Yuba City-Marysville $PM_{2.5}$ Nonattainment Area Redesignation Request and Maintenance Plan

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Feather River Air Quality Management District on March 2, 2013

This $PM_{2.5}$ Redesignation Request and Maintenance Plan was prepared by:

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I. Executive Summary

The $PM_{2.5}$ Redesignation Request and Maintenance Plan is intended to provide necessary data and analyses to demonstrate that the Yuba City-Marysville $PM_{2.5}$ nonattainment area has attained the 2006 24-hour $PM_{2.5}$ national ambient air quality standard and shall continue to maintain the standard for ten years from the approval of the Plan.

The Yuba City-Marysville nonattainment area attained the 2006 24-hour $PM_{2.5}$ standard during the 2006-2008 monitoring period, and continued to monitor attainment in 2009, 2010, and 2011, with preliminary 2012 data showing that the area continues to meet the standard. The determination is based on complete, quality assured, and certified monitoring data from the Yuba City-Almond Street monitor.

The area has attained the standard through the implementation of permanent and enforceable measures adopted by the Feather River Air Quality Management District and the California Air Resources Board.

This Maintenance Plan has been prepared to incorporate all of the requirements in section 175A of the Clean Air Act (CAA). The District requests that the United States Environmental Protection Agency (USEPA or EPA) find all of the requirements applicable under section 110 and Part D are met and redesignate the Yuba City-Marysville area to attainment for the 2006 24-hour $PM_{2.5}$ national ambient air quality standard (NAAQS).

II. Introduction and Background

a. 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 II-1 shows the geographic location of the Planning Area within the SVAB.

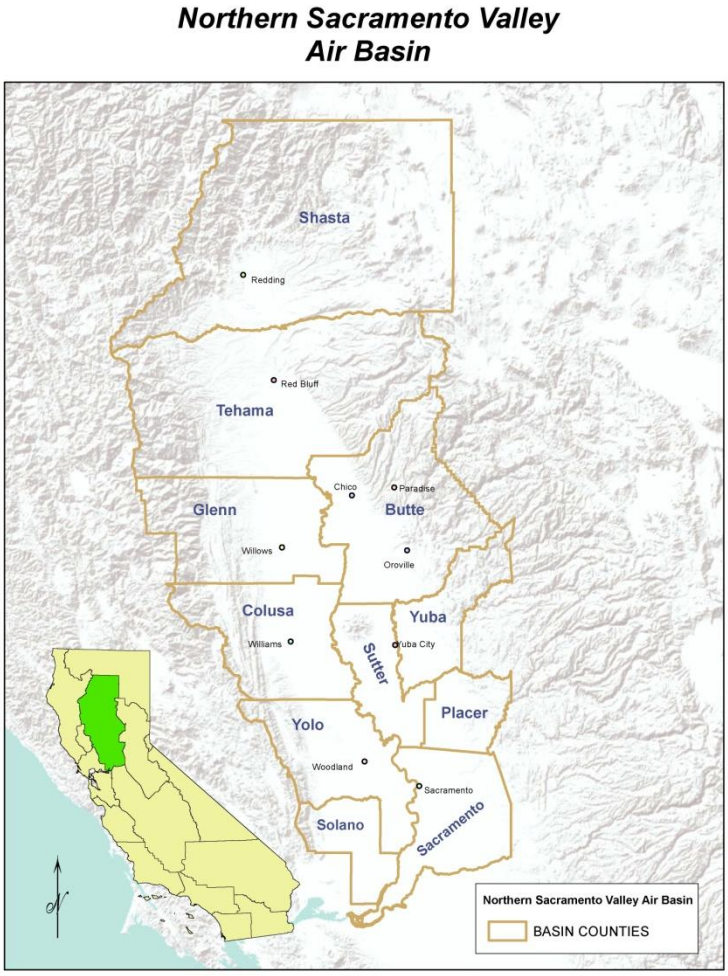
The SVAB is bound on the north and west by the Coastal Mountain Range, on the east by the southern portion of the Cascade Mountain Range and the northern portion of the Sierra Nevada Mountains, and on the south by the San Joaquin Valley Air Basin. These mountain ranges reach heights in excess of 6,000 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.

Summer conditions are typically characterized by high temperatures and low humidity, with prevailing winds from the south. Summer temperatures average approximately 90°F during the day and 50°F at night.

Winter conditions are characterized by occasional rainstorms interspersed with stagnant and sometimes foggy weather. Winter daytime temperatures average in the low 50s and nighttime temperatures average in the upper 30s. 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.

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.

Figure II-1



b. 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).

c. Health Impacts

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[1].

[1] 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 (U.S. EPA or 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 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.

a. 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 EPA adopt NAAQS for six criteria pollutants: ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. 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 EPA to conduct a periodic review of the science upon which the standards are based and the standards themselves.

b. Overview of Particulate Matter NAAQS

EPA issues NAAQS for particulate matter, one of the six criteria pollutants. 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.

