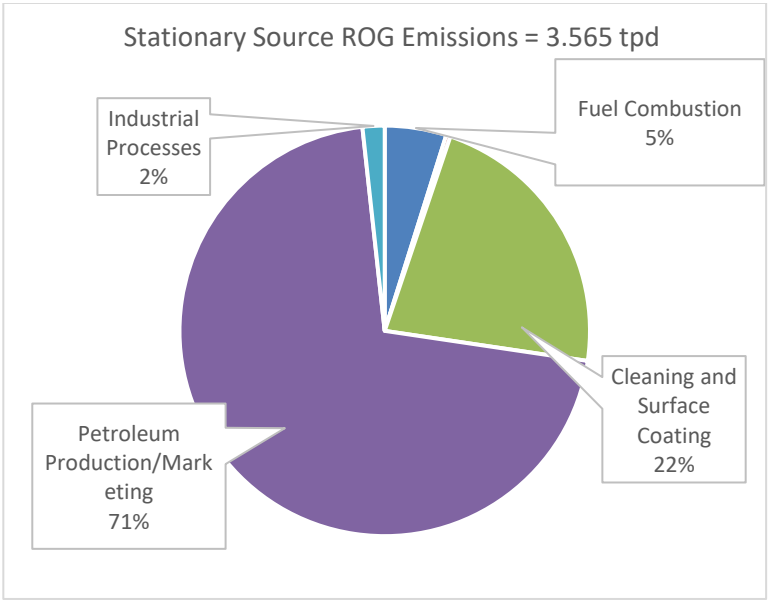
Stationary sources account for 18% of the winter $PM_{2.5}$ emissions. The largest contributor of $PM_{2.5}$ emissions in the stationary source category are industrial processes at 0.633 tpd or 51% of the stationary total. Food and agricultural contribute 35% of the stationary total or 0.436 tpd.

Figure 17: Stationary Source PM2.5 Emissions



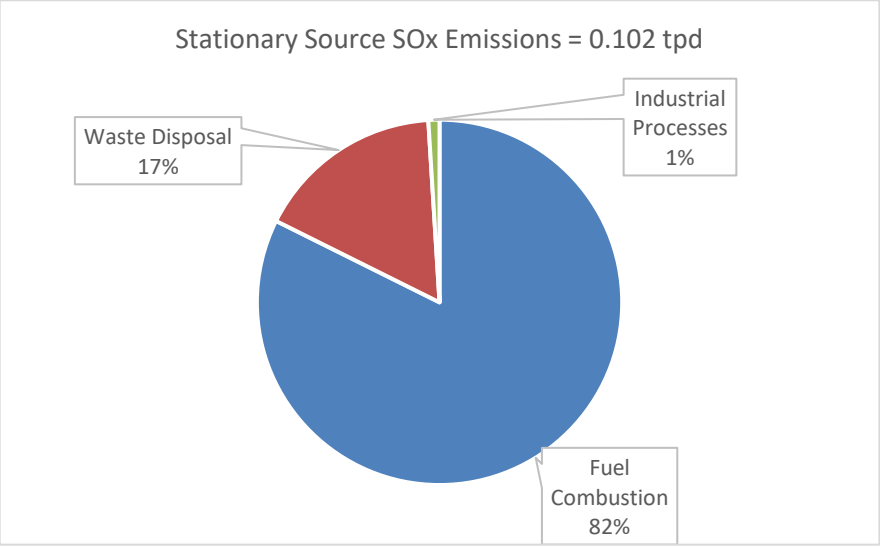
Stationary sources account for 26% of the ROG emissions during winter in 2020. The majority of the stationary source ROG emissions comes from petroleum production and marketing (2.529 tpd or 71% of stationary total). Cleaning and surface coating accounts for 22% of the stationary total ROG emissions.

Figure 18: Stationary Source ROG Emissions



Stationary sources contribute 0.102 tpd or 36% of the SOx inventory during winter, the second highest major source contribution after area sources. Fuel combustion (0.084 tpd), waste disposal (0.017 tpd), and industrial processes (0.001 tpd) are the contributing categories to the SOx stationary inventory.

Figure 19: Stationary Source SOx Emissions



Stationary sources contribute 17% of the NOx emissions, 18% of $PM_{2.5}$ emissions, and 4% of the ammonia emissions.

VI. Maintenance Demonstration

The Yuba City-Marysville area has maintained the standard since designation to attainment. The second Maintenance Plan must provide for maintenance of the air quality in the affected area for a second 10 year period after redesignation to attainment. To achieve this, the District and ARB developed an inventory for 2020, and developed projections for an intermediate year of 2026 and the final year of the maintenance period, 2035. The attainment year, intermediate year, and final year inventories use winter-time emissions due to the seasonality of the $PM_{2.5}$ exceedances, as described in Chapters IV and V. The maintenance demonstration includes emissions of directly emitted $PM_{2.5}$, NOx, and SOx.

Since the area has attained and maintained the standard without additional VOCs or ammonia controls, these two precursors are not significant in order for the area to maintain the NAAQS. The Yuba City-Marysville area also contains no major stationary sources of ammonia and existing major stationary sources of VOC were found to be adequately controlled under other provisions of the CAA regulating the ozone NAAQS[14]. The area is already in attainment and so it is not necessary to assess additional controls.

ERC's in the Maintenance Demonstration

The District issues emission reduction credits (ERCs) for pollutant emission reductions due to equipment shutdown or voluntary control. These ERCs may then be used as "offsets" to compensate for an increase in emissions from a new or modified major emission source regulated by the District. Since ERCs represent potential emissions, they need to be taken into account in the future emission inventories. To ensure that the use of ERCs will not jeopardize the District's $PM_{2.5}$ maintenance goals, the total amount of ERCs issued for reductions of NOx that occurred prior to 2022 is added to the emission inventory projections for 2026 and 2035 in the maintenance demonstration. The District only issues ERCs for PM_{10} and has not identified the $PM_{2.5}$ portion of the ERC. When creating the future year inventories for the Maintenance Demonstration, the District applied the amount of PM_{10} ERCs to the future year inventories of $PM_{2.5}$. As $PM_{2.5}$ is a portion of PM_{10}, this approach conservatively estimates the maximum pollutant increase if all ERCs were redeemed within the District during the Maintenance Period. The District also issued ERCs for SOx but has established a maximum number of SOx ERCs that may be used before 2035. New emissions requiring ERCs that would result in the use of more than a cumulative use of 0.010 tons per day of SOx ERCs will not be permitted by the District. The District intends this to be a federally enforceable upon approval by the US EPA of this plan into the SIP. The District will continue to track and report usage of ERCs annually. The District will revise the second maintenance plan and submit the revision to US EPA for approval if a situation arises where SOx ERCs are expected to be needed in excess of the 0.010 tons/day cap. No more than 0.010 tpd of SOx ERCs may used.

14

Maintenance Demonstration

The maintenance demonstration uses a speciated rollback approach, as was used in the first maintenance plan. The maintenance demonstration projection makes several conservative assumptions. Every NOx and PM_{10} ERC currently available is added to the stationary source emissions increase in 2035. This is in addition to the growth estimates included in the stationary source category and conservatively over-estimating growth of NOx and $PM_{2.5}$ emission inventories in 2035. In addition, the application of PM_{10} ERCs rather than PM2.5 fraction of the PM_{10} ERCs to the future year inventories additionally overestimates the amount of $PM_{2.5}$ 2035 should every PM_{10} ERC be redeemed. And finally, the speciated rollback analysis also uses the regulatory design value for 2021 of 34.1 $\mu g/m^3$, which includes exceptional event. Additional exceptional events occurring in 2020 and 2021 were not included in the demonstration because they do not affect the regulatory determination that the area met the 35 $\mu g/m^3$ standard. However the affected data leads to a higher design value in 2021 which is the basis for the maintenance demonstration. The actual design value in 2021 without exceptional events is likely closer to the design values in 2011-2016 during which no wildfire exceptional events occurred, which averaged 27 $\mu g/m^3$. And as further evidenced in the District's estimate of the 2021 design value with all wildfire smoke impacted days removed as 26.9 $\mu g/m^3$ (as presented in Table 4 in section IV). With these conservative assumptions included, the area shows maintenance of the standard throughout the second maintenance period.

Emissions of NOx are projected to decline by 2.764 tpd or 34.6% between 2020 and 2035 even with the inclusion of all available NOx ERCs. $PM_{2.5}$ emissions are projected to increase by 0.926 tpd or 120.7%, whereas 94% of that increase (0.872 tpd) is due to the inclusion of all available PM_{10} ERCs. SOx emissions are project to increase by 0.014 tpd or 5%, with 71% or 0.010 tpd due to available SOx ERCs being applied to future year inventories.

The combined impact of the decrease in NOx emissions and the increase in SOx and $PM_{2.5}$ emissions was considered according to the air quality impact of the respective pollutants on the nonattainment area.

The emission projections for 2026 and 2035 are presented in Table 12. The change in emissions from 2026 to 2035 is presented in Table 13. The speciation data collected from the Yuba City-Almond Street monitor was used to determine the relative contribution toward the 2021 design value, as shown in Tables 14 and 15.

Table 11: Projected Wintertime Emissions for Maintenance Demonstration, tons/day

	$PM_{2.5}$		NOx		SOx	
Emission Source Type	**2026**	**2035**	**2026**	**2035**	**2026**	**2035**
Stationary	**0.857**	**0.952**	**1.310**	**1.223**	**0.108**	**0.115**
Fuel Combustion	0.147	0.141	1.273	1.183	0.088	0.094
Waste Disposal	0.001	0.001	0.027	0.029	0.018	0.020
Cleaning & Surface Coating	0.008	0.009	0	0	0	0
Petroleum Production & Marketing	0	0	0	0	0	0
Industrial Processes	0.700	0.801	0.011	0.011	0.001	0.001
Area	**3.296**	**3.268**	**0.868**	**0.859**	**0.101**	**0.100**
Solvent Evaporation	0	0	0	0	0	0
Misc. Processes Total	3.296	3.268	0.868	0.859	0.101	0.100
Residential Fuel Combustion	1.618	1.574	.566	0.562	0.045	0.045
Farming Operations	0.488	0.473	0	0	0	0
Managed Burning & Disposal	0.645	0.640	0.301	0.296	0.056	0.055
Paved Road Dust	0.133	0.152	0	0	0	0
Construction and Demolition	0.127	0.139	0	0	0	0
Unpaved Road Dust	0.116	0.115	0	0	0	0
On-Road Motor Vehicles*	**0.1**	**0.2**	**1.3**	**0.8**	**0.016**	**0.014**
Other Mobile	**0.145**	**0.113**	**2.482**	**1.932**	**0.056**	**0.056**
ERC's Available	**0.873**	**0.873**	**0.689**	**0.689**		
ERC SOx Maximum					**0.010**	**0.010**
Total	**5.271**	**5.406**	**6.649**	**5.503**	**0.291**	**0.295**

[*MVEBs for NOx and PM2.5]

Table 12: Projected Change by Pollutant, tons/day

Pollutant	2020	2026	2035	Projected Change	% Change
NOx	8.267	6.649	5.503	-2.764	Reduction of 33.4%
$PM_{2.5}$	4.48	5.271	5.406	+0.926	Increase of 20.7%
SOx	0.281	0.291	0.295	+0.014	Increase of 5%

Table 13: Contribution Toward 2021 Design Value

	Percent of mass	Contribution toward 34.1 µg/m^3
Carbonaceous aerosols	54%	18.4 µg/m^3
Nitrate	38%	13 µg/m^3
Sulfate	6%	2.1 µg/m^3
Crustal material	2%	0.7 µg/m^3

Assuming that all of the carbonaceous aerosols and crustal material are from directly emitted $PM_{2.5}$, the projected increase in direct $PM_{2.5}$ emissions will cause a corresponding 20.7% or 4.0 µg/m^3 increase in the ambient concentrations of direct $PM_{2.5}$ component. The projected 5% increase in SOx would increase the sulfate contribution by 0.1 µg/m^3 from 2.1 µg/m^3 to 2.2 µg/m^3. The projected 34.6% reduction in NOx will cause a corresponding 4.4 µg/m^3 decrease in the design value concentrations. The overall impact to the 2035 design value is expected to be an decrease of 0.2 µg/m^3, from 34.1 µg/m^3 to 33.9 µg/m^3, which is below the standard of 35 µg/m^3. The resultant changes to the 2035 design value are summarized in Table 15.

Table 14: Projected Pollutant Impact to 2035 Design Value

Pollutant	Contribution toward 2021 DV 34.1 µg/m^3	Change from 2020 to 2035	Resultant change to 2035 DV
Directly emitted $PM_{2.5}$	19.1 µg/m^3	+20.7%	Increase by 4.0 µg/m^3
SOx	2.1 µg/m^3	+5%	Increase by 0.1 µg/m^3
NOx	13 µg/m^3	-33.4%	Decrease by 4.3 µg/m^3
Overall change to 2035 Design Value expected			**Decrease by 0.2 µg/m^3**
Expected 2035 Design Value			**33.9 µg/m^3**

Photochemical modeling for the Sacramento region showed that a 1% change in NOx causes only a 0.7% change in ammonium nitrate[15]. Using this assumption US EPA determined the 2024 design value would be 25.75 $\mu g/m^3$ instead of 24.6 $\mu g/m^3$ in its approval of the PM2.5 first maintenance plan[16]. Using a 0.7% to 1% ratio, the projected design value for 2035 is projected to be 35.2 $\mu g/m^3$ rather than 33.9 $\mu g/m^3$, as shown in Table 16. The project design value for 2035 meets the standard and thus the demonstration shows maintenance throughout the second 10-year period.

[15] 78 FR 44494 at 59261 (July 24, 2013)

[16] 79 FR 61822 (October 15, 2014) Approval and Promulgation of Implementation Plans; Designation of Areas for Air Quality Planning Purposes; State of California; PM2.5; Redesignation of Yuba City-Marysville to Attainment; Approval of PM2.5 Redesignation Request and Maintenance Plan for Yuba City-Marysville.

Table 15 2035 Design Value with 1% NOx to 0.7% Ammonium Nitrate Ratio

Pollutant	Contribution toward 2021 DV 34.1 µg/m^3	Change from 2020 to 2035	Resultant change to 2035 DV
Directly emitted $PM_{2.5}$	19.1 µg/m^3	+20.7%	Increase by 4.0 µg/m^3
SOx	2.1 µg/m^3	+5%	Increase by 0.1 µg/m^3
NOx 1:0.7	13 µg/m^3	-23.4%	Decrease by 3.0 µg/m^3
Overall change to 2035 Design Value expected			**Increase by 1.1 µg/m^3**
Expected 2035 Design Value			**35.2 µg/m^3**

Control Strategy

The District has adopted and implemented several control measures to reduce PM2.5 and NO_X emissions, including control measures for fugitive dust, wood burning devices, agricultural burning, and combustion equipment. No new control measure commitments are included in the second Maintenance Plan since the existing control measures are predicted to maintain the $PM_{2.5}$ NAAQS throughout the second 10-year maintenance period.

To prevent new facilities from causing $PM_{2.5}$ emissions impact on the Yuba City-Marysville area, any new facilities that may emit $PM_{2.5}$ will be subject to the District's New Source Review rule (Rule 10.1). New major sources of $PM_{2.5}$ would be required to implement Best Available Control Technology, and supply offsets for emissions increases. New and modified major sources with significant $PM_{2.5}$ emissions may also be subject to Prevention of Significant Deterioration (PSD) permitting requirements and review (40 CFR 51.166 and 52.21). Table 17 shows District rules and regulations that control sources of $PM_{2.5}$ and NOx that will continue to be enforced throughout the maintenance period.

Table 16: District PM2.5 Rules and Regulations that Control $PM_{2.5}$ and NOx

Rule	Version	Title	Description
2.0.F.1	10/2008	Open Burning	Prohibits open fires for purpose of disposal or waste or other material.
2.0.F.2		Open Burning	Prohibits sources of air pollution from causing a nuisance to the public or endangering public health and safety.
2.0.H		Open Burning	Requires permits for any open burning.
2.0.J		Open Burning	Restricts agricultural burning hours based on air quality conditions.
2.0.J.7		Open Burning	Requires Rice Straw Burning to comply with Smoke Management Program.
2.0.J.8		Open Burning	Requires Wildland vegetation and forest management burning to comply with Sacramento Valley Air Basin Smoke Management Program.
2.0.L.3		Open Burning	Limits Residential burning to specific days providing it is a permissible burn day.
2.0.L.4		Open Burning	Limits Residential burning to specific hours providing it is a permissible burn day.
3.0	6/91	Visible Emissions	Limits opacity from stationary sources
3.2	6/91	Particulate Matter Concentration	Limits PM emissions
3.3	6/91	Dust and Fumes	Limits PM emissions
3.6	6/91	Abrasive Blasting	Requires permits and standards for abrasive blasting
3.16	4/94	Fugitive Dust Emissions	Limits fugitive dust emissions from construction and other activities
3.17	10/2009	Wood Heating Devices	Requires newly installed residential wood heating devices to meet emission standards; establishes voluntary no-burn advisory program; prohibits burning unseasoned wood
3.19	6/6/2011	Vehicle & Mobile Equipment Coating	Limits particulate matter emissions by requiring spray booths.
3.21	6/2006	Industrial, Institutional, & Commercial Boilers …	Limits NOx emissions from industrial, institutional, and commercial boilers, steam generators, and process heaters
3.22	8/2021	Stationary Internal Combustion Engines	Limits NOx emissions from stationary internal combustion engines
3.23	10/2016	Natural Gas-Fired Water Heaters, Small Boilers…	Limits NOx emissions from natural gas-fired water heaters, small boilers, and process heaters.

The ARB has also adopted measures to reduce direct emissions of $PM_{2.5}$ as well as precursor emissions. These measures are described in Table 18.