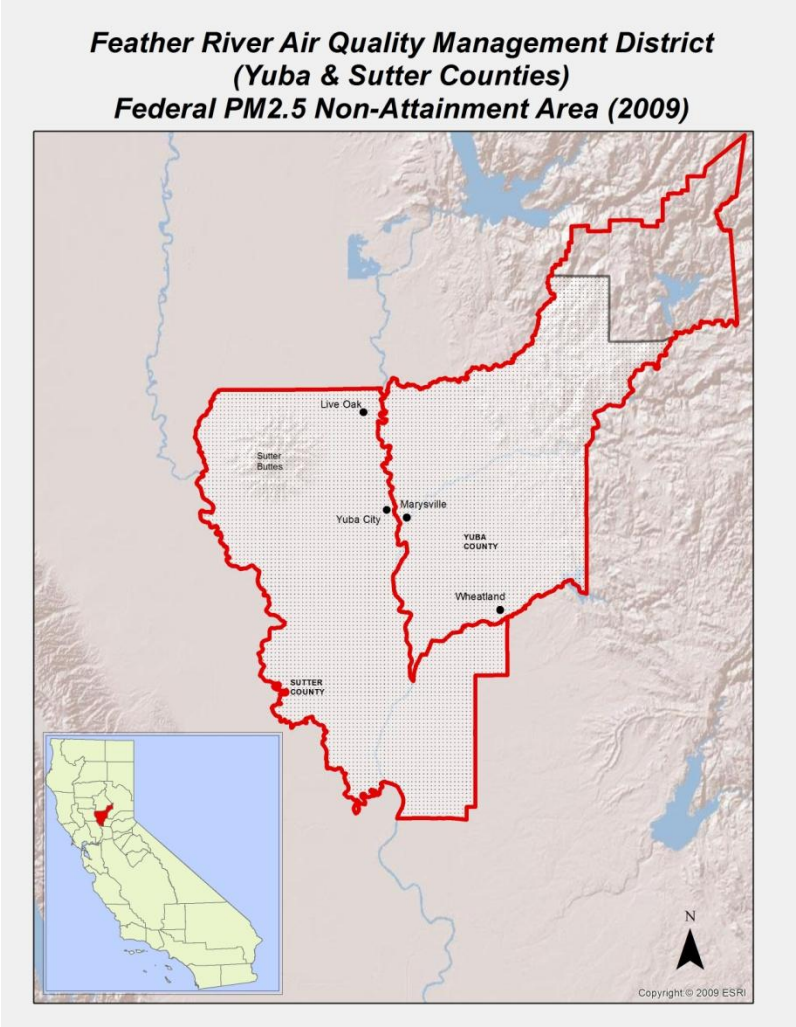
The EPA established the separate annual and 24-hour standards for $PM_{2.5}$ in 1997 (62 *FR* 38652). The annual standard was set at 15 micrograms per cubic meter ($\mu g/m^3$). The 24-hour standard was set at 65 $\mu g/m^3$, based on a 3-year average of the 98^{th} percentile of 24-hour $PM_{2.5}$ concentrations.

In 2006, EPA tightened the 24-hour $PM_{2.5}$ standard from 65 µg/m^3 to 35 µg/m^3, and retained the current annual $PM_{2.5}$ standard at 15 µg/m^3. The revised 24-hour $PM_{2.5}$ standards were published on October 17, 2006 (71 FR 61144) and became effective on December 18, 2006.

c. Designations

On November 13, 2009 (74 *FR* 58688) 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 EPA by December 14, 2012. Figure III-1 shows the nonattainment area. Appendix A contains the description from the federal register notice.

Figure III-1



d. Clean Data Policy

Areas designated as nonattainment that attain the standard prior to the SIP submittal deadline, or prior to an area's approved attainment date, are eligible for reduced regulatory requirements as described in EPA's "Clean Data Policy."[2] The Yuba City-Marysville area attained the $PM_{2.5}$ NAAQS in 2008 (based on 2006-2008 data) and continued attainment between 2009 and 2011. Preliminary analysis shows that the area continues to meet the standard in 2012. A Clean Data Request was submitted by the State of California for the area on June 8, 2010. On January 10, 2013, the EPA determined that the area has attained the 2006 24-hour fine particle standard based on 2009-2011 monitoring data[3]. Table III-1 summarized the CAA requirements for $PM_{2.5}$ Nonattainment Areas, the Clean Data Policy exemptions for areas that attain the standards, and their location in this Plan.

This Plan is intended to provide the air quality monitoring and emissions data to demonstrate the area has attained the $PM_{2.5}$ standard. In addition, it includes regulatory requirements to ensure the Yuba City-Marysville area will maintain compliance with the national $PM_{2.5}$ standard in the future.

e. Statutory Requirements for Redesignation

There are five statutory requirements an area must meet to be redesignated to attainment. These are:

1) EPA determines that the area has attained the NAAQS.
2) EPA has fully approved the area's applicable implementation plan under section 110(k).
3) EPA determines improvement in air quality is due to enforceable emission reductions.
4) The area has a fully approved maintenance plan meeting section 175A.
5) The area has met all of the requirements applicable to the area under section 110 and Part D prior to the approval of the redesignation.

The Yuba City-Marysville area attained the $PM_{2.5}$ NAAQS in 2008 as described in the Clean Data Request[4] . EPA has determined that the area has attained the 24-hour standard. Approval of the Maintenance Plan and redesignation can occur simultaneously[5]. The District has attained the standard through enforceable emissions reductions as detailed in Chapter VI. The Maintenance Plan has been prepared to incorporate all of the requirements in section 175A of the CAA. The District requests that EPA find all of the requirements applicable under section 110 and Part D are met

[2] Memorandum of December 14, 2004, from Steve Page, Director, EPA Office of Air Quality Planning EPA and Standards to Air Division Directors, ''Clean Data Policy for the Fine Particle National Ambient Air Quality Standards.''
[3] 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.
[4] Clean Data Request, James N. Goldstene, Air Resources Board, June 8, 2010.
[5] *Procedures for Processing Requests to Redesignate Areas to Attainment*, Calcagni memo, Sept 4, 1992, page 3

and redesignate the Yuba City-Marysville area to attainment for the 24-hour $PM_{2.5}$ NAAQS.

Table III-1 CAA Requirements for $PM_{2.5}$ Nonattainment Areas and Areas with Clean Data

General Requirements	**Federal CAA**	**$PM_{2.5}$ Implementation Rule**	**Description**	**Required for area with clean data?**	**Location in Plan**
Attainment Date	172(b)(2)	72 *FR* 20601	Nonattainment areas should reach attainment as expeditiously as practicable, but no later than 5 years from designation.	No-areas with clean data have already met standard.	Not Applicable
RACT/RACM	172(c)(1)	72 *FR* 20609-20633	SIP provisions should provide for the implementation of reasonably available control measures and reasonably available control technologies.	No-suspended (72 *FR* 20665 section 51.1004(c)	Not Applicable
RFP	172(c)(2)	72 *FR*20633-20645	SIP provisions must provide for reasonable further progress.	No-suspended (72 *FR* 20665 section 51.1004(c)	Not Applicable
Contingency Provisions	172(c)(1)	72 *FR* 20642-20645	The SIP must provide for the implementation of specific measures that would take effect without further action by the State and that would be undertaken if the area fails to make RFP or attainment on time.	No-suspended (72 *FR* 20665 section 51.1004(c)	Not Applicable
Emissions Inventory	172(c)(3)	72 *FR* 20647-20651	The SIP must include a comprehensive, current inventory of actual emissions from all sources of the relevant pollutants in the area.	Yes	Chapter V
NSR	172(c)(4-5)	72 *FR*	The SIP must identify and quantify the emissions of pollutants that will be allowed (in accordance with section 173(a)(1)(B), from the construction and operation of major new or modified stationary sources in the area. The SIP must require permits for new or modified stationary sources.	Yes	Chapter VI

IV. Air Quality

The Yuba City-Marysville Planning Area, designated nonattainment for the 2006 24-hr $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS), has attained the standard. This determination is based upon complete, quality assured, quality controlled, and certified ambient air monitoring data that show that this area has monitored attainment of the 2006 $PM_{2.5}$ NAAQS during the 2006-2008 monitoring period. Furthermore, 2009, 2010, 2011 and preliminary 2012 data demonstrates continued attainment of the standard.

The ARB requested the EPA find the Yuba City-Marysville Planning Area in attainment for the 2006 24-hour fine particulate NAAQS on June 8, 2010[6]. The request was based on review of quality assured and certified $PM_{2.5}$ data that show attainment of the NAAQS during the 2006-2008 period. The data shows continued attainment through the 2009-2011 period. Preliminary data for 2012 indicate that the area continues to meet the standard.

On January 10, 2013, the EPA determined that the area has attained the 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[7].

a. Monitoring Site Information

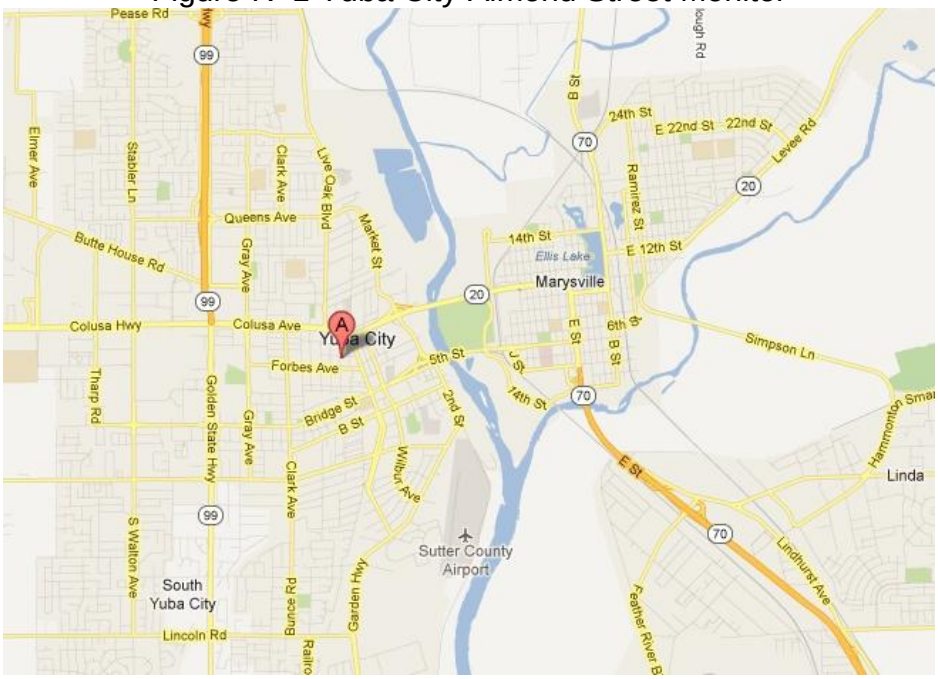
The Yuba City-Maysville Planning Area has one monitoring site, Yuba City-Almond Street (site number 06-101-0003), that collects $PM_{2.5}$ air quality data for a comparison to the NAAQS. The monitoring site is equipped with a Federal Reference Monitor (FRM). Through January 18, 2007, the monitor collected samples on a one in six days schedule. Starting on January 19, 2007, the sampling frequency was increased to daily.

$PM_{2.5}$ data are submitted to the EPA database, Air Quality System (AQS). The data are available to the public via AQS (http://www.epa.gov/ttn/airs/airsaqs/aqsweb/) or via ARB's web site: http://www.arb.ca.gov/html/ds.htm).

[6] June 8, 2010 letter from James N. Goldstene, Executive Officer, ARB, to Jared Blumenfeld, Regional Administrator, U.S. EPA Region 9.

[7] 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 IV-1 Yuba City-Almond Street Monitor



b. Design Values and Monitoring Data

A monitoring site is considered to be 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 annual 98th percentile of 24-hour values recorded at each site. The design values for the Yuba City-Almond Street monitor for 2000 through 2011 are summarized in Table IV-1. The U.S. EPA regulations require at least 75 percent of data capture in each quarter of a consecutive 3-year period in order for a design value to be valid. The data meet the completeness requirements, therefore, the design values are considered valid.

The 24-hour design values provided in Table IV-1 are calculated in accordance with 40 CFR part 50, Appendix N (2006, amended 2007). Table IV-2 shows the top values and 98th percentiles for 2007, 2009, 2010, and 2011. 2008 data are shown separately in Table IV-3. The 2008 data include exceptional events captured during summer 2008 Northern California wildfires, for which documentation has been submitted to the EPA[8]. Data that have been flagged for exceptional events were excluded from the design value calculations.

[8] **$PM_{2.5}$ and PM_{10} Natural Event Document, Summer 2008 Northern California Wildfires, June/July/August 2008,** August 28, 2009

Table IV-1 Summary Statistics for Yuba City, 2000-2011

Year	24-hr Standard µg/m^3		Annual Standard µg/m^3		Percent Data Capture				Number of Samples				
	Yearly 98th Percentile	Design Value	Annual Average	Design Value	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	13.6	12	87	87	100	80	14	15	18	15	62
2003	29	39	9.5	11.6	100	100	100	93	15	16	16	15	62
2004	38	34	10	11	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	93	100	93	83	63	80	86	76	305
2008	23.1	33	8.4	9.3	79	97	90	85	72	88	83	78	321
2009	27.5	28	7.9	8.2	92	99	91	97	83	90	84	89	346
2010	17.1	23	5.9	7.4	77	93	89	96	69	85	82	88	324
2011	37.1	27	8.0	7.3	79	82	96	92	71	75	87	85	318