Table 17 CARB Regulation List for $PM_{2.5}$ and Precursor Controls

On- and Off-Road Mobile Sources	Agency	Inventory	Adoption Year	Implementation Year
Truck and Bus Regulation	CARB	EMFAC 2014	2008	On-Going
Tractor-Trailer Greenhouse Gas (TTGHG) Regulation	CARB	EMFAC 2014	2008	On-Going
Greenhouse Gas (GHG) Regulations Phase 1 and 2	U.S. EPA and NHTSA	EMFAC 2014 & 2017	2011 & 2017	On-Going
Senate Bill 1 - SB 1, The Road Repair and Accountability Act of 2017	CARB	EMFAC 2017	2017	On-Going
Advanced Clean Cars (ACC) Updates	CARB	EMFAC 2014 & 2017	2017	On-Going
Innovative Clean Transit (ICT)	CARB	CEPAM 2022	2018	2029-
Periodic Smoke Inspection Program Amendment (Opacity)	CARB	CEPAM 2022	2018	On-Going
Zero-Emission Airport Shuttle Bus	CARB		2019	2027-
Heavy-Duty Low-NOx Omnibus	CARB	CEPAM 2022	2020	2023-
Advanced Clean Trucks (ACT)	CARB	CEPAM 2022	2020	2024-
Small Off-Road Engines (SORE)	CARB		2021	2024-
Heavy-Duty Inspection and Maintenance (HD I/M)	CARB	CEPAM 2022	2021	2023-
Transport Refrigeration Unit Regulation (TRU)	CARB		2022	2022-
Stationary and Areas Sources				
Architectural Coatings 2000 and 2007 Suggested Control Measures (SCM)	CARB	CEPAM 2022	2000, 2008	On-Going
Consumer Product Regulations & Amendments	CARB	CEPAM 2022	2022	On-Going
Aerosol Coating Regulations & Amendments	CARB	CEPAM 2022	2015	On-Going
Gasoline Dispensing Facility Hose Emission Regulation	CARB	CEPAM 2022	Multiple	On-Going
Fueling Emissions from (On-Board Refueling Vapor Recovery) ORVR Vehicles	CARB	CEPAM 2022	Multiple	On-Going
Ag IC Engine Emission Scalers	CARB	CEPAM 2022	Multiple	On-Going
Non-Ag IC Engine from 2003 Airborne Toxic Control Measures (ATCM) and 2010 rule amendment	CARB	CEPAM 2022	Multiple	On-Going

VII. Maintenance Plan Contingency Measures

Contingency Measure Action Level

The District will continue to use the 3-year average of the 98th percentile, or design value for the 24-hour standard, of 35.0 µg/m^3 as the contingency plan action level in the second maintenance plan as was used in the first maintenance plan. The action levels will be prompted by the monitored levels at the Yuba City-Almond Street monitoring station. Within 60 days of annual data certification or May 1st, whichever is sooner, the District will review the data to determine the 3-year 98th percentile and submit a report to CARB and US EPA indicating whether the standard has been exceeded, and if so, whether the contingency measures are triggered or if exceptional events are suspected to be the cause of the exceedance. This report will be referred to as the Annual Data Review Report.

This review is intended to distinguish between exceedances that are not within the State or District's control (e.g. exceptional events), and therefore not considered in determining whether the contingency plan should be triggered, and those that are within the District's control and should be considered.

If, at any time during the year, the District has reason to suspect that a violation of the standard may have occurred, the District will commence review and submit a report to CARB within 60 days stating whether the contingency measures have been triggered. This report may be triggered by District staff's observations of the non-quality assurance-checked monitoring data made available to the public on CARB's website, by notification from the public or another agency, or report of a breakdown at a stationary source. This report will be referred to as an Event Data Review Report.

Exceedances Caused by Exceptional Events

Exceptional events should not trigger the Contingency Measures, as they are not under the District's or the State's control. The District shall implement the following steps for exceedances of the contingency plan action level that are suspected to be caused by exceptional events:

1. The District shall notify CARB that it wants to exclude the exceedance from the contingency measure trigger calculation in the Annual Data Review Report. CARB shall notify US EPA within 30 days of being notified by the District.
   a. The District, CARB, and US EPA shall confer to determine additional information that should be submitted along with the Initial Notification Summary Information (INI) form within 60 days from EPA being notified.
2. The District submits the INI form to CARB within 60 days of the meeting; CARB submits the INI to US EPA within 60 days of receiving it from the District.
   a. US EPA reviews and, within 60 days of receipt, lets the District and CARB know if it agrees that the exceedance looks like an Exceptional Event and doesn't need to be counted toward the Contingency Measure trigger; or

   b. EPA reviews and, within 60 days of receipt, lets CARB and the District know that it doesn't think the exceedance was caused by an exceptional event or it doesn't have enough information and the state needs to provide supplemental documentation/analysis or count the exceedance towards the Contingency Measure trigger.
3. The District and CARB submit supplemental documentation (if needed)
   a. Within 60 days of receipt, the EPA will review the submitted information and let CARB and the District know it agrees that the exceedance looks like an exceptional event and doesn't need to be counted towards Contingency Measure trigger; or
   b. Within 60 days of receipt, EPA reviews and lets the District and CARB know it doesn't think this in an exceptional event and that the state needs to count it towards the Contingency Measure trigger.
4. If the District or CARB still thinks the exceedance is due to an exceptional event and doesn't want to count it towards the Contingency Measure trigger, it submits an exceptional event demonstration.
   a. EPA reviews and concurs (exceedance doesn't counts towards trigger); or
   b. EPA reviews and doesn't concur (exceedance counts towards trigger).

Examples of additional information that may be submitted with the INI form include:

- A detailed analysis of upwind wind speed and direction;
- PM10 and/or PM2.5 concentrations from non-regulatory monitors in the area;
- HYSPLIT back-trajectory analysis;
- Satellite imaging or remote sensing analysis;
- News or media reports;
- Fire agency reports, Air Resource Advisor reports;
- An evaluation of upwind source area; and
- Other event specific analysis.

Process and Timeline

If the contingency measure action level has been exceeded, the District shall assess the contingency measure trigger value. This value is the 24-hour average of the 3-year 98th percentile after the removal of suspected exceptional events agreed upon by both the EPA and CARB in the process described above. If this continency measure trigger value exceeds 35 ug/m^3, the contingency measures will be triggered.

After submitting the Annual Data Review Report or Event Data Review Report to CARB and US EPA indicated the contingency measures have been triggered, or if US EPA notifies the District and CARB that it does not concur on an exceptional event, the District shall commence analyses including meteorological evaluation of high $PM_{2.5}$ days, and an emissions inventory assessment.

The District will consult with interested parties, community organizations, and industry to identify voluntary and incentive-based measures to reduce directly emitted $PM_{2.5}$ or precursors, including outreach in the affected communities. The District will complete

consultation and implement measures within 9 months of May 1st, or the annual data certification, whichever is sooner.

If it is determined that the violation or exceedance occurred due to sources within the District, the District will promptly adopt and implement, no later than 24 months after the annual data certification or May 1st, whichever is sooner, new or revised control measures necessary to ensure attainment depending on the nature of the exceedance.

Contingency Measures To Be Adopted

The measures that will be considered for adoption upon a trigger of the contingency plan include Reasonably Available Control Technology on stationary sources in the maintenance area, which will result in reductions of emissions that are determined to be a major cause or contributor to the violation. Table 17 includes a summary of potential sources of emissions and the associated rules that could be explored as options for more stringent control through revision if exceedances occur. Contingency measures may also include adoption of additional open burning restrictions on agricultural or residential burning, fugitive dust and opacity restrictions (either on stationary sources or area sources such as agricultural tilling) and imposing mandatory restrictions on wood burning devices during forecasted high PM2.5 days. The measures for consideration and analysis include:

1. Stationary Sources
   a. Combustion Devices (boilers, incinerators, engines, and turbines).
   b. Industrial Processes (manufacturing, industrial, agricultural, natural gas extraction).
2. Additional Open Burning Restrictions
   a. Agricultural Burning
   b. Residential Burning
   c. Prescribed Burning
3. Fugitive Dust
   a. Paved Road (truck covering, construction site measures, storm water drainage).
   b. Unpaved Roads (truck yards, paving and surface improvements, chemical stabilization, speed reduction).
   c. Construction and Demolition (truck covering, access areas, watering)
   d. Storage Piles (wet suppression and dust control)
   e. Agricultural Processes (reducing dust from tilling, harvesting, processing)
   f. Conservation Areas
4. Opacity Restrictions
   a. Visible emissions limitations
5. Residential Wood Burning Devices
   a. Mandatory curtailment
   b. Conversion/upgrade of existing devices
   c. Restrictions on new devices

Commitment to continue to operate monitoring network

The existing $PM_{2.5}$ monitoring network in the Yuba City-Marysville nonattainment area includes a $PM_{2.5}$ FEM monitor located at 773 Almond Street in Yuba City operating on a daily schedule. The District is committed to working with the CARB in the continued operation of the Yuba City-Almond Street monitoring station and maintaining compliance with federal law on Ambient Air Quality Surveillance (40 CFR Part 58).

Verification of Continued Attainment

The CARB is responsible for monitoring $PM_{2.5}$ in the Yuba City-Marysville Planning Area. The CARB also oversees the quality assurance of $PM_{2.5}$ data and submits annual monitoring network plans to the US EPA on behalf of the District. The CARB commits to maintaining an appropriate $PM_{2.5}$ monitoring network through the maintenance period, with any potential changes to be developed in collaboration with the US EPA and subject to stakeholder review. To verify continued attainment of the $PM_{2.5}$ standard, the CARB will continue to conduct $PM_{2.5}$ monitoring and expeditiously review data as it becomes available. The District will track the progress of the maintenance plan through the acquisition of ambient and source emission data. All permitted stationary sources within the District are required to submit annual throughput data that the District uses to compile the emission inventory. The District will commit to review the emission inventory for unexpected growth in primary $PM_{2.5}$ or NOx that may jeopardize the maintenance of the 2006 $PM_{2.5}$ NAAQS.

The District develops a comprehensive stationary source emission inventory every three years to the CARB for submission under 40 CFR Part 51, Subpart A.

VIII. Conformity and Motor Vehicle Emission Budgets

Transportation conformity requirements contained in District Rule 10.5-*Transportation Conformity* require that federal actions and federally funded transportation projects conform to the State Implementation Plan and that they do not interfere with efforts to attain federal air quality standards.

The Sacramento Area Council of Governments (SACOG) is the local Metropolitan Planning Organization (MPO) responsible for making the conformity determinations and redeterminations as required in the Planning Area. Table 18 provides the motor vehicle emissions budgets (MVEB) which will be used in the conformity process. The MVEBs discussed and approved at the February 22, 2023, meeting of the Regional Planning Partnership.

Table 18: Motor Vehicle Emission Budgets (tpd)

Pollutant	2026	2035
NOx	1.3	0.8
$PM_{2.5}$	0.1	0.2

The $PM_{2.5}$ precursor NOx is presumed to be a significant contributor to the $PM_{2.5}$ nonattainment area emissions by the US EPA. The District is establishing MVEB for NOx. No MVEB are being established for VOC, SOx, ammonia, or re-entrained road dust.

Ammonia and VOCs

The $PM_{2.5}$ implementation rule (72 FR 20586) established a presumption that $PM_{2.5}$, NOx, and SOx are attainment plan precursors, while VOCs and ammonia are not unless they are needed for attainment demonstration or are significant for maintaining the NAAQS. Since Yuba City-Marysville area attained and maintained the standard without additional VOCs or ammonia controls, these two precursors are not significant in order for the area to maintain the NAAQS for the next ten years. There are no major sources of ammonia in the area. The ammonia and VOCs controls are not needed for demonstrating attainment or maintaining the NAAQS, therefore they are not included in the Motor Vehicle Emission Budgets for conformity purposes.

SOx

Winter on-road SOx emissions are 0.495 tons per day in 2035, which equates to about 2.8% of the total SOx emission inventory. Based on the chemical speciation data[17], sulfate comprised 6% of the total mass on high $PM_{2.5}$ days. Since the on-road portion is only 2.8% of the total SOx emissions, it contributes 2.8% of 6%, or less than 0.2%, of the $PM_{2.5}$ mass on the days measuring high $PM_{2.5}$. As a result, motor vehicle SOx emissions are not considered significant and are not included in the motor vehicle emission budgets for conformity purposes.

[17] Chapter IV section C. Components of $PM_{2.5}$ in the Planning Area

Geologic Sources

Re-entrained road dust only needs to be considered in the conformity determination if the State air agency and/or the US EPA have deemed the pollutant as a significant contributor to the $PM_{2.5}$ nonattainment problem.

Wintertime paved road dust $PM_{2.5}$ emissions in 2020 are estimated at 0.126 tons per day, which equates to 2.8% of the total $PM_{2.5}$ emissions. As noted in Chapter IV, all geologic and construction source categories combined represent only about 2% of the $PM_{2.5}$ concentrations on high days, as represented by the crustal portion of the filter mass. Since paved road dust is about 13.5% of the total geologic and construction emissions shown in the area-wide categories in the inventory, the contribution of paved road dust to ambient $PM_{2.5}$ concentration is about 0.3% (assuming that relative ambient contributions reflect relative emissions contributions).

Wintertime unpaved road dust $PM_{2.5}$ emissions in 2020 are 0.116 tons per day or about 2.6% of the total $PM_{2.5}$ emissions. As noted above, all geologic and construction source categories combined represent only about 2% of the $PM_{2.5}$ concentrations on high $PM_{2.5}$ days. Since unpaved road dust is about 12.4% of the geologic and construction emissions shown in the area-wide categories in the inventory, the contribution of unpaved road dust to ambient $PM_{2.5}$ concentration is about 0.25% (assuming that relative ambient contributions reflect relative emissions contributions).

Since the re-entrained road dust is not a significant contributor to the $PM_{2.5}$ nonattainment problem, the District will not be establishing MVEB for this source category. An affirmative insignificance finding by US EPA only relieves SACOG from a regional emissions analysis for re-entrained road dust emissions and does not relieve them of the other transportation conformity requirements.

Total construction and demolition direct $PM_{2.5}$ emissions are 0.114 tons per day in 2020 during winter or about 2.5% of the total $PM_{2.5}$ emissions. As noted above, all geologic and construction source categories combined represent only about 2% of the $PM_{2.5}$ concentrations on high days. Since construction and demolition is about 12.2% of the geologic and construction emissions shown in the area-wide categories in the inventory, the contribution of construction and demolition to ambient $PM_{2.5}$ concentration is about 0.24% (assuming that relative ambient contributions reflect relative emissions contributions).

Table 19 summarizes the geologic source emission inventory for 2020 and projected inventories for 2026 and 2035, and their contributions to the crustal portion of observed $PM_{2.5}$ and the $PM_{2.5}$ inventory as a whole. Due to their small contribution to $PM_{2.5}$ emissions in the Planning Area, geologic sources are not considered in the conformity determination.

Table 19: Geologic Sources' Contribution to $PM_{2.5}$

SUMMARY CATEGORY NAME	2020	2026	2035
Farming Operations	0.498	0.488	0.473
Construction and Demolition	0.114	0.127	0.139
Paved Road Dust	0.126	0.133	0.152
Unpaved Road Dust	0.116	0.116	0.115
Fugitive Windblown Dust	0.08	0.078	0.076
All geologic sources-Winter	**0.934**	**0.94**	**0.955**
All $PM_{2.5}$ sources-Winter	**4.48**	**4.401**	**4.443**

Paved Road Dust as % of Crustal	13.5	13.8	14.1
Paved Road Dust as % of Winter $PM_{2.5}$ Emissions	2.8	3.0	3.0
Unpaved Road Dust as % of Crustal	12.4	12.3	12.3
Unpaved Road Dust as % of Winter $PM_{2.5}$ Emissions	2.6	2.6	2.6
Construction Dust as % of Crustal	12.2	13.2	13.5
Construction Dust as % of Winter $PM_{2.5}$ Emissions	2.5	2.8	2.9

IX. Summary and Conclusion

The Yuba City-Marysville $PM_{2.5}$ Second Maintenance Plan provides necessary data and analyses to show maintenance of the 2006 24-hour $PM_{2.5}$ national ambient air quality standard from 2024 through 2035, as required under the CAA and completes the 20-year maintenance period. This plan includes updated emission inventories for 2020, 2025, 2026, and 2035, and establishes new motor vehicle emission budgets (MVEB). he attainment year, intermediate year, and final year inventories use winter-time emissions due to the seasonality of the $PM_{2.5}$ exceedances, as described in Chapters IV and V.

The second maintenance plan also includes an updated contingency measure commitment. The District commits to submitting an annual report to CARB and US EPA on whether the previous year's monitoring data triggered the contingency measures.

The Yuba City-Marysville area has maintained the standard since designation to attainment. The maintenance demonstration includes conservative assumptions such as the inclusion of all available emission reduction credits applied to the final year inventory and use of a design value affected by wildfire smoke events. Even with the conservative assumptions the area demonstrates attainment of the standard through 2035.

After the public notice and hearing are concluded, the District Board of Directors will consider adoption of the Second Maintenance Plan. Once adopted, the Second Maintenance Plan will be submitted to the Air Resources Board, for submittal to the United States Environmental Protection Agency.

Appendix A: Nonattainment Area Description

Yuba City-Marysville CA Nonattainment Area (as defined in 74 FR 58688)

Sutter County- All
Yuba County-That portion of Yuba County which lies west of the line described as follows: (Mount Diablo Base and Meridian) Beginning at the intersection of the Yuba-Nevada county line and the range line common to ranges R7E and R8E, north to the southeast corner of township T18N R7E, then west along the township line common to T17N and T18N, then north along the range line common to ranges R6E and R7E, then west along the township line common to T19N and T18N to the Yuba-Butte County boundary.