Data Affected by Summer 2008 Northern California Wildfires

Table IV-2 Top $PM_{2.5}$ measurements during 2007-2011

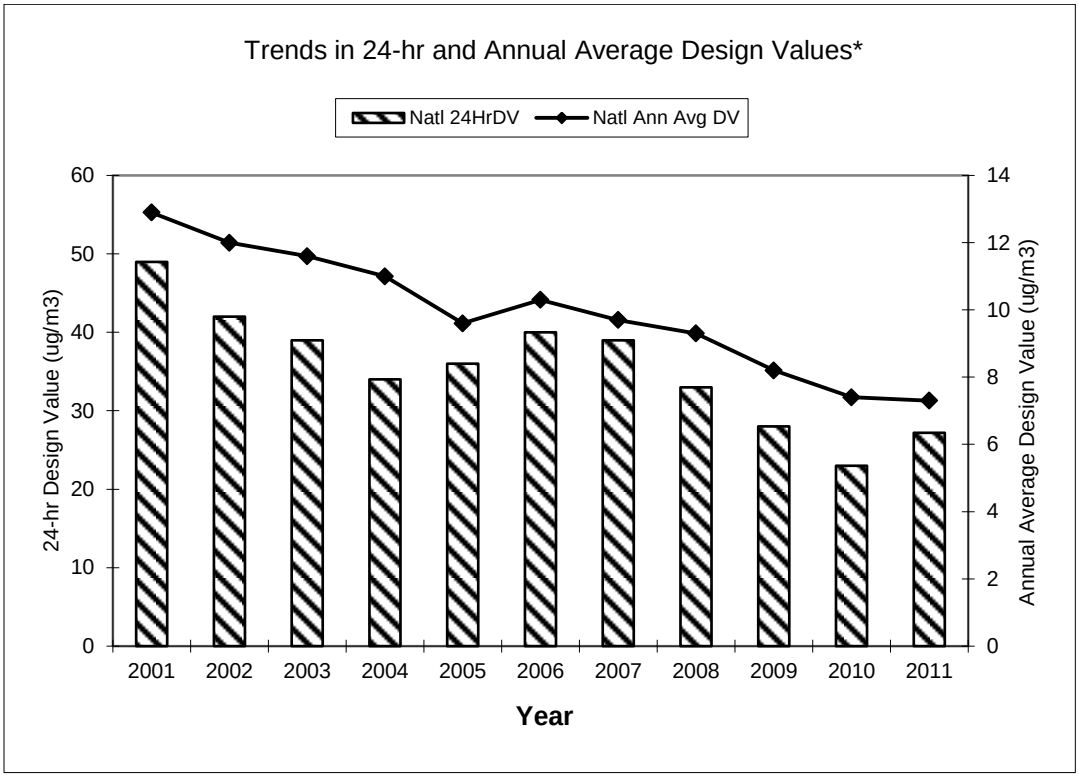
Rank	$PM_{2.5}$ ($\mu g/m^3$)	Date	Comments
2007*			
1	45	1/27/07	
2	42	12/15/07	
3	40	2/2/07	
4	38	2/3/07	
5	37	2/4/07	
6	36	12/14/07	
7	**34**	**1/28/07**	**98th percentile, 7th highest value**
8	34	2/1/07	
9	33.7	11/25/07	
10	31.6	11/26/07	
2008 98th Percentile addressed in Table 3.			
2009			
1	41.8	12/25/09	
2	36.3	12/26/09	
3	35.2	12/4/09	
4	30.8	1/14/09	
5	30.2	12/20/09	
6	29	1/30/09	
7	**27.5**	**12/27/09**	**98th Percentile 7th highest value**
8	27.2	1/13/09	
9	26.5	1/16/09	
10	26.3	1/17/09	
2010			
1	72.2	7/4/10	
2	26.9	12/4/10	
3	23	11/5/10	
4	20.4	12/24/10	
5	18.3	1/29/10	
6	18.2	2/4/10	
7	**17.1**	**1/6/10**	**98th Percentile 7th highest value**
8	15.9	2/19/10	
9	15.7	1/28/10	
10	14.7	10/20/10	
2011			
1	57	7/4/11	
2	46.4	12/29/11	
3	41.9	12/9/11	
4	41.5	12/25/11	
5	40.4	12/20/11	
6	39.1	12/24/11	
7	**37.1**	**12/10/11**	**98th Percentile 7th highest value**
8	37.1	12/26/11	
9	35.2	12/18/11	
10	31.3	12/28/11	

** Two sampling frequencies in 2007*

c. Air Quality Trends

Ambient $PM_{2.5}$ air quality has improved dramatically since the District began monitoring for $PM_{2.5}$ in 1998. Between 2001 and 2011, the 24-hour and the annual average design values declined 45 to 50 percent due to emission reductions (see Figure IV-2).

Figure IV-2 $PM_{2.5}$ Trends in the Planning Area



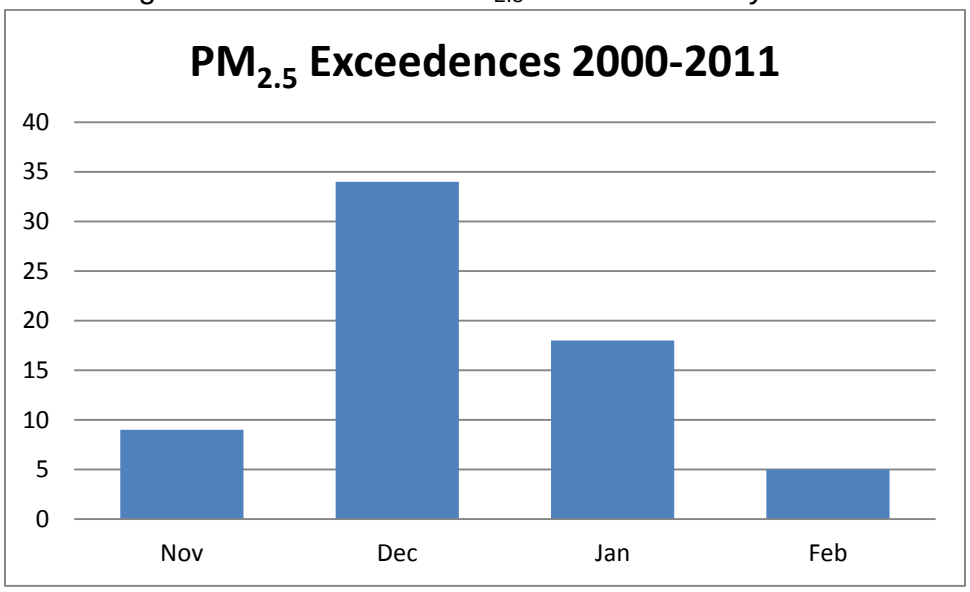
*Fire impacted days have been removed from the calculated design values.

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

Analysis by the District and EPA indicates the key components of $PM_{2.5}$ in the Planning Area are ammonium nitrate and organic carbon. Organic carbon is the significant $PM_{2.5}$ species and is localized. Historically, $PM_{2.5}$ pollution is dominated during the winter months by smoke from residential wood burning stoves and fireplaces. The winter months of November through February are when the exceedences of the standard typically occur, as shown in Figure IV-3. Agricultural and residential open burning also contributes 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 can cause a significant problem 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.

Figure IV-3: Number of $PM_{2.5}$ Exceedences by Month



i. Speciation Data

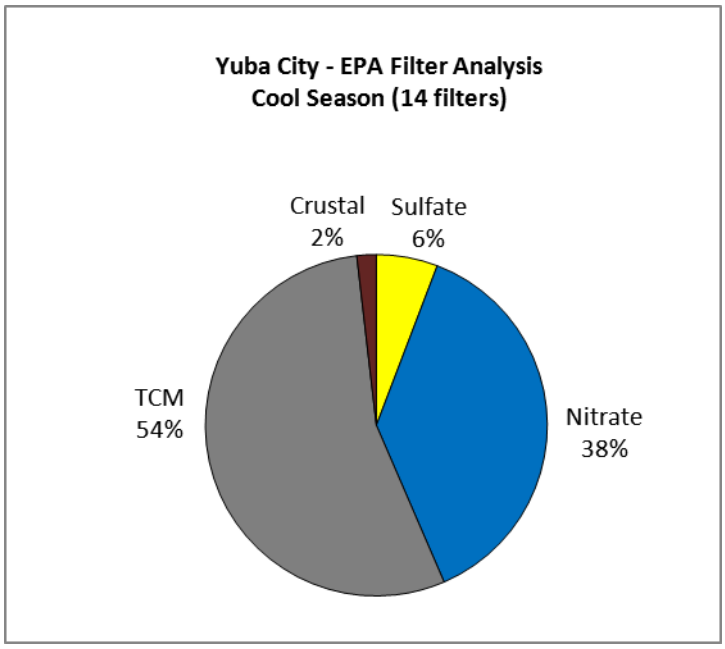
Chemical composition data are helpful in understanding the types of emission sources that contribute to ambient $PM_{2.5}$. Since these kinds of data are not collected in the Yuba City-Marysville nonattainment area, the EPA arraigned for having the limited chemical analysis performed on FRM Teflon filters[9]. These new data were intended to assist 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.

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

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).

Figure IV-4 Speciation Results



The results from speciation data were also included in EPA's Technical Support document (TSD) for the designations[10]. 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 $PM_{2.5}$ exceedences in the Planning Area.

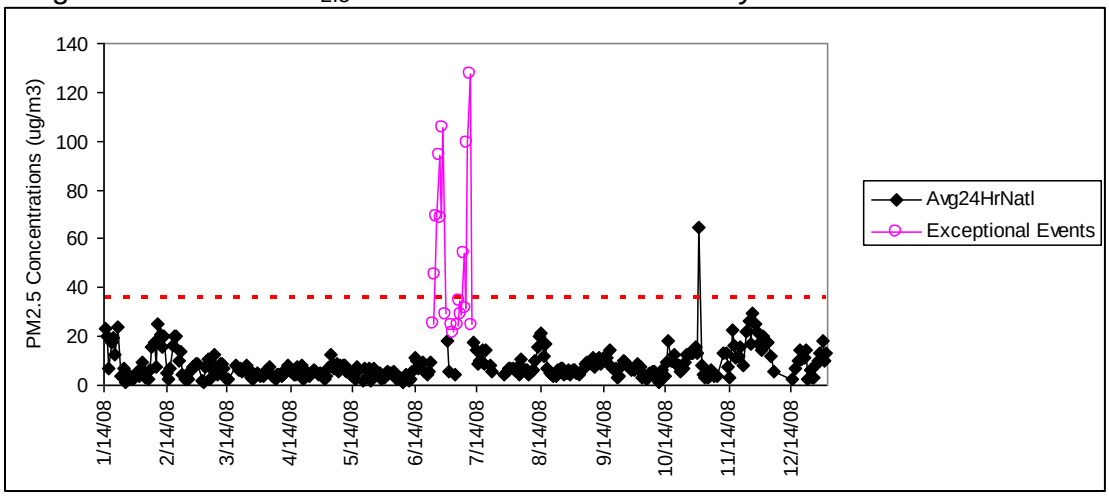
[10] **Technical Support for State and Tribal Air Quality 24-hour Fine Particle ($PM_{2.5}$) Designations**, U.S.EPA Office of Air Quality Planning and Standards, December, 2008.

e. Exceptional Event Documentation

During the summer of 2008, wild fires resulted in high $PM_{2.5}$ concentrations in northern and central California. Between June 22 and July 19, 2008, the Yuba City-Almond Street monitoring site captured 17 days with concentrations so high that they would have been considered for the selection of the 98th percentile for 2008, even though the typical concentrations for this time of the year are between 5 and 10 µg/m^3. With 321 data points collected in 2008, the 7th highest value would correspond to a 98th percentile. Table IV-3 illustrates the top 30 concentrations for 2008, including 17 concentrations that were captured during the wildfires. Table IV-3 also shows that all 17 days affected by the fires have to be excluded from 98th percentile selection in order to reach the 7th highest value not impacted by the fire. The magnitude of concentrations captured during fire is further illustrated in Figure IV-5. These data have been flagged in U.S. EPA's AQS database and the documentation was submitted to U.S. EPA on August 28, 2009[11].

In addition to the Summer 2008 Northern California Wildfires exceptional event, there are two additional exceptional events that the District has requested be flagged in the database. The two dates are July 4, 2010, and July 4, 2011. Both of these exceedences were caused by firework events. The July 4, 2010, exceptional event impacted the 2010 design value by a small amount (17.1 µg/m^3 vs. 15.9 µg/m^3). The July 4, 2011, exceptional event did not have an impact on the 2011 design value as the 98th percentile with or without the event is 37.1 µg/m^3.