Appendix B: Emission Inventory

Table B-1 2020 Inventory

EIC	CATEGORY	SUB CATEGORY	PM2.5	NOx	ROG	NH3	SOx
10	FUEL COMBUSTION	ELECTRIC UTILITIES	0.02871	0.16537	0.02348	0.00000	0.02586
20	FUEL COMBUSTION	COGENERATION	0.00013	0.01259	0.00014	0.00000	0.00001
30	FUEL COMBUSTION	OIL AND GAS PRODUCTION	0.00447	0.18981	0.10825	0.00000	0.00030
50	FUEL COMBUSTION	MANUFACTURING AND INDUSTRIAL	0.01318	0.29002	0.00566	0.00000	0.05420
52	FUEL COMBUSTION	FOOD AND AGRICULTURAL PROCESSING	0.01925	0.24753	0.02339	0.00000	0.00154
60	FUEL COMBUSTION	SERVICE AND COMMERCIAL	0.08791	0.46881	0.01192	0.00000	0.00206
99	FUEL COMBUSTION	OTHER (FUEL COMBUSTION)	0.00033	0.00483	0.00001	0.00000	0.00000
110	WASTE DISPOSAL	SEWAGE TREATMENT	0.00000	0.00000	0.00315	0.00167	0.00000
120	WASTE DISPOSAL	LANDFILLS	0.00123	0.02466	0.00914	0.03378	0.01678
130	WASTE DISPOSAL	INCINERATORS	0.00000	0.00000	0.00000	0.00000	0.00000
140	WASTE DISPOSAL	SOIL REMEDIATION	0.00000	0.00000	0.00000	0.00000	0.00000
199	WASTE DISPOSAL	OTHER (WASTE DISPOSAL)	0.00000	0.00000	0.00000	0.12001	0.00000
210	CLEANING AND SURFACE COATINGS	LAUNDERING	0.00000	0.00000	0.00875	0.00000	0.00000
220	CLEANING AND SURFACE COATINGS	DEGREASING	0.00000	0.00000	0.30040	0.00000	0.00000
230	CLEANING AND SURFACE COATINGS	COATINGS AND RELATED PROCESS SOLVENTS	0.00730	0.00000	0.23852	0.00000	0.00000
240	CLEANING AND SURFACE COATINGS	PRINTING	0.00000	0.00000	0.01606	0.00000	0.00000
250	CLEANING AND SURFACE COATINGS	ADHESIVES AND SEALANTS	0.00000	0.00000	0.03646	0.00000	0.00000
299	CLEANING AND SURFACE COATINGS	OTHER (CLEANING AND SURFACE COATINGS)	0.00000	0.00000	0.18950	0.00000	0.00000
310	PETROLEUM PRODUCTION AND MARKETING	OIL AND GAS PRODUCTION	0.00000	0.00000	2.19951	0.00000	0.00000
330	PETROLEUM PRODUCTION AND MARKETING	PETROLEUM MARKETING	0.00000	0.00000	0.32933	0.00000	0.00000
399	PETROLEUM PRODUCTION AND MARKETING	OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.00000	0.00000	0.00000	0.00000	0.00000
410	INDUSTRIAL PROCESSES	CHEMICAL	0.00000	0.00000	0.01791	0.00000	0.00000
420	INDUSTRIAL PROCESSES	FOOD AND AGRICULTURE	0.43556	0.00175	0.02262	0.00000	0.00000
430	INDUSTRIAL PROCESSES	MINERAL PROCESSES	0.09728	0.00754	0.01166	0.00000	0.00126
440	INDUSTRIAL PROCESSES	METAL PROCESSES	0.00035	0.00060	0.00000	0.00000	0.00000
450	INDUSTRIAL PROCESSES	WOOD AND PAPER	0.09959	0.00000	0.00953	0.00000	0.00000
499	INDUSTRIAL PROCESSES	OTHER (INDUSTRIAL PROCESSES)	0.00000	0.00000	0.00000	0.00000	0.00000
510	SOLVENT EVAPORATION	CONSUMER PRODUCTS	0.00000	0.00000	1.18673	0.00000	0.00000
520	SOLVENT EVAPORATION	ARCHITECTURAL COATINGS	0.00000	0.00000	0.20127	0.00000	0.00000
530	SOLVENT EVAPORATION	PESTICIDES/FERTILIZERS	0.00000	0.00000	0.32356	2.59250	0.00000
540	SOLVENT EVAPORATION	ASPHALT PAVING / ROOFING	0.00000	0.00000	0.78307	0.00000	0.00000

610	MISC PROCESSES	RESIDENTIAL FUEL COMBUSTION	1.64806	0.56392	2.25163	0.10364	0.04474
620	MISC PROCESSES	FARMING OPERATIONS	0.49808	0.00000	0.38548	0.91574	0.00000
630	MISC PROCESSES	CONSTRUCTION AND DEMOLITION	0.11414	0.00000	0.00000	0.00000	0.00000
640	MISC PROCESSES	PAVED ROAD DUST	0.12551	0.00000	0.00000	0.00000	0.00000
645	MISC PROCESSES	UNPAVED ROAD DUST	0.11623	0.00000	0.00000	0.00000	0.00000
650	MISC PROCESSES	FUGITIVE WINDBLOWN DUST	0.08003	0.00000	0.00000	0.00000	0.00000
660	MISC PROCESSES	FIRES	0.00333	0.00072	0.00279	0.00000	0.00000
670	MISC PROCESSES	MANAGED BURNING AND DISPOSAL	0.70531	0.30483	0.59761	0.08349	0.05893
690	MISC PROCESSES	COOKING	0.08685	0.00000	0.01051	0.00000	0.00000
699	MISC PROCESSES	OTHER (MISCELLANEOUS PROCESSES)	0.00000	0.00000	0.00000	0.26462	0.00000
710	ON-ROAD VEHICLES	LIGHT DUTY PASSENGER (LDA)	0.04136	0.21186	0.24275	0.04556	0.00588
722	ON-ROAD VEHICLES	LIGHT DUTY TRUCKS - 1 (LDT1)	0.00407	0.03842	0.05481	0.00486	0.00065
723	ON-ROAD VEHICLES	LIGHT DUTY TRUCKS - 2 (LDT2)	0.01503	0.21117	0.21359	0.01668	0.00279
724	ON-ROAD VEHICLES	MEDIUM DUTY TRUCKS (MDV)	0.01332	0.19249	0.19748	0.01387	0.00300
732	ON-ROAD VEHICLES	LIGHT HEAVY DUTY GAS TRUCKS	0.00255	0.05358	0.06999	0.00192	0.00070
733	ON-ROAD VEHICLES	LIGHT HEAVY DUTY GAS TRUCKS - 2	0.00039	0.00520	0.00488	0.00024	0.00011
734	ON-ROAD VEHICLES	MEDIUM HEAVY DUTY GAS TRUCKS	0.00035	0.00731	0.00567	0.00014	0.00010
736	ON-ROAD VEHICLES	HEAVY HEAVY DUTY GAS TRUCKS	0.00000	0.00142	0.00043	0.00000	0.00000
743	ON-ROAD VEHICLES	LIGHT HEAVY DUTY DIESEL TRUCKS - 2	0.00230	0.08525	0.00583	0.00282	0.00020
744	ON-ROAD VEHICLES	MEDIUM HEAVY DUTY DIESEL TRUCKS	0.01232	0.36186	0.02224	0.00577	0.00083
746	ON-ROAD VEHICLES	HEAVY HEAVY DUTY DIESEL TRUCKS	0.02067	1.08115	0.03938	0.01656	0.00329
750	ON-ROAD VEHICLES	MOTORCYCLES (MCY)	0.00021	0.03380	0.11228	0.00015	0.00006
760	ON-ROAD VEHICLES	HEAVY DUTY DIESEL URBAN BUSES	0.00032	0.01051	0.00014	0.00066	0.00006
762	ON-ROAD VEHICLES	HEAVY DUTY GAS URBAN BUSES (UBG)	0.00000	0.00000	0.00000	0.00000	0.00000
771	ON-ROAD VEHICLES	SCHOOL BUSES - GAS (SBG)	0.00022	0.00015	0.00020	0.00000	0.00001
772	ON-ROAD VEHICLES	SCHOOL BUSES - DIESEL (SBD)	0.00252	0.06617	0.00089	0.00041	0.00008
777	ON-ROAD VEHICLES	OTHER BUSES - GAS (OBG)	0.00010	0.00171	0.00076	0.00005	0.00003
778	ON-ROAD VEHICLES	OTHER BUSES - MOTOR COACH - DIESEL	0.00014	0.00510	0.00025	0.00014	0.00001
779	ON-ROAD VEHICLES	ALL OTHER BUSES - DIESEL (OBD)	0.00009	0.00240	0.00018	0.00007	0.00001
780	ON-ROAD VEHICLES	MOTOR HOMES (MH)	0.00052	0.01083	0.00085	0.00019	0.00008
810	OTHER MOBILE SOURCES	AIRCRAFT	0.03899	0.37054	0.77997	0.00000	0.05182
820	OTHER MOBILE SOURCES	TRAINS	0.01283	0.57499	0.02574	0.00041	0.00052
840	OTHER MOBILE SOURCES	RECREATIONAL BOATS	0.00854	0.03877	0.19289	0.00008	0.00006
850	OTHER MOBILE SOURCES	OFF-ROAD RECREATIONAL VEHICLES	0.01436	0.05107	1.60304	0.00075	0.00110
860	OTHER MOBILE SOURCES	OFF-ROAD EQUIPMENT	0.03965	0.82481	0.54157	0.00044	0.00137
861	OTHER MOBILE SOURCES	OFF-ROAD EQUIPMENT (PERP)	0.00133	0.03827	0.00351	0.00007	0.00008
870	OTHER MOBILE SOURCES	FARM EQUIPMENT	0.06561	1.21615	0.28815	0.00138	0.00152
890	OTHER MOBILE SOURCES	FUEL STORAGE AND HANDLING	0.00000	0.00000	0.04922	0.00000	0.00000
		Total Yuba City-Marysville Area	**4.47992**	**8.26720**	**13.7920**	**4.23716**	**0.2807**

Table B-2 2024 Projected Inventory

EIC	CATEGORY	SUB CATEGORY	PM2.5	NOx	ROG	NH3	SOx
10	FUEL COMBUSTION	ELECTRIC UTILITIES	0.02491	0.14161	0.02266	0.00000	0.02490
20	FUEL COMBUSTION	COGENERATION	0.00013	0.01267	0.00014	0.00000	0.00001
30	FUEL COMBUSTION	OIL AND GAS PRODUCTION	0.00397	0.16873	0.09623	0.00000	0.00026
50	FUEL COMBUSTION	MANUFACTURING/INDUSTRIAL	0.01327	0.29148	0.00571	0.00000	0.05833
52	FUEL COMBUSTION	FOOD AND AG PROCESSING	0.01714	0.21025	0.01949	0.00000	0.00137
60	FUEL COMBUSTION	SERVICE AND COMMERCIAL	0.08706	0.46275	0.01205	0.00000	0.00198
99	FUEL COMBUSTION	OTHER (FUEL COMBUSTION)	0.00033	0.00482	0.00001	0.00000	0.00000
110	WASTE DISPOSAL	SEWAGE TREATMENT	0.00000	0.00000	0.00337	0.00168	0.00000
	WASTE DISPOSAL	LANDFILLS	0.00129	0.02596	0.00976	0.03403	0.01776
	WASTE DISPOSAL	INCINERATORS	0.00000	0.00000	0.00000	0.00000	0.00000
120	WASTE DISPOSAL	SOIL REMEDIATION	0.00000	0.00000	0.00000	0.00000	0.00000
199	WASTE DISPOSAL	OTHER (WASTE DISPOSAL)	0.00000	0.00000	0.00000	0.12093	0.00000
210	CLEANING AND SURFACE COATINGS	LAUNDERING	0.00000	0.00000	0.00877	0.00000	0.00000
220	CLEANING AND SURFACE COATINGS	DEGREASING	0.00000	0.00000	0.32149	0.00000	0.00000
230	CLEANING AND SURFACE COATINGS	COATINGS AND RELATED PROCESS SOLVENTS	0.00827	0.00000	0.25650	0.00000	0.00000
240	CLEANING AND SURFACE COATINGS	PRINTING	0.00000	0.00000	0.01706	0.00000	0.00000
250	CLEANING AND SURFACE COATINGS	ADHESIVES AND SEALANTS	0.00000	0.00000	0.03782	0.00000	0.00000
299	CLEANING AND SURFACE COATINGS	OTHER (CLEANING AND SURFACE COATINGS)	0.00000	0.00000	0.21596	0.00000	0.00000
310	PETROLEUM PRODUCTION AND MARKETING	OIL AND GAS PRODUCTION	0.00000	0.00000	1.95525	0.00000	0.00000
330	PETROLEUM PRODUCTION AND MARKETING	PETROLEUM MARKETING	0.00000	0.00000	0.29928	0.00000	0.00000
399	PETROLEUM PRODUCTION AND MARKETING	OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.00000	0.00000	0.00000	0.00000	0.00000
410	INDUSTRIAL PROCESSES	CHEMICAL	0.00000	0.00000	0.01856	0.00000	0.00000
420	INDUSTRIAL PROCESSES	FOOD AND AGRICULTURE	0.46801	0.00188	0.02430	0.00000	0.00000
430	INDUSTRIAL PROCESSES	MINERAL PROCESSES	0.10516	0.00813	0.01258	0.00000	0.00136
	INDUSTRIAL PROCESSES	METAL PROCESSES	0.00039	0.00069	0.00000	0.00000	0.00000
450	INDUSTRIAL PROCESSES	WOOD AND PAPER	0.10508	0.00000	0.01005	0.00000	0.00000
499	INDUSTRIAL PROCESSES	OTHER (INDUSTRIAL PROCESSES)	0.00000	0.00000	0.00000	0.00000	0.00000
510	SOLVENT EVAPORATION	CONSUMER PRODUCTS	0.00000	0.00000	1.14669	0.00000	0.00000
520	SOLVENT EVAPORATION	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.00000	0.00000	0.21370	0.00000	0.00000
530	SOLVENT EVAPORATION	PESTICIDES/FERTILIZERS	0.00000	0.00000	0.29980	2.55625	0.00000
540	SOLVENT EVAPORATION	ASPHALT PAVING / ROOFING	0.00000	0.00000	0.85186	0.00000	0.00000

610	MISC PROCESSES	RESIDENTIAL FUEL COMBUSTION	1.62842	0.56588	2.22189	0.10364	0.04477
620	MISC PROCESSES	FARMING OPERATIONS	0.49101	0.00000	0.36872	0.89377	0.00000
630	MISC PROCESSES	CONSTRUCTION AND DEMOLITION	0.12417	0.00000	0.00000	0.00000	0.00000
640	MISC PROCESSES	PAVED ROAD DUST	0.13026	0.00000	0.00000	0.00000	0.00000
645	MISC PROCESSES	UNPAVED ROAD DUST	0.11597	0.00000	0.00000	0.00000	0.00000
650	MISC PROCESSES	FUGITIVE WINDBLOWN DUST	0.07897	0.00000	0.00000	0.00000	0.00000
660	MISC PROCESSES	FIRES	0.00344	0.00077	0.00293	0.00000	0.00000
670	MISC PROCESSES	MANAGED BURNING AND DISPOSAL	0.64564	0.30245	0.54195	0.07533	0.05615
690	MISC PROCESSES	COOKING	0.08705	0.00000	0.01054	0.00000	0.00000
699	MISC PROCESSES	OTHER (MISCELLANEOUS PROCESSES)	0.00000	0.00000	0.00000	0.26517	0.00000
710	ON-ROAD VEHICLES	LIGHT DUTY PASSENGER (LDA)	0.04399	0.13877	0.18511	0.05619	0.00561
722	ON-ROAD VEHICLES	LIGHT DUTY TRUCKS - 1 (LDT1)	0.00413	0.02352	0.04013	0.00537	0.00061
723	ON-ROAD VEHICLES	LIGHT DUTY TRUCKS - 2 (LDT2)	0.01405	0.11666	0.15282	0.01772	0.00229
724	ON-ROAD VEHICLES	MEDIUM DUTY TRUCKS (MDV)	0.01105	0.10345	0.13839	0.01297	0.00226
732	ON-ROAD VEHICLES	LIGHT HEAVY DUTY GAS TRUCKS - 1	0.00198	0.03500	0.05296	0.00159	0.00053
733	ON-ROAD VEHICLES	LIGHT HEAVY DUTY GAS TRUCKS - 2	0.00032	0.00374	0.00367	0.00022	0.00009
734	ON-ROAD VEHICLES	MEDIUM HEAVY DUTY GAS TRUCKS	0.00034	0.00336	0.00287	0.00017	0.00010
736	ON-ROAD VEHICLES	HEAVY HEAVY DUTY GAS TRUCKS	0.00000	0.00053	0.00007	0.00000	0.00000
743	ON-ROAD VEHICLES	LIGHT HEAVY DUTY DIESEL TRUCKS - 2	0.00185	0.05568	0.00458	0.00271	0.00016
744	ON-ROAD VEHICLES	MEDIUM HEAVY DUTY DIESEL TRUCKS	0.00497	0.15134	0.00118	0.00773	0.00074
746	ON-ROAD VEHICLES	HEAVY HEAVY DUTY DIESEL TRUCKS	0.01213	0.60898	0.01577	0.02053	0.00317
750	ON-ROAD VEHICLES	MOTORCYCLES (MCY)	0.00018	0.02934	0.09594	0.00014	0.00005
760	ON-ROAD VEHICLES	HEAVY DUTY DIESEL URBAN BUSES	0.00035	0.00291	0.00013	0.00139	0.00006
762	ON-ROAD VEHICLES	HEAVY DUTY GAS URBAN BUSES (UBG)	0.00000	0.00000	0.00000	0.00000	0.00000
771	ON-ROAD VEHICLES	SCHOOL BUSES - GAS (SBG)	0.00023	0.00016	0.00023	0.00001	0.00001
772	ON-ROAD VEHICLES	SCHOOL BUSES - DIESEL (SBD)	0.00224	0.05505	0.00076	0.00045	0.00008
777	ON-ROAD VEHICLES	OTHER BUSES - GAS (OBG)	0.00009	0.00103	0.00062	0.00005	0.00002
778	ON-ROAD VEHICLES	OTHER BUSES - MOTOR COACH - DIESEL	0.00007	0.00195	0.00004	0.00018	0.00001
779	ON-ROAD VEHICLES	ALL OTHER BUSES - DIESEL (OBD)	0.00004	0.00127	0.00001	0.00012	0.00001
780	ON-ROAD VEHICLES	MOTOR HOMES (MH)	0.00040	0.00765	0.00050	0.00018	0.00006
810	OTHER MOBILE SOURCES	AIRCRAFT	0.03899	0.37051	0.77988	0.00000	0.05180
820	OTHER MOBILE SOURCES	TRAINS	0.01289	0.60939	0.02602	0.00044	0.00056
840	OTHER MOBILE SOURCES	RECREATIONAL BOATS	0.00722	0.03707	0.16339	0.00008	0.00006
850	OTHER MOBILE SOURCES	OFF-ROAD RECREATIONAL VEHICLES	0.01441	0.05467	1.39743	0.00076	0.00095
860	OTHER MOBILE SOURCES	OFF-ROAD EQUIPMENT	0.02947	0.62877	0.50604	0.00046	0.00137
	OTHER MOBILE SOURCES	OFF-ROAD EQUIPMENT (PERP)	0.00085	0.02738	0.00289	0.00007	0.00008
870	OTHER MOBILE SOURCES	FARM EQUIPMENT	0.05213	0.94370	0.23420	0.00133	0.00146
890	OTHER MOBILE SOURCES	FUEL STORAGE AND HANDLING	0.00000	0.00000	0.04461	0.00000	0.00000
		Total	4.40100	6.51657	12.8749	4.18948	0.27953