Figure IV-5 2008 $PM_{2.5}$ Concentrations at Yuba City-Almond Street Monitor



[11] **$PM_{2.5}$ and PM_{10} Natural Event Document, Summer 2008 Northern California Wildfires, June/July/August 2008,** August 28, 2009

Table IV-3 Top 30 $PM_{2.5}$ FRM Concentrations during 2008

Rank (EE Excluded)	$PM_{2.5}$ (µg/m3)	Date	Exceptional Event
	127.3	7/10/08	Summer 2008 Northern California Wildfires
	105.5	6/27/08	Summer 2008 Northern California Wildfires
	99	7/9/08	Summer 2008 Northern California Wildfires
	94	6/25/08	Summer 2008 Northern California Wildfires
	68.8	6/24/08	Summer 2008 Northern California Wildfires
	68.5	6/26/08	Summer 2008 Northern California Wildfires
1	64.6	10/30/08	
	54.2	7/7/08	Summer 2008 Northern California Wildfires
	45.4	6/23/08	Summer 2008 Northern California Wildfires
	34.8	7/5/08	Summer 2008 Northern California Wildfires
	31.7	7/8/08	Summer 2008 Northern California Wildfires
2	29.2	11/25/08	
	29.1	6/28/08	Summer 2008 Northern California Wildfires
	29	7/6/08	Summer 2008 Northern California Wildfires
3	26.2	11/23/08	
4	25.3	11/26/08	
	25.1	6/22/08	Summer 2008 Northern California Wildfires
5	25	2/9/08	
	25	7/19/08	Summer 2008 Northern California Wildfires
	24.7	7/1/08	Summer 2008 Northern California Wildfires
	24.5	7/4/08	Summer 2008 Northern California Wildfires
	24.5	7/11/08	Summer 2008 Northern California Wildfires
6	23.9	1/20/08	
7	**23.1**	**1/14/08**	
	22.9	11/15/08	
	21.7	11/27/08	
	21.7	11/22/08	
	21.5	8/14/08	
	21.2	7/2/08	
	20.7	2/10/08	

V. Emission Inventory

This chapter summarizes emissions that occurred in the Planning Area during the attainment year of 2011. This inventory year has been selected to comply with CAA requirements. The winter inventory has been prepared due to the nature of the $PM_{2.5}$ exceedences, as explained in Chapter IV.

The emission inventory is divided into four main categories: stationary sources, area sources, off-road mobile sources, and on-road mobile sources. The 2011 stationary source emissions are estimated based on reported data from facilities. The area source emissions are estimated jointly by ARB and the District. The on-road mobile source emissions are calculated using ARB's EMFAC2011. The off-road mobile source emissions in the past were calculated using ARB's OFFROAD model. The model has now been replaced by category specific methods and inventory models, available at http://www.arb.ca.gov/msei/categories.htm#offroad_motor_vehicles. For unlisted categories, OFFROAD2007 was used to calculate emissions.

Stationary sources are emitters with one or more emission sources at a permitted facility with an identified location (e.g. power plant, rice dryer). The District collects throughput data annually from all permitted facilities and reports emissions from facilities that exceed 10 tons per year of the criteria pollutants carbon monoxide, nitrogen oxides, sulfur dioxide, and particulate matter, and emissions that exceed 5 tons per year of lead. As of June 12, 2012, the District had 592 active permits, of which almost all reside within the Planning Area.

Area sources generally consist of many small emission sources (e.g. residential fuel combustion, architectural coatings) which are distributed across the District. Area source emissions were developed by ARB and the District. An example of specific categories that were updated for this Plan include residential fuel combustion, managed burning, pesticides and fertilizers, and paved/unpaved road dust. For more information on area source methodologies, visit www.arb.ca.gov.

Mobile sources include on-road and off-road sources. On-road mobile source emissions are calculated using socio-economic data and transportation models provide by Sacramento Area Council of Governments (SACOG), and EMFAC2011 inventories provided by ARB. The inventory reflects SACOG's revised activity data from the Metropolitan Transportation/Sustainable Communities Strategy Plan for 2035. The off-road mobile source emissions were calculated based on the methodologies listed on http://www.arb.ca.gov/msei/categories.htm#offroad_motor_vehicles.

Tables V-1 presents the 2011 winter emission inventory by major source category.

Table V-1: Summary of Emissions by Major Source Category
2011 Winter Emissions (tons/day)

Emission Source Type	$PM_{2.5}$	NOx	ROG	NH_3	SOx
Stationary	**0.87**	**4.391**	**4.03**	**0.36**	**0.125**
Fuel Combustion	0.28	4.38	0.41	0.01	0.13
Waste Disposal	0	0	0	0.35	0
Cleaning & Surface Coating	0.004	0.001	0.77	0	0
Petroleum Production & Marketing	0	0.0001	2.84	0	0
Industrial Processes	0.59	0.011	0.01	0	0.001
Area	**3.83**	**1.09**	**5.46**	**4.50**	**0.15**
Solvent Evaporation	0	0	2.22	2.92	0
Misc. Processes Total	3.83	1.09	3.2	1.57	0.15
Residential Fuel Combustion	1.60	0.58	2.13	0.10	0.06
Farming Operations	0.91	0	0.43	1.07	0
Managed Burning & Disposal	0.82	0.51	0.66	0.10	0.09
Other Misc. Processes	0.51	0.001	0.02	0.31	0
On-Road Motor Vehicles	**0.27**	**8.38**	**2.80**	**0.19**	**0.03**
Other Mobile	**0.88**	**5.43**	**2.35**	**0.002**	**0.06**
Total	**5.26**	**19.29**	**14.64**	**5.05**	**0.35**

Mobile sources account for 72% of the NOx emissions and 38% of the ROG emissions in 2011. However, mobile sources only account for a small portion of the emissions of SOx (23%), $PM_{2.5}$ (11%), and ammonia (4%).

Stationary sources contribute the most to the SOx inventory at 36%. They account for 26% of the ROG emissions, 23% of the NOx emissions, 17% of $PM_{2.5}$ emissions, and 7% of the ammonia emissions.