Table B-3 2026 Projected Inventory

EIC	CATEGORY	SUB CATEGORY	PM2.5	Nox	ROG	NH3	Sox
10	FUEL COMBUSTION	ELECTRIC UTILITIES	0.02644	0.15114	0.02309	0.00000	0.02539
20	FUEL COMBUSTION	COGENERATION	0.00013	0.01271	0.00014	0.00000	0.00001
30	FUEL COMBUSTION	OIL AND GAS PRODUCTION (COMBUSTION)	0.00374	0.15908	0.09073	0.00000	0.00025
50	FUEL COMBUSTION	MANUFACTURING AND INDUSTRIAL	0.01325	0.29110	0.00571	0.00000	0.05953
52	FUEL COMBUSTION	FOOD AND AGRICULTURAL PROCESSING	0.01648	0.19595	0.01829	0.00000	0.00134
60	FUEL COMBUSTION	SERVICE AND COMMERCIAL	0.08615	0.45788	0.01203	0.00000	0.00197
99	FUEL COMBUSTION	OTHER (FUEL COMBUSTION)	0.00033	0.00482	0.00001	0.00000	0.00000
110	WASTE DISPOSAL	SEWAGE TREATMENT	0.00000	0.00000	0.00347	0.00170	0.00000
	WASTE DISPOSAL	LANDFILLS	0.00133	0.02661	0.01003	0.03450	0.01822
	WASTE DISPOSAL	INCINERATORS	0.00000	0.00000	0.00000	0.00000	0.00000
120	WASTE DISPOSAL	SOIL REMEDIATION	0.00000	0.00000	0.00000	0.00000	0.00000
199	WASTE DISPOSAL	OTHER (WASTE DISPOSAL)	0.00000	0.00000	0.00000	0.12257	0.00000
210	CLEANING AND SURFACE COATINGS	LAUNDERING	0.00000	0.00000	0.00889	0.00000	0.00000
220	CLEANING AND SURFACE COATINGS	DEGREASING	0.00000	0.00000	0.32995	0.00000	0.00000
230	CLEANING AND SURFACE COATINGS	COATINGS AND RELATED PROCESS SOLVENTS	0.00836	0.00000	0.26134	0.00000	0.00000
240	CLEANING AND SURFACE COATINGS	PRINTING	0.00000	0.00000	0.01724	0.00000	0.00000
250	CLEANING AND SURFACE COATINGS	ADHESIVES AND SEALANTS	0.00000	0.00000	0.03753	0.00000	0.00000
299	CLEANING AND SURFACE COATINGS	OTHER (CLEANING AND SURFACE COATINGS)	0.00000	0.00000	0.21770	0.00000	0.00000
310	PETROLEUM PROD & MARKETING	OIL AND GAS PRODUCTION	0.00000	0.00000	1.84349	0.00000	0.00000
330	PETROLEUM PROD & MARKETING	PETROLEUM MARKETING	0.00000	0.00000	0.28420	0.00000	0.00000
399	PETROLEUM PROD & MARKETING	OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.00000	0.00000	0.00000	0.00000	0.00000
410	INDUSTRIAL PROCESSES	CHEMICAL	0.00000	0.00000	0.01932	0.00000	0.00000
420	INDUSTRIAL PROCESSES	FOOD AND AGRICULTURE	0.48971	0.00197	0.02543	0.00000	0.00000
430	INDUSTRIAL PROCESSES	MINERAL PROCESSES	0.10525	0.00815	0.01260	0.00000	0.00137
	INDUSTRIAL PROCESSES	METAL PROCESSES	0.00040	0.00069	0.00000	0.00000	0.00000
450	INDUSTRIAL PROCESSES	WOOD AND PAPER	0.10498	0.00000	0.01004	0.00000	0.00000
499	INDUSTRIAL PROCESSES	OTHER (INDUSTRIAL PROCESSES)	0.00000	0.00000	0.00000	0.00000	0.00000
510	SOLVENT EVAPORATION	CONSUMER PRODUCTS	0.00000	0.00000	1.17311	0.00000	0.00000
520	SOLVENT EVAPORATION	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.00000	0.00000	0.21942	0.00000	0.00000
530	SOLVENT EVAPORATION	PESTICIDES/FERTILIZERS	0.00000	0.00000	0.29741	2.53885	0.00000
540	SOLVENT EVAPORATION	ASPHALT PAVING / ROOFING	0.00000	0.00000	0.86985	0.00000	0.00000
610	MISC PROCESSES	RESIDENTIAL FUEL COMBUSTION	1.61849	0.56576	2.20713	0.10364	0.04477
620	MISC PROCESSES	FARMING OPERATIONS	0.48762	0.00000	0.36183	0.88479	0.00000

630	MISC PROCESSES	CONSTRUCTION AND DEMOLITION	0.12679	0.00000	0.00000	0.00000	0.00000
640	MISC PROCESSES	PAVED ROAD DUST	0.13271	0.00000	0.00000	0.00000	0.00000
645	MISC PROCESSES	UNPAVED ROAD DUST	0.11585	0.00000	0.00000	0.00000	0.00000
650	MISC PROCESSES	FUGITIVE WINDBLOWN DUST	0.07846	0.00000	0.00000	0.00000	0.00000
660	MISC PROCESSES	FIRES	0.00351	0.00079	0.00301	0.00000	0.00000
670	MISC PROCESSES	MANAGED BURNING AND DISPOSAL	0.64464	0.30126	0.54116	0.07504	0.05596
690	MISC PROCESSES	COOKING	0.08828	0.00000	0.01069	0.00000	0.00000
699	MISC PROCESSES	OTHER (MISCELLANEOUS PROCESSES)	0.00000	0.00000	0.00000	0.26892	0.00000
710	ON-ROAD VEHICLES	LIGHT DUTY PASSENGER (LDA)	0.04541	0.12128	0.17030	0.06069	0.00546
722	ON-ROAD VEHICLES	LIGHT DUTY TRUCKS - 1 (LDT1)	0.00418	0.01910	0.03520	0.00559	0.00059
723	ON-ROAD VEHICLES	LIGHT DUTY TRUCKS - 2 (LDT2)	0.01398	0.09131	0.13502	0.01833	0.00213
724	ON-ROAD VEHICLES	MEDIUM DUTY TRUCKS (MDV)	0.01037	0.07952	0.12062	0.01268	0.00199
732	ON-ROAD VEHICLES	LIGHT HEAVY DUTY GAS TRUCKS - 1	0.00181	0.02897	0.04895	0.00146	0.00047
733	ON-ROAD VEHICLES	LIGHT HEAVY DUTY GAS TRUCKS - 2	0.00030	0.00321	0.00322	0.00021	0.00008
734	ON-ROAD VEHICLES	MEDIUM HEAVY DUTY GAS TRUCKS	0.00035	0.00263	0.00244	0.00018	0.00010
736	ON-ROAD VEHICLES	HEAVY HEAVY DUTY GAS TRUCKS	0.00000	0.00021	0.00003	0.00000	0.00000
743	ON-ROAD VEHICLES	LIGHT HEAVY DUTY DIESEL TRUCKS - 2	0.00167	0.04467	0.00408	0.00265	0.00014
744	ON-ROAD VEHICLES	MEDIUM HEAVY DUTY DIESEL TRUCKS	0.00483	0.13365	0.00112	0.00774	0.00072
746	ON-ROAD VEHICLES	HEAVY HEAVY DUTY DIESEL TRUCKS	0.01119	0.41665	0.01602	0.02134	0.00311
750	ON-ROAD VEHICLES	MOTORCYCLES (MCY)	0.00018	0.02801	0.09050	0.00013	0.00005
760	ON-ROAD VEHICLES	HEAVY DUTY DIESEL URBAN BUSES (UBD)	0.00038	0.00318	0.00014	0.00161	0.00007
762	ON-ROAD VEHICLES	HEAVY DUTY GAS URBAN BUSES (UBG)	0.00000	0.00000	0.00000	0.00000	0.00000
771	ON-ROAD VEHICLES	SCHOOL BUSES - GAS (SBG)	0.00025	0.00017	0.00026	0.00001	0.00001
772	ON-ROAD VEHICLES	SCHOOL BUSES - DIESEL (SBD)	0.00209	0.04875	0.00071	0.00048	0.00007
777	ON-ROAD VEHICLES	OTHER BUSES - GAS (OBG)	0.00008	0.00084	0.00058	0.00005	0.00002
778	ON-ROAD VEHICLES	OTHER BUSES - MOTOR COACH - DIESEL	0.00007	0.00146	0.00004	0.00019	0.00001
779	ON-ROAD VEHICLES	ALL OTHER BUSES - DIESEL (OBD)	0.00004	0.00127	0.00001	0.00013	0.00001
780	ON-ROAD VEHICLES	MOTOR HOMES (MH)	0.00036	0.00664	0.00039	0.00017	0.00006
810	OTHER MOBILE SOURCES	AIRCRAFT	0.03899	0.37050	0.77983	0.00000	0.05179
820	OTHER MOBILE SOURCES	TRAINS	0.01267	0.61883	0.02567	0.00046	0.00058
840	OTHER MOBILE SOURCES	RECREATIONAL BOATS	0.00667	0.03639	0.15091	0.00008	0.00006
850	OTHER MOBILE SOURCES	OFF-ROAD RECREATIONAL VEHICLES	0.01449	0.05707	1.27205	0.00076	0.00088
860	OTHER MOBILE SOURCES	OFF-ROAD EQUIPMENT	0.02540	0.55131	0.43844	0.00043	0.00135
	OTHER MOBILE SOURCES	OFF-ROAD EQUIPMENT (PERP)	0.00065	0.02280	0.00271	0.00008	0.00009
870	OTHER MOBILE SOURCES	FARM EQUIPMENT	0.04609	0.82469	0.20803	0.00130	0.00143
890	OTHER MOBILE SOURCES	FUEL STORAGE AND HANDLING	0.00000	0.00000	0.04299	0.00000	0.00000
		Total	4.40110	5.92920	12.4816	4.17427	0.28051

Table B-4: 2035 Projected Emission Inventory

EIC	CATEGORY	SUB CATEGORY	PM2.5	NOx	ROG	NH3	SOx
10	FUEL COMBUSTION	ELECTRIC UTILITIES	0.02265	0.12675	0.02308	0.00000	0.02530
20	FUEL COMBUSTION	COGENERATION	0.00015	0.01426	0.00015	0.00000	0.00001
30	FUEL COMBUSTION	OIL AND GAS PRODUCTION	0.00287	0.12207	0.06962	0.00000	0.00019
50	FUEL COMBUSTION	MANUFACTURING AND INDUSTRIAL	0.01376	0.30093	0.00586	0.00000	0.06488
52	FUEL COMBUSTION	FOOD AND AGRICULTURAL PROCESSING	0.01524	0.15769	0.01520	0.00000	0.00160
60	FUEL COMBUSTION	SERVICE AND COMMERCIAL	0.08577	0.45683	0.01235	0.00000	0.00196
99	FUEL COMBUSTION	OTHER (FUEL COMBUSTION)	0.00033	0.00482	0.00001	0.00000	0.00000
110	WASTE DISPOSAL	SEWAGE TREATMENT	0.00000	0.00000	0.00376	0.00180	0.00000
	WASTE DISPOSAL	LANDFILLS	0.00143	0.02862	0.01084	0.03619	0.01963
	WASTE DISPOSAL	INCINERATORS	0.00000	0.00000	0.00000	0.00000	0.00000
120	WASTE DISPOSAL	SOIL REMEDIATION	0.00000	0.00000	0.00000	0.00000	0.00000
199	WASTE DISPOSAL	OTHER (WASTE DISPOSAL)	0.00000	0.00000	0.00000	0.12859	0.00000
210	CLEANING AND SURFACE COATINGS	LAUNDERING	0.00000	0.00000	0.00939	0.00000	0.00000
220	CLEANING AND SURFACE COATINGS	DEGREASING	0.00000	0.00000	0.37027	0.00000	0.00000
230	CLEANING AND SURFACE COATINGS	COATINGS AND RELATED PROCESS SOLVENTS	0.00877	0.00000	0.29268	0.00000	0.00000
240	CLEANING AND SURFACE COATINGS	PRINTING	0.00000	0.00000	0.01765	0.00000	0.00000
250	CLEANING AND SURFACE COATINGS	ADHESIVES AND SEALANTS	0.00000	0.00000	0.03650	0.00000	0.00000
299	CLEANING AND SURFACE COATINGS	OTHER (CLEANING AND SURFACE COATINGS)	0.00000	0.00000	0.22770	0.00000	0.00000
310	PETROLEUM PROD AND MARKETING	OIL AND GAS PRODUCTION	0.00000	0.00000	1.41453	0.00000	0.00000
330	PETROLEUM PROD AND MARKETING	PETROLEUM MARKETING	0.00000	0.00000	0.25068	0.00000	0.00000
399	PETROLEUM PROD AND MARKETING	OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.00000	0.00000	0.00000	0.00000	0.00000
410	INDUSTRIAL PROCESSES	CHEMICAL	0.00000	0.00000	0.02410	0.00000	0.00000
420	INDUSTRIAL PROCESSES	FOOD AND AGRICULTURE	0.58273	0.00234	0.03025	0.00000	0.00000
430	INDUSTRIAL PROCESSES	MINERAL PROCESSES	0.10817	0.00840	0.01298	0.00000	0.00141
	INDUSTRIAL PROCESSES	METAL PROCESSES	0.00041	0.00073	0.00000	0.00000	0.00000
450	INDUSTRIAL PROCESSES	WOOD AND PAPER	0.10925	0.00000	0.01045	0.00000	0.00000
499	INDUSTRIAL PROCESSES	OTHER (INDUSTRIAL PROCESSES)	0.00000	0.00000	0.00000	0.00000	0.00000
510	SOLVENT EVAPORATION	CONSUMER PRODUCTS	0.00000	0.00000	1.31546	0.00000	0.00000
520	SOLVENT EVAPORATION	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.00000	0.00000	0.23630	0.00000	0.00000
530	SOLVENT EVAPORATION	PESTICIDES/FERTILIZERS	0.00000	0.00000	0.28743	2.46615	0.00000
540	SOLVENT EVAPORATION	ASPHALT PAVING / ROOFING	0.00000	0.00000	0.95559	0.00000	0.00000
610	MISC PROCESSES	RESIDENTIAL FUEL COMBUSTION	1.57450	0.56232	2.13923	0.10364	0.04477
620	MISC PROCESSES	FARMING OPERATIONS	0.47346	0.00000	0.33903	0.85522	0.00000

630	MISC PROCESSES	CONSTRUCTION AND DEMOLITION	0.13929	0.00000	0.00000	0.00000	0.00000
640	MISC PROCESSES	PAVED ROAD DUST	0.15207	0.00000	0.00000	0.00000	0.00000
645	MISC PROCESSES	UNPAVED ROAD DUST	0.11533	0.00000	0.00000	0.00000	0.00000
650	MISC PROCESSES	FUGITIVE WINDBLOWN DUST	0.07635	0.00000	0.00000	0.00000	0.00000
660	MISC PROCESSES	FIRES	0.00375	0.00085	0.00323	0.00000	0.00000
670	MISC PROCESSES	MANAGED BURNING AND DISPOSAL	0.64006	0.29610	0.53750	0.07383	0.05514
690	MISC PROCESSES	COOKING	0.09316	0.00000	0.01126	0.00000	0.00000
699	MISC PROCESSES	OTHER (MISCELLANEOUS PROCESSES)	0.00000	0.00000	0.00000	0.28384	0.00000
710	ON-ROAD VEHICLES	LIGHT DUTY PASSENGER (LDA)	0.05360	0.10851	0.14788	0.07807	0.00551
722	ON-ROAD VEHICLES	LIGHT DUTY TRUCKS - 1 (LDT1)	0.00473	0.01153	0.02125	0.00670	0.00058
723	ON-ROAD VEHICLES	LIGHT DUTY TRUCKS - 2 (LDT2)	0.01527	0.04535	0.08258	0.02166	0.00190
724	ON-ROAD VEHICLES	MEDIUM DUTY TRUCKS (MDV)	0.00966	0.03729	0.07369	0.01318	0.00150
732	ON-ROAD VEHICLES	LIGHT HEAVY DUTY GAS TRUCKS - 1	0.00145	0.01320	0.01939	0.00127	0.00031
733	ON-ROAD VEHICLES	LIGHT HEAVY DUTY GAS TRUCKS - 2	0.00026	0.00178	0.00171	0.00019	0.00006
734	ON-ROAD VEHICLES	MEDIUM HEAVY DUTY GAS TRUCKS (	0.00037	0.00133	0.00164	0.00022	0.00008
736	ON-ROAD VEHICLES	HEAVY HEAVY DUTY GAS TRUCKS	0.00000	0.00014	0.00002	0.00000	0.00000
743	ON-ROAD VEHICLES	LIGHT HEAVY DUTY DIESEL TRUCKS - 2	0.00117	0.01819	0.00274	0.00257	0.00009
744	ON-ROAD VEHICLES	MEDIUM HEAVY DUTY DIESEL TRUCKS	0.00510	0.09337	0.00098	0.00928	0.00063
746	ON-ROAD VEHICLES	HEAVY HEAVY DUTY DIESEL TRUCKS	0.01278	0.31720	0.01755	0.02763	0.00302
750	ON-ROAD VEHICLES	MOTORCYCLES (MCY)	0.00017	0.02701	0.08242	0.00013	0.00005
760	ON-ROAD VEHICLES	HEAVY DUTY DIESEL URBAN BUSES (UBD)	0.00041	0.00205	0.00009	0.00226	0.00005
762	ON-ROAD VEHICLES	HEAVY DUTY GAS URBAN BUSES (UBG)	0.00000	0.00000	0.00000	0.00000	0.00000
771	ON-ROAD VEHICLES	SCHOOL BUSES - GAS (SBG)	0.00033	0.00019	0.00038	0.00002	0.00001
772	ON-ROAD VEHICLES	SCHOOL BUSES - DIESEL (SBD)	0.00164	0.01818	0.00034	0.00063	0.00005
777	ON-ROAD VEHICLES	OTHER BUSES - GAS (OBG)	0.00008	0.00046	0.00055	0.00005	0.00002
778	ON-ROAD VEHICLES	OTHER BUSES - MOTOR COACH - DIESEL	0.00007	0.00098	0.00005	0.00021	0.00001
779	ON-ROAD VEHICLES	ALL OTHER BUSES - DIESEL (OBD)	0.00006	0.00151	0.00001	0.00017	0.00001
780	ON-ROAD VEHICLES	MOTOR HOMES (MH)	0.00026	0.00417	0.00017	0.00018	0.00004
810	OTHER MOBILE SOURCES	AIRCRAFT	0.03899	0.37045	0.77969	0.00000	0.05177
820	OTHER MOBILE SOURCES	TRAINS	0.01162	0.62426	0.02437	0.00056	0.00070
840	OTHER MOBILE SOURCES	RECREATIONAL BOATS	0.00497	0.03461	0.11016	0.00009	0.00007
850	OTHER MOBILE SOURCES	OFF-ROAD RECREATIONAL VEHICLES	0.01566	0.05813	0.76422	0.00081	0.00076
860	OTHER MOBILE SOURCES	OFF-ROAD EQUIPMENT	0.01510	0.36070	0.23026	0.00029	0.00128
	OTHER MOBILE SOURCES	OFF-ROAD EQUIPMENT (PERP)	0.00038	0.01867	0.00284	0.00009	0.00010
870	OTHER MOBILE SOURCES	FARM EQUIPMENT	0.02661	0.46469	0.12564	0.00117	0.00130
890	OTHER MOBILE SOURCES	FUEL STORAGE AND HANDLING	0.00000	0.00000	0.04076	0.00000	0.00000
		Total	4.44313	4.78552	11.2029	4.12353	0.28501

Appendix C: Emission Inventory Information

CARB Yuba City-Marysville 2006 24-Hour PM2.5 NAAQS Emissions Inventory Write-Up CEPAM 2022 PM2.5 Plans v1.00

(September 2022)

Contents

Emissions Inventory Background

The Clean Air Act (Act) identifies specific requirements that states must submit to US EPA as part of their State Implementation Plan (SIP) to attain and maintain the National Ambient Air Quality Standards (NAAQS). Section 175(A)[18] of the Act and the United States Environmental Protection Agency (US EPA) guidance sets the general framework for maintenance plans. These requirements include the development of an emission inventory. This document describes the emission inventory included in the Yuba City-Marysville 2006 24-Hour PM2.5 Maintenance Plan (Plan).