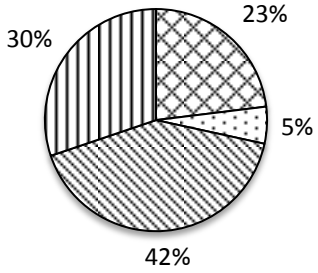
Area sources account for the majority of ammonia emissions (89%) and $PM_{2.5}$ emissions (72%). The area sources that contribute the most to ammonia emissions are solvent evaporation (pesticides and fertilizers). Area sources contribute a smaller portion to NOx (5%), ROG (36%), and SOx (41%).

The Planning Area observes the highest concentrations of $PM_{2.5}$ during the winter months. Area sources contribute the greatest portion of directly emitted $PM_{2.5}$ during the winter (72%). Figure V-2 provides the contribution of the major area sources to the 2011 winter emission inventory. Of the major area sources, residential fuel combustion accounts for 42% of the $PM_{2.5}$. Managed burning accounts for 24% and farming operations account for 21%.

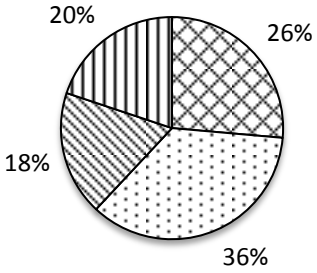
Area sources also account for the greatest portion of ammonia emissions (89%). Figure V-3 provides the contribution of the major area sources to the 2011 winter emission inventory. The majority of the winter ammonia emissions are due to solvent evaporation, specifically pesticides and fertilizers, which account for 65% of the emissions. Farming operations account for 24% of the winter ammonia emissions.

Figure V-1: Contribution by Source Category to 2011 Winter Emissions

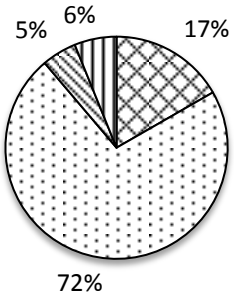
NOx Emissions: 19.29 tons/day



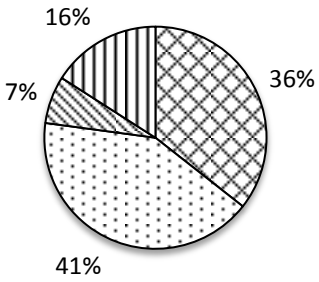
ROG Emissions: 14.64 tons/day



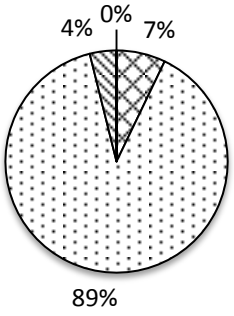
$PM_{2.5}$ Emissions: 5.26 tons/day



SOx Emissions: 0.35 tons/day



NH_3 Emissions: 5.05 tons/day



- Stationary Sources
- Area Sources
- On-Road Motor Vehicles
- Other Mobile Sources

Figure V-2: Contribution of Major Area Sources to Winter $PM_{2.5}$ Emission Inventory

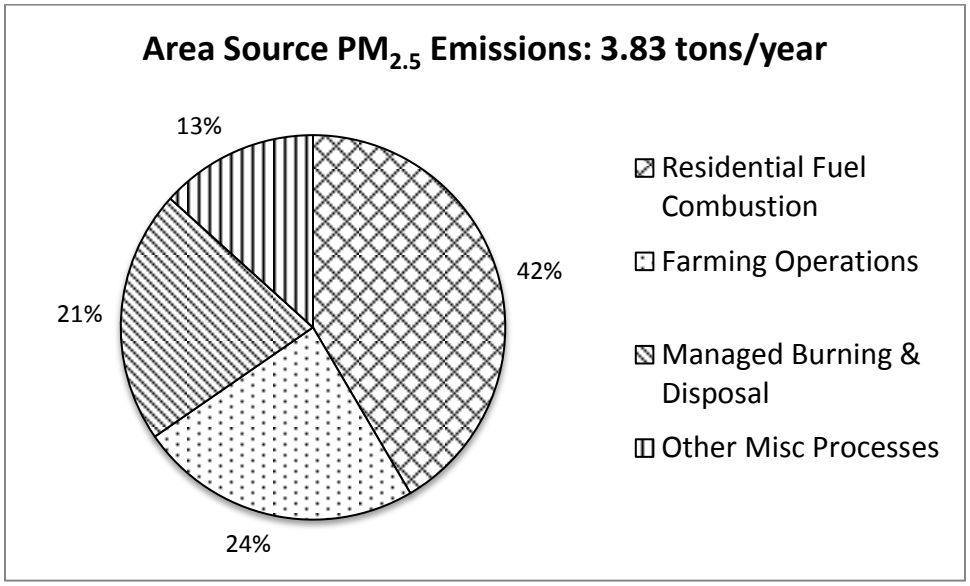
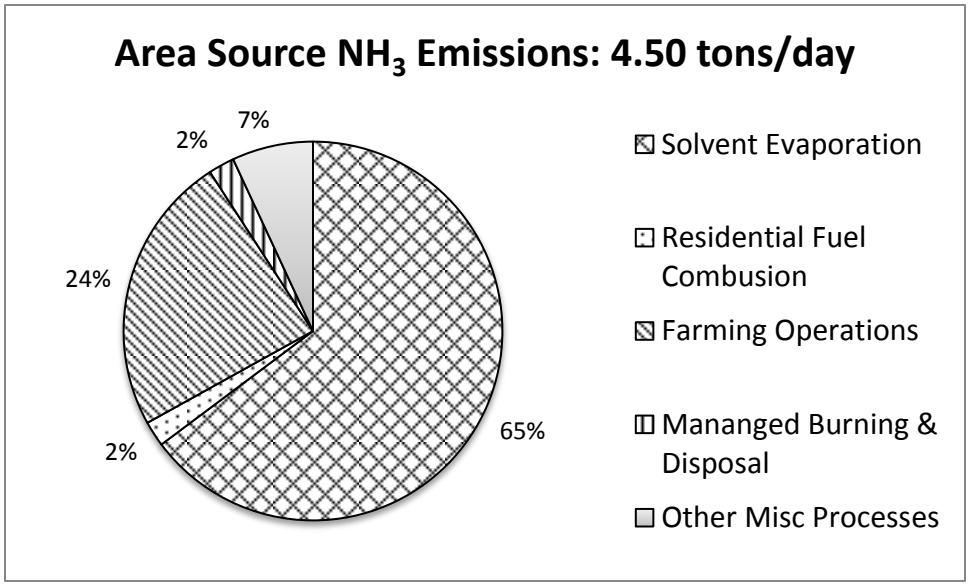


Figure V-3: Contribution of Major Area Sources to Winter NH_3 Emission Inventory



VI. Maintenance Demonstration

The required Maintenance Plan must provide for maintenance of the air quality in the affected area for 10 years after the USEPA's expected approval. To achieve this, the District and ARB developed an inventory for the attainment year 2011, and developed projections for an intermediate year of 2017 and the final year of the maintenance period, 2024. The attainment year, intermediate year, and final year inventories use winter-time emissions due to the seasonality of the $PM_{2.5}$ exceedences, as described in Chapters IV and V. The maintenance demonstration includes emissions of directly emitted $PM_{2.5}$, NOx, and SOx.