Emissions Inventory Overview

Emissions inventories are estimates of the amount and type of pollutants emitted into the atmosphere by facilities, mobile sources, and areawide sources. They are fundamental components of an air quality plan and serve critical functions such as:

1. the primary input to air quality modeling used in attainment demonstrations;
2. the emissions data used for developing control strategies; and
3. a means to track progress in meeting the emission reduction commitments.

The California Air Resources Board (CARB) and in conjunction with Feather River Air Quality Management District (District) have developed a comprehensive current emissions inventory consistent with the requirements set forth in Section 172(C)[19] of the Act. CARB and District staff conducted a thorough review of the inventory to ensure that the emission estimates reflect accurate emissions reports for point sources and that estimates for mobile and areawide sources are based on the most recent approved models and methodologies.
CARB also reviewed the growth profiles for point and areawide source categories and updated them as necessary to ensure that the emission projections are based on data that reflect historical trends, current conditions, and recent economic and demographic forecasts.
US EPA requires that the emission inventory for a PM2.5 Plan contain emissions data for directly emitted PM2.5 and its precursors: oxides of nitrogen (NOx), sulfur oxides (SOx), volatile organic compounds (VOC), and ammonia (NH3)[20]. The inventory included in this Plan substitutes VOC with reactive organic gases (ROG), which in general represent a slightly broader group of compounds than those in US EPA's list of VOCs.

Inventory Base Year

The attainment base year inventory for the maintenance demonstration should reflect emissions during one of the three years for which monitoring data showed compliance with the standard[21]. Since this Plan is showing maintenance using the 2021 design values, which includes

[18] Section 175 (A) of the Act. https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partD-subpart1-sec7505a.htm
[19] Section 172(C)(3) of the Act. https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partD-subpart1-sec7502.htm
[20] 40 CFR 51.1000. https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-51/subpart-Z/section-51.1000
[21] 40 CFR 51.1011. https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-51/subpart-Z/section-51.1011

the years 2019, 2020 and 2021, CARB selected the base year 2020, as it is also the most recent triennial inventory year conducted for the National Emissions Inventory (NEI).

Forecasted Inventories

In addition to base year emissions, emissions projections are needed for a variety of reasons, including redesignation maintenance plans, the attainment projected inventory for a nonattainment area (NAA), and air quality modeling for attainment plans. The future yeas included in this Plan are 2026 and 2035.

For stationary and area sources, forecasted inventories are a projection of the base year inventory that reflects expected growth trends for each source category and emissions reductions due to adopted control measures. CARB develops emission forecasts by applying growth and control profiles to the base year inventory. The stationary and area source emissions inventory for the Yuba City-Marysville 2006 24-Hour PM2.5 Plan is modeled by the California Emission Projection Analysis Model (CEPAM), 2022 PM2.5 Plans, Version 1.00. Growth profiles for point and areawide sources are derived from surrogates, such as economic activity, fuel usage, population, and housing units, that best reflect the expected growth trends for each specific source category. Growth projections were obtained primarily from government entities with expertise in developing forecasts for specific sectors, or, in some cases, from econometric models. Control profiles, which account for emission reductions resulting from adopted rules and regulations, are derived from data provided by the regulatory agencies responsible for the affected emission categories.

Projections for on-road mobile source emissions are generated by CARB's EMFAC2017 model, which predicts activity rates and vehicle fleet turnover by vehicle model year, along with activity inputs from the metropolitan planning organization (MPO). Off-road mobile sources are forecasted with category-specific model or, where not available, CARB's OFFROAD2007. CEPAM integrates the emission projections derived from these mobile source models to develop a comprehensive forecasted emission inventory. As with stationary sources, the mobile source models include control algorithms that account for adopted regulatory actions.

Temporal Resolution

Planning inventories typically include annual as well as seasonal (summer and winter) emission estimates. Annual emission inventories represent the total emissions over an entire year (tons per year), or the daily emissions produced on an average day (tons per day). Seasonal inventories account for temporal activity variations throughout the year, as determined by category-specific temporal profiles. Since PM2.5 concentrations tend to be highest during the winter months, the emission inventory used in this Plan is based on the winter season (November through April).

Geographic Scope

The inventory presented in this plan includes emissions for the Yuba City-Marysville NAA, which comprises Sutter County (all) and a portion of Yuba County. Since the Yuba County portion is split into a region not defined by county, air basin, or district boundaries, the emissions had to

be spatially allocated for the portion falling in the NAA. The county level emissions were allocated to the nonattainment area using the approach described below.

Stationary Point Sources:
Emissions from stationary point sources were designated as being inside or outside the nonattainment area based on a district assessment of latitude and longitude coordinates.

Areawide Sources:
For the 1st Yuba City – Marysville 2012 PM2.5 Maintenance Plan, CARB and District staff conducted a thorough review of the areawide categories to determine those in Yuba County that actually occur in the nonattainment area, and their emissions were allocated based on spatial surrogates (irrigated cropland acreage, industrial employment, human population, etc.) that best reflect the expected distribution of these sources. In assigning the spatial surrogates, CARB staff prioritized the source categories based on their NOx, SOx, and direct PM2.5 emissions, and selected those above a threshold level of 0.1 tons per day for further review. Human population was set as the default surrogate, but more precise, category-specific surrogates were selected when data were available. Categories below the 0.1 ton per day threshold were assigned human population as the spatial surrogate. These same spatial surrogates were used for this Plan.

On-Road Mobile Sources:
For Sutter County, the on-road mobile source emissions comprise all of the county and are based on an EMFAC2017 run based on MPO activity for the county. For Yuba County, this Plan incorporates the portion of the on-road mobile source emissions occurring in the NAA. A special EMFAC2017 run was executed based on MPO activity for this sub-region.

Off-Road Mobile Sources.
As with areawide sources, District staff were consulted during the 1st 2012 PM2.5 Maintenance Plan work to determine the extent of emission activity occurring in the nonattainment area portion of Yuba County. The emissions were allocated based on human population. This same population surrogate was used for this Plan.
The spatial allocation methods used are shown in Table 1 below.

Table 1: Subcategory Allocation Method for the Yuba County Portion of the NAA

Source Category	**Allocation Method**
Stationary Point Sources	District LAT/LON Assessment
Areawide Sources	
I.C. Reciprocating Engines	Industrial Employment
Agricultural Irrigation I.C. Engines	Irrigated Cropland Acreage
Residential Fuel Combustion	Human Population
Farming Operations – Tilling Dust	Human Population
Farming Operations – Livestock Husbandry	Land Development - Low Density
Construction and Demolition	Human Population
Paved Road Dust	Human Population
Unpaved Road Dust	Human Population

Fugitive Windblown Dust	Human Population
Agricultural Burning	Human Population
On-Road Mobile Sources	EMFAC2017 run specific to the NAA portion of Yuba County
Off-Road Mobile Sources	Human Population
All other sources	Human Population

Quality Assurance and Quality Control

CARB has established a quality assurance and quality control (QA/QC) process to ensure the integrity and accuracy of the emission inventories used in the development of air quality plans. QA/QC occurs at the various stages of the Plan's emission inventory development. Base year emissions are assembled and maintained in the California Emission Inventory Development and Reporting System (CEIDARS). CARB inventory staff works with District staff, who are responsible for developing and reporting point source emission estimates, to verify these data are accurate. The locations of point sources, including stacks, are checked to ensure they are valid. Area-wide source emissions estimates are developed by both CARB and District staff, and the methodologies are reviewed by both agencies before their inclusion in the emissions inventory. Mobile categories are verified with CARB mobile source staff for consistency with the on-road and off-road emission models. Additionally, CEIDARS is designed with automatic system checks to prevent errors, such as double counting of emission sources. At the final stage, CEPAM is thoroughly reviewed to validate the accuracy of growth and control application, and the output emissions are compared against prior approved versions of CEPAM to identify data anomalies.

Emission Inventory Components

A summary of the components that make up the Yuba City-Marysville 2006 24-Hour PM2.5 Maintenance Plan emissions inventory is presented in the following sections. These include mobile (on- and off-road) sources, stationary point sources, and areawide sources. Natural sources are not included.

Mobile Source Emissions

CARB develops the emission inventory for the mobile sources using various modeling methods. These models account for the effects of various adopted regulations, technology types, fleet turnover, and seasonal conditions on emissions. Mobile sources in the emission inventory are composed of both on-road and off-road sources, described in the sections below.

On-Road Mobile Source Emissions

Emissions from on-road mobile sources, which include passenger vehicles, buses, and trucks, were estimated using outputs from CARB's EMFAC2017 model. The on-road emissions were calculated by applying EMFAC2017 emission factors to the transportation activity data provided by the local MPO.

EMFAC2017 includes data on California's car and truck fleets and travel activity. Light-duty motor vehicle fleet age, vehicle type, and vehicle population were updated based on 2016 DMV

data. The model also reflects the emissions benefits of CARB's recent rulemakings such as the Pavley Standards and Advanced Clean Cars Program and includes the emissions benefits of CARB's Truck and Bus Rule and previously adopted rules for other on-road diesel fleets. EMFAC2017 utilizes a socio-econometric regression modeling approach to forecast new vehicle sales and to estimate future fleet mix. Light-duty passenger vehicle population includes 2016 DMV registration data along with updates to mileage accrual using Smog Check data. Updates to heavy-duty trucks include model year specific emission factors based on new test data, and population estimates using DMV data for in-state trucks and International Registration Plan (IRP) data for out-of-state trucks.
Additional information and documentation on the EMFAC2017 model is available at: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-road-documentation

EMFAC2017 SAFE Vehicles Rules Off-Model Adjustment Removal
On September 27, 2019, US EPA and National Highway Traffic Safety Administration (NHTSA) published the "Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program" (SAFE-1).[22] SAFE-1 revoked California's authority to set its own greenhouse gas emissions standards and set zero-emission vehicle mandates in California. On April 28, 2021, US EPA reconsidered the 2019 SAFE-1 by finding that the actions taken as a part of SAFE-1 were decided in error and are now entirely rescinded[23].
Therefore, any previously applied off-model adjustments as a result of SAFE-1 were removed in this inventory, resulting in a minor reduction in emissions.

EMFAC2017 ACT Off-Model Adjustment
The Advanced Clean Trucks (ACT) regulation was approved on June 25, 2020 and has two main components, a manufacturers zero-emission vehicle (ZEV) sales requirement and a one-time reporting requirement for large entities and fleets. The first component requires manufacturers to sell ZEVs as a percentage of annual truck and bus sales in California for vehicle model years 2024 and newer.
The ACT regulation impacts some of the underlying assumptions in CARB's EMFAC2017 model, which was used to assess emissions from on-road mobile sources. Therefore, CARB developed off-model adjustment factors in order to reflect the regulation. Adjustment factors were based on calculations in EMFAC2021, which models a percentage of California-certified ZEV sales for each EMFAC category and model year. More information on inventory modelling methods can be found in the ACT Initial Statement of Reasons (ISOR) Appendix F. These adjustment factors were calculated based on emission estimates using EMFAC2021 under two scenarios: (1) controlled scenario -estimated emissions with adopted regulations (EMFAC2021 default) and (2) uncontrolled scenario - estimated emissions without accounting for the benefits of adopted regulations, including ACT and other regulations Heavy-Duty Omnibus, Opacity, and ICT (described below). These adjustments, provided in the form of multipliers, were applied to emissions outputs from the EMFAC2017 model by the CEPAM external adjustment module to account for the impact of the ACT regulation. The ACT off-model adjustment factors were only applied to the medium-and heavy-duty truck sectors.

[22] 84 FR 51310. https://www.govinfo.gov/content/pkg/FR-2019-09-27/pdf/2019-20672.pdf.
[23] 87 FR 14332. https://www.govinfo.gov/content/pkg/FR-2022-03-14/pdf/2022-05227.pdf.

Additional information on ACT is available at:
https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks
Additional information on EMFAC2021 technical details is available at:
https://ww2.arb.ca.gov/sites/default/files/2021-08/emfac2021_technical_documentation_april2021.pdf

EMFAC2017 Heavy-Duty Omnibus Off-Model Adjustment

On August 27, 2020, CARB adopted the Heavy-Duty (HD) Omnibus regulation, which would establish NOx engine emission standards 90 percent lower than today's technology. The Omnibus Regulation will dramatically reduce NOx emissions by comprehensively overhauling exhaust emission standards, test procedures, and other emissions-related requirements for California-certified heavy-duty engines with engine model years 2024 and newer.
The HD Omnibus regulation impacts some of the underlying assumptions in CARB's EMFAC2017 model, which was used to assess emissions from on-road mobile sources. Therefore, CARB developed off-model adjustment factors based on EMFAC2021 (described above) in order to reflect the regulation. These adjustments, provided in the form of multipliers, were applied to emissions outputs from the EMFAC2017 model by the CEPAM external adjustment module to account for the impact of the HD Omnibus regulation. The adjustment factors reflect the impact of all components of the HD Omnibus regulation on in-use (i.e. real-world) NOx emissions and deterioration-related emissions. More details on the inventory analysis for this regulation can be found in Appendix D of the HD Omnibus staff report.
The HD Omnibus off-model adjustment factors were only applied to on-road heavy-duty vehicles.
Additional information on the HD Omnibus regulation is available at:
https://ww2.arb.ca.gov/our-work/programs/heavy-duty-low-nox

EMFAC2017 Innovative Clean Transit Off-Model Adjustment

The Innovative Clean Transit (ICT) regulation was adopted by CARB in 2019 and targets reductions in transit fleets by requiring transit agencies to gradually transition their buses to zero-emission technologies. ICT has helped to advance heavy-duty ZEV deployment, with buses acting as a beachhead in the heavy-duty sector. Based on the size of the transit agencies, they are categorized as small and large agencies. Starting calendar year 2023, large agencies follow the phase-in schedule to have a certain percentage of their new purchases as zero emission buses (ZEB). For the small agencies, the start calendar year will be 2025. By 2030, all the agencies need to have 100% of their new purchases as ZEB.
The ICT regulation impacts some of the underlying assumptions in CARB's EMFAC2017 model, which was used to assess emissions from on-road mobile sources. Therefore, CARB developed off-model adjustment factors based on EMFAC2021 (described above) in order to reflect the regulation. These adjustments, provided in the form of multipliers, were applied to emissions outputs from the EMFAC2017 model by the CEPAM external adjustment module to account for the impact of ICT. More details on the inventory analysis for this regulation can be found in Appendix L of the ICT staff report. The ICT off-model adjustment factors were only applied to the urban buses (UBUS) category.
Additional information on the ICT regulation is available at:
https://ww2.arb.ca.gov/our-work/programs/innovative-clean-transit/ict-regulation

EMFAC2017 Heavy-Duty Inspection and Maintenance Off-Model Adjustment
On Dec. 9th, 2021, California Air Resources Board adopted Heavy-Duty Inspection and Maintenance (HD I/M) program, which controls emissions effectively from non-gasoline on-road heavy-duty vehicles with a gross vehicle weight rating (GVWR) greater than 14,000 pounds. Starting from calendar year 2023, the program drastically reduces NOx and PM2.5 emissions by enforcing periodic testing and inspections for heavy-duty trucks operating in California.
The Heavy-Duty Inspection and Maintenance (HD I/M) regulation impacts some of the underlying assumptions in CARB's EMFAC2017 model, which was used to assess emissions from on-road mobile sources. Therefore, CARB developed off-model adjustment factors based on off-model analysis with EMFAC2021 in order to reflect the regulation. More information on this analysis is provided in Appendix D of the HD I/M staff report. Since this regulation was adopted after the release of EMFAC2021, these adjustment factors were calculated based on emission estimates under two scenarios: (1) EMFAC2021 with HD I/M analysis incorporated and (2) EMFAC2021 default, which does not include HD I/M. These adjustments, provided in the form of multipliers, were applied to emissions outputs from the EMFAC2017 model by the CEPAM external adjustment module to account for the impact of HD I/M. These off-model adjustment factors were applied to all diesel heavy-duty diesel categories.

Off-Road Mobile Source Emissions
Emissions from off-road sources are estimated using a suite of category-specific models or, where a new model was not available, the OFFROAD2007 model. Many of the newer models were developed to support recent regulations, including in-use off-road equipment, ocean-going vessels, and others. The sections below summarize the updates made by CARB to specific off-road categories.

Recreational Marine Vessels
Pleasure craft or recreational marine vessel (RMV) is a broad category of marine vessel that includes gasoline-powered spark-ignition marine watercraft (SIMW) and diesel-powered marine watercraft. It includes outboards, sterndrives, personal watercraft, jet boats, and sailboats with auxiliary engines. This emissions inventory was last updated in 2014 to support the evaporative control measures. The population, activity, and emission factors were revised using new surveys, DMV registration information, and emissions testing.
Staff used economic data from a 2014 UCLA Economic Forecast to estimate the near-term annual sales of RMV (2014 to 2019). To forecast long-term annual sales (2020 and later), staff used an estimate of California's annual population growth as a surrogate.
Additional information is available at:
https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-offroad

Recreational Vehicles
Off-highway recreational vehicles include off-highway motorcycles (OHMC), all-terrain vehicles (ATV), off-road sport vehicles, off-road utility vehicles, sand cars, golf carts, and snowmobiles. A new model was developed in 2018 to update emissions from recreational vehicles. Input factors such as population, activity, and emission factors were re-assessed using new surveys, DMV registration information, and emissions testing. OHMC population growth is

determined from two factors: incoming population as estimated by future annual sales and the scrapped vehicle population as estimated by the survival rate.
Additional information is available at:
https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-offroad

Fuel Storage and Handling
Emissions from portable fuel containers (gas cans) were estimated based on past surveys and CARB in-house testing. This inventory uses a composite growth rate that depends on occupied household (or business units), percent of households (or businesses) with gas cans, and average number of gas cans per household (or business) units.
Additional information is available at:
https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-offroad

Small Off-Road Engines (SORE)
Small off-road engines (SORE) are spark-ignition engines rated at or below 19 kilowatts (i.e., 25 horsepower). Typical engines in this category are used in lawn and garden equipment as well as other outdoor power equipment and cover a broad range of equipment. The majority of this equipment belongs to the Lawn & Garden (e.g., lawnmower, leaf blower, trimmer) and Light Commercial (e.g., compressor, pressure washer, generator) categories of CARB's SORE emissions inventory model.
The newly developed, stand-alone SORE2020 Model reflects the recovering California economy from the 2008 economic recession and incorporates emission results from CARB's recent in-house testing as well as CARB's most recent Certification Database. CARB also has conducted an extensive survey of SORE operating within California through the Social Science Research Center (SSRC) at the California State University, Fullerton (CSUF). Data collected through this survey provides the most up-to-date information regarding the population and activity of SORE equipment in California. The final SORE emissions included the adopted SORE rule in December 2021 as well as the 15-day changes after the Board hearing which allowed the pressure washers (greater than 5 hp) extra time for meeting the regulation. The SORE annual sales were forecasted using historic growth of the number of California households (DOF household forecasts, 2000 – 2008 and 2009 - 2018).
Additional information on SORE baseline emissions (without the adopted rule and 15-day changes) is available at:
https://ww2.arb.ca.gov/sites/default/files/2020-09/SORE2020_Technical_Documentation_2020_09_09_Final_Cleaned_ADA.pdf

Locomotives
All locomotive inventories were updated in 2020 and include linehaul (large national companies), switchers (used in railyards), passenger, and Class 3 locomotives (smaller regional companies). Data for each sector was supplied by rail operations, including Union Pacific and Burlington Northern, and Santa Fe Railway (BNSF) for linehaul and switcher operations. Data for other categories was supplied by the locomotive owners. Emission factors for all categories were based on US EPA emission factors for locomotives. The inventory reflects the 2005

memorandum of understanding (MOU) with Union Pacific and BNSF. Growth rates were primarily developed from the FAF.
More information is available at:
https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-road

Diesel Agricultural Equipment
The agricultural equipment inventory covers all off-road vehicles used on farms or first processing facilities (of all fuel types). It was updated in 2021 using a 2019 survey of California farmers and rental facilities, and the 2017 U.S. Department of Agriculture (USDA) agricultural census. Emission factors are based on the 2017 off-road diesel emission factor update. The inventory reflects incentive programs for agricultural equipment that were implemented earlier than August 2019. Agricultural growth rates were developed using historical data from the County Agricultural Commissioners' reports.
Additional information is available at:
https://ww2.arb.ca.gov/sites/default/files/2021-08/AG2021_Technical_Documentation_0.pdf

In-Use Off-Road Equipment
This category covers off-road diesel vehicles over 25 horsepower in construction, mining, industrial, and oiling drilling categories. The inventory was updated in 2022 based on the DOORS registration program. Activity was updated based on a 2021 survey of registered equipment owners, and emission factors were based on the 2017 off-road diesel emission factor update. The inventory reflects the In-Use Off-Road Equipment Regulations, as amended in 2011. The updated methodology is currently in the process of being posted online. When it is completed, the methodology will be available at:
https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-road

Transportation Refrigeration Units - Diesel
The Transportation Refrigeration Units (TRU) inventory was updated in 2020 based on the TRU reporting program at CARB. The activity was developed based on 2010 surveys of facilities served by TRUs and 2017 to 2019 telematics data purchased from TRU manufacturers. Emission factors were developed specifically for TRUs based on TRU engine certification data reported to US EPA as of 2018. The inventory reflects the TRU Airborne Toxic Control Measure (ATCM) and 2021 amendments. Forecasting was based on IBISWorld reports forecast for related industries, and turnover forecasting was based on the past 20 years equipment population trends.
Additional information is available at:
https://ww2.arb.ca.gov/sites/default/files/barcu/board/rulemaking/tru2021/apph.pdf

Portable Equipment
Portable equipment inventory includes non-mobile diesel, such as generators, pumps, air compressors, chippers, and other miscellaneous equipment over 50 horsepower. This inventory was developed in 2017 based on CARB's registration program, 2017 survey of registered owners for activity and fuel, and the 2017 off-road diesel emission factor update. The inventory also reflects the Portable ATCM and 2017 amendments.

Because registration in PERP is voluntary, the PERP registration data was used as the basis for equipment population, with an adjustment factor used to represent the remaining portable equipment in the state. Estimates of future emissions beyond the base year were made by adjusting base year estimates for population growth, activity growth, and the purchases of new equipment (i.e. natural and accelerated turnover).
Additional information is available at:
https://ww3.arb.ca.gov/msei/ordiesel/perp2017report.pdf

Large Spark Ignition/Forklifts
The large spark ignition (LSI) inventory includes gasoline and propane forklifts, sweeper/scrubbers, and tow tractors. The inventory was updated in 2020 based on the LSI/forklift registration in the DOORS reporting system at CARB, and the sales data was provided by the Industrial Truck Association (ITA). Activity was based on a survey of equipment owners in the DOORS system, and emission factors were based on US EPA's latest guidance for gasoline and propane engines. The inventory reflects the LSI regulation requirements and 2016 amendments.
The updated methodology is currently in the process of being posted online. When it is completed, the methodology will be available at:
https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-road

Forestry Equipment
The new 2021 forestry diesel equipment emissions inventory was developed to replace the previous emissions inventory for diesel forestry equipment based on OFFROAD2007. This inventory includes equipment used in forestry and in milling. This includes foresting operations, such as feller/bunchers and dragline operations, equipment used to build roads to reach forested areas, and forklifts or loaders used in milling operations. The inventory was based on a 2019 survey of forestry operations and mills (for calendar year 2017), as well as the 2019 California Department of Tax and Fee Administration data on the annual timber harvest, with emission factors from the 2017 off-road diesel emission factor update. This sector does not include any emission reduction measures or strategies. The model projects forestry equipment population and emissions in future years by predicting the retirement and purchasing habits of forestry equipment. The model attempts to predict a business as usual (BAU) behavior based on the 2017 survey data.
Additional information is available at:
https://ww2.arb.ca.gov/sites/default/files/2021-10/2021_Forestry_Inventory_Technical_Document_FINAL_09302021.pdf

Stationary Point Sources
The stationary source inventory is composed of point sources and area-wide sources. The data elements in the inventory are consistent with the data elements required by US EPA's Air Emissions Reporting Requirements (AERR)[24]. The inventory reflects actual emissions from

[24] AERR, 40 CFR part 51, subpart A. https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-51/subpart-A

industrial point sources reported to the District by the facility operators through calendar year 2020.
Stationary point sources also include smaller point sources, such as gasoline dispensing facilities and laundering, that are not inventoried individually, but are estimated as a group and reported as a single source category. Emissions from these sources are estimated using various models and methodologies. Estimation methods include source testing, direct measurement by continuous emissions monitoring systems, or engineering calculations. Emissions for these categories are estimated by both CARB and the District.
Estimates for the categories below were developed by CARB and has been reviewed by CARB staff to reflect the most up-to-date information.

Stationary Nonagricultural Diesel Engines
This category includes emissions from backup and prime generators and pumps, air compressors, and other miscellaneous stationary diesel engines that are widely used throughout the industrial, service, institutional, and commercial sectors. The emission estimates, including emission forecasts, are based on a 2003 CARB methodology derived from the OFFROAD2007 model.
Additional information on this methodology is available at:
https://ww3.arb.ca.gov/ei/areasrc/arbfuelcombother.htm

Agricultural Diesel Irrigation Pumps
This category includes emissions from the operation of diesel-fueled stationary and mobile agricultural irrigation pumps. The emission estimates are based on a 2003 CARB methodology using statewide population and include replacements due to the Carl Moyer Program. Emissions are grown based on projected acreage for irrigated farmland from the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP), 2008.
Additional information on this category is available at:
https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full1-1.pdf

Laundering
This category includes emissions from perchloroethylene (perc) dry cleaning establishments. The emission estimates are based on a 2002 CARB methodology that used nationwide perc consumption rates allocated to the county level based on population and an emission factor of 10.125 pounds per gallon used. Emissions were grown based on the California Department of Finance (DOF) population forecasts, 2020.
Additional information on this methodology is available at:
https://ww3.arb.ca.gov/ei/areasrc/arbcleanlaund.htm

Degreasing
This category includes emissions from solvents in degreasing operations in the manufacturing and maintenance industries. The emissions estimates are based on a 2000 CARB methodology using survey and industry data, activity factors, emission factors and a user's fraction. Emissions were grown based on CARB/REMI industry-specific economic output, version 2.4.5.
Additional information on this methodology is available at:
https://ww3.arb.ca.gov/ei/areasrc/arbcleandegreas.htm

Coatings and Thinners
This category includes emissions from coatings and related process solvents. Auto refinishing emissions estimates are based on a CARB methodology using production data and a composite emission factor derived from a 2002 survey. These estimates were grown based on CARB's on-road mobile sources model (EMFAC2017). Estimates for industrial coatings emissions are based on a 1990 CARB methodology using production and survey data, and emission factors derived from surveys. Estimates for thinning and cleaning solvents are based on a 1991 CARB methodology, census data and a default emission factor developed by CARB. These estimates were grown based on REMI county economic forecasts, version 2.4.5.
Additional information on these methodologies is available at:
https://ww3.arb.ca.gov/ei/areasrc/arbcleancoatreproc.htm

Adhesives and Sealants
This category includes emissions from solvent-based and water-based solvents contained in adhesives and sealants. Emissions are estimated based on a 1990 CARB methodology using production data and default emission factors. Estimates were grown based on REMI county economic forecasts, version 2.4.5.
Additional information on this methodology is available at:
https://ww2.arb.ca.gov/carb-cleaning-and-surface-coating-methodologies-adhesives-and-sealants

Gasoline Dispensing Facilities
This category uses a 2015 CARB methodology to estimate emissions from fuel transfer and storage operations at gasoline dispensing facilities (GDFs). The methodology addresses emissions from underground storage tanks, vapor displacement during vehicle refueling, customer spillage, and hose permeation. The updated methodology uses emission factors developed by CARB staff that reflect more current in-use test data and also accounts for the emission reduction benefits of onboard refueling vapor recovery (ORVR) systems. The emission estimates are based on 2012 statewide gasoline sales data from the California Board of Equalization that were apportioned to the county level using fuel consumption estimates from EMFAC 2014. Emissions were grown based on EMFAC2017.
Additional information on this category is available at:
https://ww2.arb.ca.gov/arb-petroleum-production-and-marketing-methodologies-petroleum-marketing

Gasoline Cargo Tank
This category uses a 2002 CARB methodology to estimate emissions from gasoline cargo tanks. These emissions do not include the emissions from loading and unloading of gasoline cargo tank product; they are included in the gasoline terminal inventory and gasoline service station inventory. Pressure-related fugitive emissions are volatile organic vapors leaking from three points: fittings, valves, and other connecting points in the vapor collection system on a cargo tank. 1997 total gasoline sales were obtained from the California Department of Transportation. The emission factors are derived from the data in the report, "Emissions from Gasoline Cargo Tanks, First Edition," published by the Air and Waste Management Association in 2002.
The initial emission estimates for 1997 were grown to 2012 using a growth parameter developed by Pechan based on gasoline and oil expenditures data. Emissions were grown according to fuel consumption from CARB's EMFAC 2017 mobile sources emission factors model.

Additional information on this methodology is available at:
https://ww2.arb.ca.gov/arb-petroleum-production-and-marketing-methodologies-petroleum-marketing

Oil and Gas Production
The oil and natural gas production inventory is estimated by a 2015 CARB methodology. This category is related to fugitive emissions from production-related fuel consumption, fugitive losses (sumps, pits, pumps, compressors, well heads, separators, valves and fittings), vapor recovery and flares, tank and truck working and breathing losses, wastewater treatment, tertiary production, and wet and dry gas stripping. Emissions were calculated using US EPA's Oil and Natural Gas Tool v1.4 with default emissions factors from ENVIRON Int'l Corp's 2012 report, "2011 Oil and Gas Emission Inventory Enhancement Project for CenSARA States," and activity data taken from California's Division of Oil, Gas, and Geothermal Resources (DOGGR) (which was renamed to Geologic Energy Management Division (CalGEM) in 2020). CARB also incorporated data from the 2007 Oil and Gas Industry Survey (e.g., typical component counts) and feedback from individual air districts (e.g., minimum controls required to operate in a certain district, with associated control factors) to improve these parameters and further adjust the tool's output. Emissions were grown to 2017 based on CalGEM historical statewide production. Growth in future years an assumed 2.9% annual decline, which reflects the statewide CalGEM trend from 2000 through 2016.
Additional information on this methodology is available at:
https://ww2.arb.ca.gov/resources/documents/oil-and-gas-industry-survey
https://ww3.arb.ca.gov/ei/areasrc/oilandgaseifinalreport.pdf

Area-Wide Sources
Area-wide sources include categories where emissions take place over a wide geographic area, such as consumer products. Emissions from these sources are estimated using various models and methodologies. Estimation methods include source testing, direct measurement by continuous emissions monitoring systems, or engineering calculations. Emissions for these categories are estimated by both CARB and the District.
Estimates for the categories below were developed by CARB and has been reviewed by CARB staff to reflect the most up-to-date information:

Consumer Products and Aerosol Coatings
The Consumer Product emission estimates utilized sales and formulation data from the CARB's mandatory survey of all consumer products sold in California for calendar years 2013 through 2015 (2015 Consumer Product Survey). The aerosol coatings estimates utilized sales and formulation data from a survey conducted by CARB in 2010. Based on the survey data, CARB staff determined the total product sales and total VOC emissions for the various product categories. Growth for personal care products are based on real disposable personal income projections per REMI version 2.4.5. No growth is assumed for aerosol coatings. Growth for all other consumer products are based on DOF population projections, 2020.
Additional information on CARB's consumer products surveys is available at:
https://ww2.arb.ca.gov/our-work/programs/consumer-products-program/consumer-commercial-product-surveys

Architectural Coatings

Architectural coatings are coatings applied to stationary structures and their accessories. They include house paints, stains, industrial maintenance coatings, traffic coatings, and many other products. Industrial maintenance coatings are high performance architectural coatings formulated for application to substrates, including floors, exposed to extreme environmental conditions (e.g., immersion in water, chronic exposure to corrosive agents, frequent exposure to temperatures above 121°C, repeated heavy abrasion). The architectural coatings category reflects emission estimates based on a 2014 comprehensive CARB survey for the 2013 calendar year. The emission estimates include benefits of the 2007 CARB Suggested Control Measures. These emissions are grown based on DOF households forecast, 2020.

Additional information about CARB's architectural coatings program is available at:
https://ww2.arb.ca.gov/carb-solvent-evaporation-methodologies-architectural-coatings-and-cleaningthinning-solvents

Pesticides

The California Department of Pesticide Regulation (DPR) develops month-specific emission estimates for agricultural and structural pesticides. Each calendar year, DPR updates the inventory based on the Pesticides Use Report, which provides updated information from 1990 through the 2018 calendar year. Agricultural pesticide emission forecasts for years 2019 and beyond are based on the average of the most recent five years. Growth for agricultural pesticides is based on CARB projections of farmland acres per FMMP, 2016. Growth for structural pesticides is based on DOF households growth projections, 2020.

Additional information about CARB's pesticides program is available at:
https://ww2.arb.ca.gov/carb-solvent-evaporation-methodologies-agricultural-and-non-agricultural-pesticides

Residential Wood Combustion

Residential Wood Combustion estimates are based off a 2011 CARB methodology. It reflects survey data on types of wood burning devices and wood consumption rates, updates to the 2002 US EPA National Emission Inventory (NEI) emission factors, and improved calculation approaches.

CARB assumes no growth for this category based on the relatively stagnant residential wood fuel use over the past decade (according to the American Community Survey and US Energy Information Administration).

Additional information on this methodology is available at:
https://ww2.arb.ca.gov/carb-miscellaneous-process-methodologies-residential-fuel-combustion
https://ww2.arb.ca.gov/carb-miscellaneous-process-methodologies-residential-fuel-combustion

Residential Natural Gas Combustion

CARB staff updated the methodology to reflect 2017 fuel use from the California Energy Consumption Database. Residential natural gas consumption by county was obtained from the 2019 California Energy Commission (CEC) California Energy Consumption Database. The heat content of natural gas reflects the 2017 values per the EIA State Energy Consumption, Price, and Expenditure Estimates. The emissions estimates reflect the most recent emissions factors from US EPA's AP-42 for residential natural gas combustion. Growth is based on California Energy Commission (CEC) projections for natural gas consumption, 2019.

Additional information on this methodology is available at:
https://ww2.arb.ca.gov/carb-miscellaneous-process-methodologies-residential-fuel-combustion

Residential Distillate Oil and Liquefied Petroleum Gas
The residential distillate oil/liquefied petroleum gas (LPG) category includes emissions occurring in the residential sector. Distillate oil for heating is generally used in older homes and remote areas where natural gas lines are not available.
Activity is based on the number of housing units, population, and LPG and distillate oil capacities. The 1991 Fuels Report Working Paper published by the CEC was used to determine energy demand by fuel type in terms of the number of houses heated by a specific fuel in a particular area. Heating degree days (HDD) are used to estimate how many heating days are likely to occur in a particular area.
This category uses emission factors from US EPA's AP-42. The emissions were initially calculated in 1993 then grown to 2012 using housing unit data from the DOF, 2013. Emissions were grown from 2012 to 2017 using a 'no growth' profile developed by Pechan (2012). Emissions post-2017 were grown based on EIA – SEDS, and no growth was assumed.
Additional information on this methodology is available at:
https://ww2.arb.ca.gov/carb-miscellaneous-process-methodologies-residential-fuel-combustion

Construction and Demolition

The construction and demolition category contains emission estimates for building construction and road construction operations, which are based on CARB methodologies. Emissions were estimated by applying emission factors developed by Midwest Research Institute (MRI) to the acreage disturbed by construction. The building construction and road construction emission estimates were grown from CARB estimates developed in 2002 and 1997, respectively. The growth profile for construction is based on DOF construction jobs forecast, 2020.
Additional information on this methodology is available at:
https://ww2.arb.ca.gov/carb-miscellaneous-process-methodologies-construction-and-demolition

Farming Operations
CARB staff updated the non-cattle Livestock Husbandry methodology to reflect livestock population data based on the USDA's 2017 Census of Agriculture. Cattle emissions are primarily based on the 2012 Census of Agriculture. A seasonal adjustment was added to account for the suppression of dust emissions in months in which rainfall occurs. Growth profiles are based on CARB's projections of Census of Agriculture's historical livestock population trends, 2012. No growth is assumed for dairy and feedlots.
Additional information on CARB's methodology is available at:
https://ww2.arb.ca.gov/carb-miscellaneous-process-methodologies-farming-operations

Paved Road Dust
Paved road dust emissions for 2017 were estimated in 2021 using a CARB methodology consistent with the current US EPA method (AP-42). Data from CARB's EMFAC2017 model, the District and its transportation planning agency were used to estimate region specific vehicle miles traveled (VMT). VMT were distributed using 2017 travel fractions calculated using California Department of Transportation (Caltrans) Highway Performance Monitoring System

(HPMS) data, by COADBIS, for each of five road types: freeway, major, collector, and local/local urban, and local rural. Emissions were grown using VMT projections.
Additional information on this methodology is available at:
https://ww2.arb.ca.gov/carb-miscellaneous-process-methodologies-paved-road-dust

Unpaved Road Dust – Farm Roads
Emissions for unpaved farm roads are based on CARB's methodology and 2012 harvested crop acreage from NASS. Emissions reflect crop specific VMT rates and an emission factor based on California test data conducted by the University of California, Davis (UC Davis), and the Desert Research Institute (DRI). Temporal profiles are based on crop specific activity profiles. Growth for this category is based on projected FMMP farmland acreage, 2016.
Additional information on this methodology is available at:
https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-11_2016.pdf

Unpaved Nonfarm Road Dust
Emissions from unpaved nonfarm roads were estimated from 2008 unpaved road data collected from the California Statewide Local Streets and Roads Needs Assessment, Caltrans, and local agencies. Dust emissions were calculated using an emission factor derived from tests conducted by UC Davis and DRI. In addition, a rainfall adjustment factor was applied. Staff assumed no growth for this category based on the assumption that existing unpaved roads tend to get paved as vehicle traffic on them increases, which counteracts any additional emissions from new unpaved roads.
Additional information on this methodology is available at:
https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-10_2012.pdf

Fugitive Windblown Dust from Open Areas and Non-pasture Agriculture Lands
Fugitive windblown dust emissions were estimated using CARB's 1997 methodology. The methodology is based on 1993 harvested crop acreage and a wind erosion equation that incorporates climate, soil, and vegetative cover attributes. Emissions for agricultural lands were grown based on projections of acreage from FMMP, 2016. No growth is assumed for non-agricultural lands.
Additional information on this methodology is available at:
https://ww3.arb.ca.gov/ei/areasrc/onehtm/one7-12.htm

Windblown Dust from Unpaved Roads and Associated Areas
Emissions for this source category were estimated based on a 1997 CARB methodology reflecting unpaved road mileage and local parameters that affect wind erosion. The estimates assume no growth.
Additional information on this methodology is available at:
https://ww3.arb.ca.gov/ei/areasrc/onehtm/one7-13.htm

Fires
Emissions from structural and automobile fires were estimated based on a 1999 CARB methodology using the number of fires and the associated emission factors. Estimates for structural fires are calculated using the amount of the structure that is burned, the amount and content of the material burned, and emission factors derived from test data. Estimates for

automobile fires are calculated using the weight of the car and components and composite emission factors derived from AP-42 emission factors. Structural fire growth is based on DOF households forecasts, 2020, and automobile fire growth is based on DOF population forecasts, 2020.
Additional information on this methodology is available at:
https://ww2.arb.ca.gov/carb-miscellaneous-process-methodologies-fires

Managed Burning & Disposal – Forest Management
Forest Management Managed Burning and Disposal category provides emission estimates from prescribed burning performed in natural vegetation types such as forests and woodlands. Burn project perimeters and ignition dates are provided by the 2019 California Department of Forestry and Fire Protection (FRAP) geodatabase. Forest management prescribed burning emissions are estimated using the First Order Fire Effects Model (FOFEM 6.0) and a custom geoprocessing tool (Emission Estimation System, EES) developed for CARB by researchers at UC Berkeley. Future year estimates are based on a 10-year average, held flat in the forecast.
Additional information on this methodology is available at:
https://ww2.arb.ca.gov/district-miscellaneous-process-methodologies-managed-burning-and-disposal

Managed Burning & Disposal – Agricultural Burning
The Agricultural Burning Managed Burning and Disposal category includes the open burning of agricultural residues (such as crop stubble and orchard pruning), weed abatement (such as ditch and canal bank burning), and other materials. CARB updated the emissions inventory to reflect burn data reported by air district staff for 2017. Emissions are calculated using crop specific emission factors and fuel loadings. Temporal profiles reflect monthly burn activity. Growth for agricultural burning is based on CARB projections of FMMP farmland acres, 2016. No growth is assumed for burning associated with weed abatement.

Additional information on this methodology is available at:
https://ww2.arb.ca.gov/district-miscellaneous-process-methodologies-managed-burning-and-disposal

Biogenic Emissions
Biogenic emissions were estimated using the Model of Emissions of Gases and Aerosols from Nature (MEGAN) version 2.04 (Guenther, et al., 2006). MEGAN estimates biogenic emissions as a function of normalized emission rates (i.e. emission rates at standard conditions), which are adjusted to reflect variations in temperature, light, leaf area index (LAI), and leaf age (estimated from changes in LAI). The default MEGAN input databases for emission factors (EFs), plant functional types (PFTs), and LAI are not used in the application of MEGAN in California. Instead, California-specific emission factor and PFT databases were translated from those used in the Biogenic Emission Inventory GIS (BEIGIS) system (Scott & Benjamin, 2003) to improve emission estimates and to maintain consistency with previous California biogenic emission inventories. LAI data were derived from the MODIS 8-day LAI satellite product. Hourly surface temperatures were from observations gridded with the CALMET meteorological model and insolation data was provided by WRF meteorological fields. Emissions of isoprene, monoterpenes, and methylbutenol were estimated from California-

specific gridded emission factor data, while emissions of sesquiterpenes, methanol, and other volatile organic compounds were estimated from California-specific PFT data and PFT-derived emission rates.

MEGAN emissions estimates for California were evaluated during the California Airborne BVOC Emission Research in Natural Ecosystems Transects (CABERNET) field campaign in 2011 (Karl, et al., 2013), (Misztal, et al., 2014) and were shown to agree to within +/-20% of the measured fluxes (Misztal, et al., 2016), which is well within the stated model uncertainty of 50%.

Guenther, A. et al., 2006. Estimates of global terrestrial isoprene emissions using MEGAN (Model of Emissions of Gases and Aerosols from Nature. *Chem. Phys.,* 6(11), pp. 3181-3210.

Scott, K. & Benjamin, M., 2003. Development of a biogenic volatile organic compounds emission inventory for the SCOS97-NARSTO domain. *Atmos. Environ.,* Volume 37, Supplement 2, pp. 39-49.

Karl, T. et al., 2013. Airborne flux measurements of BVOCs above Californian oak forests: experimental investigation of surface and entrainment fluxes, OH densities and Dahmkohler numbers. *J. Atmos. Sci.,* 70(10), pp. 3277-3287.

Misztal, P. et al., 2016. Evaluation of regional isoprene emission estimates in California based on direct airborne flux measurements. *Atmos. Chem. Phys.,* doi:10.5194/acp-2016-130.

Misztal, P. K. et al., 2014. Airborne flux measurements of biogenic volatile organic compounds over California. *Atmos. Chem. Phys.,* Volume 14, pp. 10631-10647.

Point and Areawide Source Emissions Forecasting

Emission forecasts (2021 and subsequent years) are based on growth profiles that in many cases incorporate historical trends up to the base year or beyond. The growth surrogates used to forecast the emissions from these categories are presented below in Table 2. The emissions inventory also reflects emission reductions from point and areawide sources subject to District rules and CARB regulations. The rules and regulations reflected in the inventory are listed below in Table 3.

Table 2: Growth Surrogates for Point and Areawide Sources

Source Category	Subcategory	Growth Surrogate
Electric Utilities	Natural Gas	California Energy Commission (CEC) Integrated Energy Policy Report forecast, 2019
	Other Fuels	Energy Information Administration (EIA) Annual Energy Outlook, 2019
Cogeneration	All	CEC forecast, 2019
Oil and Gas Production (Combustion)	All	DOGGR statewide total oil production. Assumed 2.9% annual decline reflecting

Source Category	Subcategory	Growth Surrogate
		CalGEM historical trend, 2000 through 2016
Manufacturing and Industrial	Natural Gas	CEC forecast, 2019
	Other Fuels	EIA forecast, 2018
Food and Agricultural Processing	Ag Irrigation I. C. Engines	FMMP irrigated farmland acreage, 2008
	Natural Gas	CEC forecast, 2019
	Others	REMI economic forecast, version 2.4.5; EIA forecast, 2018
Service and Commercial	Natural Gas	CEC forecast, 2019
	Other Fuels	EIA forecast, 2018
Other (Fuel Combustion)	Diesel	Modeled estimate, 2003
	Other Fuels	EIA forecast, 2018
Waste Disposal	All	DOF population forecast, 2020
Laundering	Dry Cleaning	DOF population forecast, 2020
Degreasing	All	CARB/REMI economic forecast, version 2.4.5
Coatings & Thinners	Auto Refinishing	Vehicles from CARB EMFAC2017 model
	Others	REMI economic forecast, version 2.4.5
Printing	All	REMI economic forecast, version 2.4.5
Adhesives & Sealants	All	REMI economic forecast, version 2.4.5
Oil and Gas Production	All	Assumed 2.9% annual decline reflecting CalGEM historical trend, 2000 through 2016
Petroleum Marketing	Natural Gas Transmission	CEC forecast, 2019

Source Category	Subcategory	Growth Surrogate
	Gas Dispensing Facilities and Cargo Tanks	Fuel use from CARB EMFAC2017 model
	Other Point Sources	REMI economic forecast, version 2.4.5
Chemical	All	REMI economic forecast, version 2.4.5
Food & Agriculture	All	REMI economic forecast, version 2.4.5
Mineral Processes	All	REMI version 2.4.5; EIA forecast, 2018
Metal Processes	All	REMI economic forecast, version 2.4.5
Consumer Products	Personal Care Products	Real Disposable Personal Income per REMI, version 2.4.5
	Other Consumer Products	DOF population forecast, 2020
	Aerosol Coatings	No growth
Architectural Coatings & Related Process Solvents	All	DOF households forecast, 2020
Pesticides & Fertilizers	Agricultural Pesticides	CARB projection of farmland acres per FMMP, 2016
	Structural Pesticides	DOF households forecast, 2020
Asphalt Paving & Roofing	All	DOF construction jobs forecast, 2020; CARB projection
Residential Fuel Combustion	Natural Gas	CEC forecast, 2019
	Other Fuels	EIA – SEDS – No growth
Farming Operations	Dairy / Feedlots	No growth
	Other Livestock	CARB projection of livestock population per Census of Agriculture, 2012
Construction & Demolition	All	DOF construction jobs forecast, 2020; CARB projection
Paved Road Dust	All	VMT from SACOG, updated 2017 (Sutter) EMFAC default VMT (Yuba)
Unpaved Road Dust	Farm Roads	FMMP farmland acreage projection, 2016

Source Category	Subcategory	Growth Surrogate
	Others (Nonfarm)	No growth assumption
Fugitive Windblown Dust	Agricultural & Pasture Lands	FMMP farmland acreage projection, 2016
	Unpaved Roads & Associated Areas	No growth assumption
Fires	Structural	DOF households forecast, 2020
	Automobile	DOF population forecast, 2020
Managed Burning and Disposal	Forest Management	10-year average, held flat
	Agricultural Burning, Weed Abatement	FMMP farmland acreage projection, 2016
	Non-Agricultural Open Burning	Rural counties: DOF population forecast, 2020. Urban counties: no growth.
Cooking	All	DOF population forecast, 2020

Table 3: District and CARB Control Rules and Regulations Included in the Inventory

Agency	Rule/Reg No.	Rule Title	Source Categories Impacted
FRAQMD	3-17	Wood Heating Devices	Residential fuel combustion - wood stoves and fireplaces
ARB	ARCH_SCM	Architectural Coatings 2000 Suggested Control Measures (SCM)	Architectural coatings
ARB	AC_SCM2007	Architectural Coatings 2007 SCM	Architectural coatings
ARB	ARB_R003 & ARB_R003_A	Consumer Product Regulations & Amendments	Consumer products
ARB	ARB_R007	Aerosol Coating Regulations	Aerosol coatings
ARB	GDF_HOSREG	Gasoline Dispensing Facility Hose Emission Regulation	Petroleum marketing
ARB	ORVR	Fueling Emissions from ORVR Vehicles	Petroleum marketing
ARB	AG_IC_ENG	Ag IC Engine Emission Scalers	Agricultural irrigation internal combustion engines
ARB	NONAGICENG	Non-Ag IC Engine Scalers	Non-agricultural internal combustion reciprocating engines

External Adjustments

External adjustments were made in CEPAM to account for military growth and other unaccounted regulatory factors. The external adjustments reflected in the CEPAM2022 PM2.5 Plans v1.00 Yuba City-Marysville 2006 24-Hour PM2.5 Maintenance Plan inventory are listed below in Table 4.

Table 4: External Adjustment IDs and Descriptions

Adjustment ID	Adjustment Description
HD_I/M	HD I/M Regulation adopted by CARB Dec 2021
NonAg_ICE	Update non-ag internal comb. engines to reflect 2003 ATCM and 2010 rule amend
TRUCK_REGS	Advanced clean trucks Omnibus Low NOx_Opacity ICT_UBUS adjustments

Condensable Particulate Matter

Background

Condensable particulate matter (PM) is material that is vapor phase at stack conditions, but which condenses and/or reacts upon cooling and dilution in the ambient air to form solid or liquid PM immediately after discharge from the stack. Condensable PM is a component of primary PM, which is the sum of condensable and filterable PM. Filterable PM comprises particles that are directly emitted by a source as a solid or liquid [aerosol] at stack or release conditions. All condensable PM is assumed to be smaller than 2.5 microns (μm) in diameter. The AERR requires states to report annual emissions of filterable and condensable components of PM2.5 and PM10, "as applicable," for large sources every inventory year and for all sources every third inventory year, beginning with 2011.[25] Subsequent emissions inventory guidance[26] from the US EPA clarifies the meaning of the phrase "as applicable" by providing a list of source types for which condensable PM is expected by the AERR. These source types are stationary point and nonpoint combustion sources that are expected to generate condensable PM and include, for instance, commercial cooking, fuel combustion at electric generating utilities, industrial processes like cement or chemical manufacturing, and flares or incinerators associated with waste disposal. The condensable PM from stationary and areawide sources in this inventory is calculated using the methodology outlined below. Condensable PM is not required to be calculated for mobile sources.

Methodology

For the current inventory, the District has collected data on primary PM only, containing both filterable and condensable components without distinguishing between the two. Consequently, to be able to report emissions of the condensable component of PM2.5 separately as required by the AERR, primary PM2.5 is augmented to condensable PM using recommended fractions from US EPA, which are published within their Emissions Inventory System (EIS) Gateway[27]. Because these factors are assigned to Source Classification Codes (SCC), CARB Emission Inventory Codes (EICs) are crosswalked to SCC codes. These factors are then directly applied (multiplied) to primary PM2.5 to calculate condensable PM.

[25] 40 CFR §51.15(a)(1) and §51.30(b)(1)

[26] US EPA. Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations. May 2017. https://www.epa.gov/sites/production/files/2017-07/documents/ei_guidance_may_2017_final_rev.pdf

[27] EIS Gateway downloaded on 08/20.2022. https://www.epa.gov/air-emissions-inventories/emissions-inventory-system-eis-gateway

Appendix D: Condensable PM2.5 Inventory

EIC	EICSUMN	EICSOUN	YEAR	PMCON (Winter TPD)	PM25_FIL (Winter_TPD)
31033301000000	OIL AND GAS PRODUCTION	DEHYDRATORS	2020	0	0
3001001000000	OIL AND GAS PRODUCTION (COMBUSTION)	PROCESS HEATERS	2020	0.000524895	0.00017497
3030701000000	OIL AND GAS PRODUCTION (COMBUSTION)	COMPRESSORS LEAN BURN	2020	0.000042825	3.45E-07
3030701100000	OIL AND GAS PRODUCTION (COMBUSTION)	COMPRESSORS LEAN BURN, Natural Gas	2020	0.000021487	1.73E-07
3030901000000	OIL AND GAS PRODUCTION (COMBUSTION)	COMPRESSORS RICH BURN	2020	0.000152421	0.00014586
3030901100000	OIL AND GAS PRODUCTION (COMBUSTION)	COMPRESSORS RICH BURN	2020	0.000049158	4.7042E-05
5004001100000	MANUFACTURING AND INDUSTRIAL	I.C. RECIPROCATING ENGINES	2020	0	0
5004012000000	MANUFACTURING AND INDUSTRIAL	I.C. RECIPROCATING ENGINES	2020	0.000005462	0.00023201
5099501100000	MANUFACTURING AND INDUSTRIAL	OTHER	2020	0.008312377	0.00286017
5099512200000	MANUFACTURING AND INDUSTRIAL	OTHER	2020	0.00038282	0.0004736
5204212000010	FOOD AND AGRICULTURAL PROCESSING	AG. IRRIGATION I.C. ENGINES - Stationary	2020	0.000046727	0.00198487
5204212000011	FOOD AND AGRICULTURAL PROCESSING	AG. IRRIGATION I.C. ENGINES - Portable	2020	0.000172723	0.00733697
6099501100000	SERVICE AND COMMERCIAL	OTHER	2020	0.06095906	0.02097516
6099501200000	SERVICE AND COMMERCIAL	OTHER	2020	0.00005421	0.00001807
6099512200000	SERVICE AND COMMERCIAL	OTHER	2020	0.000016352	1.1988E-05
6099515000000	SERVICE AND COMMERCIAL	OTHER	2020	0	0
9904012000000	OTHER (FUEL COMBUSTION)	I.C. RECIPROCATING ENGINES	2020	0.000007683	0.00032637
43042270780000	MINERAL PROCESSES	SAND AND GRAVEL EXCAVATION AND PROCESSING	2020	0	0.01927587
63062454000000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST- COMMERCIAL	2020	0	0.00162406
63062654000000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST- INDUSTRIAL	2020	0	0.00132949
63062854000000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST - INSTITUTIONAL	2020	0	0.05929519
63063454000000	CONSTRUCTION AND DEMOLITION	ROAD CONSTRUCTION DUST	2020	0	0.03317225
64063554000000	PAVED ROAD DUST	PAVED ROAD TRAVEL DUST - FREEWAYS	2020	0	0.00800009
64063754000000	PAVED ROAD DUST	PAVED ROAD TRAVEL DUST - MAJOR STREETS	2020	0	0.02769987
64063954000000	PAVED ROAD DUST	PAVED ROAD TRAVEL DUST - COLLECTOR STREETS	2020	0	0.00721244
64064154000000	PAVED ROAD DUST	PAVED ROAD TRAVEL DUST - LOCAL STREETS	2020	0	0.08259564
64563854000000	UNPAVED ROAD DUST	UNPAVED ROAD TRAVEL DUST- CITY AND COUNTY ROADS	2020	0	0.08401899

64564054000000	UNPAVED ROAD DUST	UNPAVED ROAD TRAVEL DUST- U.S. FOREST AND PARK ROADS	2020	0	0.01387462
64564654000000	UNPAVED ROAD DUST	UNPAVED ROAD TRAVEL DUST- FARM ROADS	2020	0	0.01833973
66065602000000	FIRES	STRUCTURAL FIRES	2020	0	0.00164555
67066002620000	MANAGED BURNING AND DISPOSAL	AGRICULTURAL BURNING - PRUNINGS	2020	0	0.08332102
67066202620000	MANAGED BURNING AND DISPOSAL	AGRICULTURAL BURNING - FIELD CROPS	2020	0	0.18158746
67066802000000	MANAGED BURNING AND DISPOSAL	WEED ABATEMENT	2020	0	0.0874444
67067002000000	MANAGED BURNING AND DISPOSAL	NON-AGRICULTURAL OPEN BURNING	2020	0	0.11380068
67099502400000	MANAGED BURNING AND DISPOSAL	OTHER	2020	0	0.00019325
69068060000000	COOKING	COMMERCIAL CHARBROILING	2020	0.086359233	0.00025986
69068260000000	COOKING	DEEP FAT FRYING	2020	0.000234056	7.04E-07
61060002300000	RESIDENTIAL FUEL COMBUSTION	WOOD COMBUSTION - WOOD STOVES	2020	0.058561331	1.18742444
61060202300000	RESIDENTIAL FUEL COMBUSTION	WOOD COMBUSTION - FIREPLACES	2020	0.017591008	0.35668575
61060601100000	RESIDENTIAL FUEL COMBUSTION	FUEL COMBUSTION - SPACE HEATING	2020	0.012008019	0.00413179
61060612200000	RESIDENTIAL FUEL COMBUSTION	FUEL COMBUSTION - SPACE HEATING	2020	0.000510546	0.00032641
61060801100000	RESIDENTIAL FUEL COMBUSTION	FUEL COMBUSTION - WATER HEATING	2020	0.005816652	0.00200143
61061001100000	RESIDENTIAL FUEL COMBUSTION	FUEL COMBUSTION - COOKING	2020	0.000632943	0.00021779
61099501100000	RESIDENTIAL FUEL COMBUSTION	OTHER	2020	0.00057355	0.00019735
61099501200000	RESIDENTIAL FUEL COMBUSTION	OTHER	2020	0.001025971	0.00035674
62061454000000	FARMING OPERATIONS	TILLING DUST	2020	0	0.49623244
62061554000000	FARMING OPERATIONS	HARVEST OPERATIONS - DUST	2020	0	0.00040084
63062254000000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST - RESIDENTIAL	2020	0	0.01872099
86089112101600	OFF-ROAD EQUIPMENT	Compressor (Workover)-D-25-Exhaust	2020	0	0
86089112102340	OFF-ROAD EQUIPMENT	Drill Rig-D-120-Exhaust	2020	0	0.00001905
86089112102350	OFF-ROAD EQUIPMENT	Drill Rig-D-175-Exhaust	2020	0	0.00006403
86089112102360	OFF-ROAD EQUIPMENT	Drill Rig-D-250-Exhaust	2020	0	0.00012557
86089112102370	OFF-ROAD EQUIPMENT	Drill Rig-D-500-Exhaust	2020	0	0.00024614
86089112102380	OFF-ROAD EQUIPMENT	Drill Rig-D-750-Exhaust	2020	0	0.00003316
86089112102390	OFF-ROAD EQUIPMENT	Drill Rig-D-1000-Exhaust	2020	0	0.00002014
86089112102391	OFF-ROAD EQUIPMENT	DRILL RIG (MOBILE)-D-50-EXHAUST	2020	0	0.00000503
86089112102392	OFF-ROAD EQUIPMENT	DRILL RIG (MOBILE)-D-120-EXHAUST	2020	0	0.00001366
86089112102393	OFF-ROAD EQUIPMENT	DRILL RIG (MOBILE)-D-175-EXHAUST	2020	0	0.00009787
86089112102394	OFF-ROAD EQUIPMENT	DRILL RIG (MOBILE)-D-250-EXHAUST	2020	0	0.0001129

86089112102395	OFF-ROAD EQUIPMENT	DRILL RIG (MOBILE)-D-500-EXHAUST	2020	0	0.00034085
86089112102396	OFF-ROAD EQUIPMENT	DRILL RIG (MOBILE)-D-750-EXHAUST	2020	0	0.0000637
86089112102397	OFF-ROAD EQUIPMENT	DRILL RIG (MOBILE)-D-1000-EXHAUST	2020	0	0.00004121
86089112102399	OFF-ROAD EQUIPMENT	WORKOVER RIG (MOBILE)-D-120-EXHAUST	2020	0	0.00001417
86089112102400	OFF-ROAD EQUIPMENT	WORKOVER RIG (MOBILE)-D-175-EXHAUST	2020	0	0.00000365
86089112102401	OFF-ROAD EQUIPMENT	WORKOVER RIG (MOBILE)-D-250-EXHAUST	2020	0	0.00008837
86089112102402	OFF-ROAD EQUIPMENT	WORKOVER RIG (MOBILE)-D-500-EXHAUST	2020	0	0.00151018
86089112102403	OFF-ROAD EQUIPMENT	WORKOVER RIG (MOBILE)-D-750-EXHAUST	2020	0	0.00004463

EIC	EICSUMN	EICSOUN	YEAR	PMCON (Winter TPD)	PM25_FIL (Winter_TPD)
3001001000000	OIL AND GAS PRODUCTION (COMBUSTION)	PROCESS HEATERS	2026	0.0004399	0.000146645
3030701000000	OIL AND GAS PRODUCTION (COMBUSTION)	COMPRESSORS LEAN BURN	2026	3.589E-05	2.89E-07
3030701100000	OIL AND GAS PRODUCTION (COMBUSTION)	COMPRESSORS LEAN BURN	2026	1.801E-05	1.45E-07
3030901000000	OIL AND GAS PRODUCTION (COMBUSTION)	COMPRESSORS RICH BURN	2026	0.0001278	0.00012225
3030901100000	OIL AND GAS PRODUCTION (COMBUSTION)	COMPRESSORS RICH BURN	2026	4.12E-05	0.000039423
5004001100000	MANUFACTURING AND INDUSTRIAL	I.C. RECIPROCATING ENGINES	2026	0	0
5004012000000	MANUFACTURING AND INDUSTRIAL	I.C. RECIPROCATING ENGINES	2026	5.462E-06	0.000232008
5099501100000	MANUFACTURING AND INDUSTRIAL	OTHER	2026	0.0082982	0.002855283
5099512200000	MANUFACTURING AND INDUSTRIAL	OTHER	2026	0.0004215	0.000521407
5204212000010	FOOD AND AGRICULTURAL PROCESSING	AG. IRRIGATION I.C. ENGINES	2026	4.298E-05	0.001825573
5204212000011	FOOD AND AGRICULTURAL PROCESSING	AG. IRRIGATION I.C. ENGINES	2026	9.584E-05	0.004071198
6099501100000	SERVICE AND COMMERCIAL	OTHER	2026	0.0598037	0.0205776
6099501200000	SERVICE AND COMMERCIAL	OTHER	2026	6.035E-05	0.000020115
6099512200000	SERVICE AND COMMERCIAL	OTHER	2026	1.635E-05	0.000011988
6099515000000	SERVICE AND COMMERCIAL	OTHER	2026	0	0
9904012000000	OTHER (FUEL COMBUSTION)	I.C. RECIPROCATING ENGINES	2026	7.682E-06	0.000326328
43042270780000	MINERAL PROCESSES	SAND AND GRAVEL EXCAVATION AND PROCESSING	2026	0	0.02083391
31033301000000	OIL AND GAS PRODUCTION	DEHYDRATORS	2026	0	0
63062254000000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST - RESIDENTIAL	2026	0	0.0207957
63062454000000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST- COMMERCIAL	2026	0	0.00180405
63062654000000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST- INDUSTRIAL	2026	0	0.00147682
63062854000000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST - INSTITUTIONAL	2026	0	0.06586646
63063454000000	CONSTRUCTION AND DEMOLITION	ROAD CONSTRUCTION DUST	2026	0	0.0368485
64063554000000	PAVED ROAD DUST	PAVED ROAD TRAVEL DUST - FREEWAYS	2026	0	0.00845023
64063754000000	PAVED ROAD DUST	PAVED ROAD TRAVEL DUST - MAJOR STREETS	2026	0	0.02924666
64063954000000	PAVED ROAD DUST	PAVED ROAD TRAVEL DUST - COLLECTOR STREETS	2026	0	0.00763518
64064154000000	PAVED ROAD DUST	PAVED ROAD TRAVEL DUST - LOCAL STREETS	2026	0	0.08737707
64563854000000	UNPAVED ROAD DUST	UNPAVED ROAD TRAVEL DUST- CITY AND COUNTY ROADS	2026	0	0.08401899
64564054000000	UNPAVED ROAD DUST	UNPAVED ROAD TRAVEL DUST- U.S. FOREST AND PARK ROADS	2026	0	0.01387462
64564654000000	UNPAVED ROAD DUST	UNPAVED ROAD TRAVEL DUST- FARM ROADS	2026	0	0.017955
66065602000000	FIRES	STRUCTURAL FIRES	2026	0	0.00179875

67066002620000	MANAGED BURNING AND DISPOSAL	AGRICULTURAL BURNING - PRUNINGS	2026	0	0.08151643
67066202620000	MANAGED BURNING AND DISPOSAL	AGRICULTURAL BURNING - FIELD CROPS	2026	0	0.1777923
67066802000000	MANAGED BURNING AND DISPOSAL	WEED ABATEMENT	2026	0	0.0874444
67067002000000	MANAGED BURNING AND DISPOSAL	NON-AGRICULTURAL OPEN BURNING	2026	0	0.11507226
67099502400000	MANAGED BURNING AND DISPOSAL	OTHER	2026	0	0.00019565
69068060000000	COOKING	COMMERCIAL CHARBROILING	2026	0.0877772	0.000264124
69068260000000	COOKING	DEEP FAT FRYING	2026	0.000237	7.13E-07
61060002300000	RESIDENTIAL FUEL COMBUSTION	WOOD COMBUSTION - WOOD STOVES	2026	0.0574809	1.165516284
61060202300000	RESIDENTIAL FUEL COMBUSTION	WOOD COMBUSTION - FIREPLACES	2026	0.0172664	0.350104715
61060601100000	RESIDENTIAL FUEL COMBUSTION	FUEL COMBUSTION - SPACE HEATING	2026	0.0121616	0.004184645
61060612200000	RESIDENTIAL FUEL COMBUSTION	FUEL COMBUSTION - SPACE HEATING	2026	0.0005105	0.000326414
61060801100000	RESIDENTIAL FUEL COMBUSTION	FUEL COMBUSTION - WATER HEATING	2026	0.0058912	0.002027077
61061001100000	RESIDENTIAL FUEL COMBUSTION	FUEL COMBUSTION - COOKING	2026	0.0006409	0.000220521
61099501100000	RESIDENTIAL FUEL COMBUSTION	OTHER	2026	0.0005807	0.000199805
61099501200000	RESIDENTIAL FUEL COMBUSTION	OTHER	2026	0.001026	0.000356739
62061454000000	FARMING OPERATIONS	TILLING DUST	2026	0	0.48578516
62061554000000	FARMING OPERATIONS	HARVEST OPERATIONS - DUST	2026	0	0.00039225
86089112101600	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0
86089112102340	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.00001306
86089112102350	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.00003849
86089112102360	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.00007651
86089112102370	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.00015504
86089112102380	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.00001738
86089112102390	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.00001446
86089112102391	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.00000307
86089112102392	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.0000111
86089112102393	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.00005623
86089112102394	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.00005868
86089112102395	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.000193
86089112102396	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.00004193
86089112102397	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.00002609
86089112102399	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.00000542
86089112102400	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.00000109
86089112102401	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.00003429
86089112102402	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.00061341
86089112102403	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2026	0	0.00002539

EIC	EICSUMN	EICSOUN	YEAR	PMCON (Winter TPD)	PM25_FIL (Winter_TPD)
3001001000000	OIL AND GAS PRODUCTION (COMBUSTION)	PROCESS HEATERS	2035	0.00033758	0.00011253
3030701000000	OIL AND GAS PRODUCTION (COMBUSTION)	COMPRESSORS LEAN BURN	2035	2.7538E-05	2.22E-07
3030701100000	OIL AND GAS PRODUCTION (COMBUSTION)	COMPRESSORS LEAN BURN	2035	1.3819E-05	1.11E-07
3030901000000	OIL AND GAS PRODUCTION (COMBUSTION)	COMPRESSORS RICH BURN	2035	0.00009802	0.0000938
3030901100000	OIL AND GAS PRODUCTION (COMBUSTION)	COMPRESSORS RICH BURN	2035	0.00003161	0.00003025
5004001100000	MANUFACTURING AND INDUSTRIAL	I.C. RECIPROCATING ENGINES	2035	0	0
5004012000000	MANUFACTURING AND INDUSTRIAL	I.C. RECIPROCATING ENGINES	2035	5.462E-06	0.00023201
5099501100000	MANUFACTURING AND INDUSTRIAL	OTHER	2035	0.00859669	0.002958
5099512200000	MANUFACTURING AND INDUSTRIAL	OTHER	2035	0.0004601	0.0005692
5204212000010	FOOD AND AGRICULTURAL PROCESSING	AG. IRRIGATION I.C. ENGINES	2035	3.7818E-05	0.00160642
5204212000011	FOOD AND AGRICULTURAL PROCESSING	AG. IRRIGATION I.C. ENGINES	2035	3.2832E-05	0.00139463
6099501100000	SERVICE AND COMMERCIAL	OTHER	2035	0.05952647	0.02048223
6099501200000	SERVICE AND COMMERCIAL	OTHER	2035	0.00006531	0.00002177
6099512200000	SERVICE AND COMMERCIAL	OTHER	2035	1.6352E-05	1.1988E-05
6099515000000	SERVICE AND COMMERCIAL	OTHER	2035	0	0
9904012000000	OTHER (FUEL COMBUSTION)	I.C. RECIPROCATING ENGINES	2035	7.681E-06	0.00032629
43042270780000	MINERAL PROCESSES	SAND AND GRAVEL EXCAVATION AND PROCESSING	2035	0	0.02147289
31033301000000	OIL AND GAS PRODUCTION	DEHYDRATORS	2035	0	0
63062254000000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST - RESIDENTIAL	2035	0	0.02284549
63062454000000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST- COMMERCIAL	2035	0	0.00198187
63062654000000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST- INDUSTRIAL	2035	0	0.00162239
63062854000000	CONSTRUCTION AND DEMOLITION	BUILDING CONSTRUCTION DUST - INSTITUTIONAL	2035	0	0.07235876
63063454000000	CONSTRUCTION AND DEMOLITION	ROAD CONSTRUCTION DUST	2035	0	0.04048058
64063554000000	PAVED ROAD DUST	PAVED ROAD TRAVEL DUST - FREEWAYS	2035	0	0.0097291
64063754000000	PAVED ROAD DUST	PAVED ROAD TRAVEL DUST - MAJOR STREETS	2035	0	0.03373409
64063954000000	PAVED ROAD DUST	PAVED ROAD TRAVEL DUST - COLLECTOR STREETS	2035	0	0.00870296
64064154000000	PAVED ROAD DUST	PAVED ROAD TRAVEL DUST - LOCAL STREETS	2035	0	0.09990576
64563854000000	UNPAVED ROAD DUST	UNPAVED ROAD TRAVEL DUST- CITY AND COUNTY ROADS	2035	0	0.08401899
64564054000000	UNPAVED ROAD DUST	UNPAVED ROAD TRAVEL DUST- U.S. FOREST AND PARK ROADS	2035	0	0.01387462
64564654000000	UNPAVED ROAD DUST	UNPAVED ROAD TRAVEL DUST- FARM ROADS	2035	0	0.01743384
66065602000000	FIRES	STRUCTURAL FIRES	2035	0	0.00194065
67066002620000	MANAGED BURNING AND DISPOSAL	AGRICULTURAL BURNING - PRUNINGS	2035	0	0.07907426

67066202620000	MANAGED BURNING AND DISPOSAL	AGRICULTURAL BURNING - FIELD CROPS	2035	0	0.17265074
67066802000000	MANAGED BURNING AND DISPOSAL	WEED ABATEMENT	2035	0	0.0874444
67067002000000	MANAGED BURNING AND DISPOSAL	NON-AGRICULTURAL OPEN BURNING	2035	0	0.11806693
67099502400000	MANAGED BURNING AND DISPOSAL	OTHER	2035	0	0.00020746
69068060000000	COOKING	COMMERCIAL CHARBROILING	2035	0.09262645	0.00027872
69068260000000	COOKING	DEEP FAT FRYING	2035	0.00025126	7.56E-07
61060002300000	RESIDENTIAL FUEL COMBUSTION	WOOD COMBUSTION - WOOD STOVES	2035	0.0558909	1.13327721
61060202300000	RESIDENTIAL FUEL COMBUSTION	WOOD COMBUSTION - FIREPLACES	2035	0.01678883	0.34042037
61060601100000	RESIDENTIAL FUEL COMBUSTION	FUEL COMBUSTION - SPACE HEATING	2035	0.01215971	0.00418399
61060612200000	RESIDENTIAL FUEL COMBUSTION	FUEL COMBUSTION - SPACE HEATING	2035	0.00051055	0.00032641
61060801100000	RESIDENTIAL FUEL COMBUSTION	FUEL COMBUSTION - WATER HEATING	2035	0.0058903	0.00202677
61061001100000	RESIDENTIAL FUEL COMBUSTION	FUEL COMBUSTION - COOKING	2035	0.00064075	0.00022047
61099501100000	RESIDENTIAL FUEL COMBUSTION	OTHER	2035	0.00058055	0.00019976
61099501200000	RESIDENTIAL FUEL COMBUSTION	OTHER	2035	0.00102597	0.00035674
62061454000000	FARMING OPERATIONS	TILLING DUST	2035	0	0.47163467
62061554000000	FARMING OPERATIONS	HARVEST OPERATIONS - DUST	2035	0	0.00038062
86089112101600	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0
86089112102340	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00000737
86089112102350	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00001747
86089112102360	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00002612
86089112102370	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00007029
86089112102380	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00000834
86089112102390	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00000892
86089112102391	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00000159
86089112102392	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00000601
86089112102393	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00002527
86089112102394	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00002428
86089112102395	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00007289
86089112102396	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00001641
86089112102397	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00001281
86089112102399	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00000391
86089112102400	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00000074
86089112102401	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00001063
86089112102402	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00013062
86089112102403	OFF-ROAD EQUIPMENT	OIL DRILLING AND WORKOVER	2035	0	0.00000776