The EPA $PM_{2.5}$ implementation rule specifies that a precursor is considered "significant" for control strategy development purposes when a significant reduction in the emission of that precursor pollutant leads to a significant decrease in $PM_{2.5}$ concentration. Such pollutants are known as "$PM_{2.5}$ attainment plan precursors" (72 FR 20586). The $PM_{2.5}$ implementation rule also 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 the area has maintained the standard for the past four years, without additional VOCs or ammonia controls, these two precursors are not significant in order for the area to maintain the NAAQS. Therefore, the maintenance demonstration includes emissions of direct $PM_{2.5}$, SOx, and NOx. The emission projections for 2017 and 2024 are presented in Table VI-1. The change in emissions from 2011 to 2024 is presented in Table VI-2.

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 amount of ERCs issued for reductions of NOx, SOx, and PM_{10} that occurred prior to 2011 are added to the emission inventory projections for 2017 and 2024 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.

Table VI-1: Projected Wintertime Emissions for Maintenance Demonstration, tons/day

	$PM_{2.5}$		NOx		SOx	
Emission Source Type	**2017**	**2024**	**2017**	**2024**	**2017**	**2024**
Stationary	**1.045**	**1.125**	**4.772**	**4.324**	**0.237**	**0.239**
Fuel Combustion	0.286	0.269	4.755	4.306	0.234	0.235
Waste Disposal	0	0	0	0	0	0
Cleaning & Surface Coating	0.005	0.006	0.001	0.001	0	0
Petroleum Production & Marketing	0	0	0	0	0	0
Industrial Processes	0.754	0.850	0.016	0.019	0.003	0.004
Area	**4.073**	**3.964**	**1.279**	**1.275**	**0.252**	**0.247**
Solvent Evaporation	0	0	0	0	0	0
Misc. Processes Total	4.073	3.964	1.279	1.275	0.252	0.247
Residential Fuel Combustion	1.698	1.656	0.705	0.718	0.083	0.084
Farming Operations	0.932	0.878	0	0	0	0
Managed Burning & Disposal	0.854	0.823	0.573	0.556	0.169	0.163
Other Misc. Processes	0.589	0.607	0.001	0.001	0	0
On-Road Motor Vehicles*	**0.2**	**0.2**	**5.3**	**3.1**	**0.028**	**0.028**
Other Mobile	**0.218**	**0.144**	**4.618**	**3.359**	**0.056**	**0.057**
Total	**5.536**	**5.433**	**15.969**	**12.058**	**0.574**	**0.571**
ERC's That Have Been Included in the Above Inventory:	1.292	1.292	0.888	0.888	0.224	0.224

*On-Road Motor Vehicle PM2.5 and NOx inventory has been replaced with Motor Vehicle Emission Budgets

Table VI-2: Projected Change by Pollutant, tons/day

Pollutant	2011	2017	2024	Projected Change	% Change
NOx	19.287	15.969	12.058	- 7.229	- 37%
$PM_{2.5}$	5.259	5.536	5.433	+ 0.174	+ 3%
SOx	0.354	0.574	0.571	+ 0.217	+ 61%

Emissions of NOx are projected to decline by 37% between 2011 and 2024. However, emissions of SOx and directly emitted $PM_{2.5}$ are projected to rise by 61% and 3%, respectively. Therefore, further evaluation was needed to determine whether the area would continue to meet the standard in 2024.

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 speciation data collected from the Yuba City-Almond Street monitor was used to determine the relative contribution toward the 2011 design value, as shown in Table VI-3.

Table VI-3: Contribution toward 2011 Design Value

	Percent of mass	Contribution toward 2011 DV of 27 μg/m^3
Carbonaceous aerosols	54%	14.6 μg/m^3
Nitrate	38%	10.3 μg/m^3
Sulfate	6%	1.6 μg/m^3
Crustal material	2%	0.5 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 3% or 0.45 μg/m^3 increase in the ambient concentrations of direct $PM_{2.5}$ component. The projected 61% increase in SOx would increase the sulfate contribution from 1.6 μg/m^3 to 2.6 μg/m^3. The projected 37% reduction in NOx will cause a corresponding 3.8 μg/m^3 decrease in the design value concentrations. The overall impact to the 2024 design value is expected to be a decrease of 2.4 μg/m^3, from 27 μg/m^3 to 24.6 μg/m^3, which is well below the standard of 35 μg/m^3. Therefore, maintenance of the standard is demonstrated. The resultant changes to the 2024 design value are summarized in Table VI-4.

Table VI-4: Projected Pollutant Impact to 2024 Design Value

Pollutant	Contribution toward 2011 DV	Change from 2011 to 2024	Resultant change to 2024 DV
Directly emitted $PM_{2.5}$	15.1 μg/m^3	+3%	Increase by 0.45 μg/m^3
SOx	1.6 μg/m^3	+61%	Increase by 1.0 μg/m^3
NOx	10.3 μg/m^3	-37%	Decrease by 3.8 μg/m^3
Overall change to 2024 design value expected			**Decrease by 2.4** μg/m^3

In addition, the application of PM10 ERCs to the future year inventories overestimates the amount of $PM_{2.5}$ in 2017 and 2024 should every ERC be redeemed.

a. Control Strategy

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. After the area is redesignated to attainment, new and modified major sources with significant $PM_{2.5}$ emissions may be subject to Prevention of Significant Deterioration (PSD) permitting requirements and review (40 CFR 51.166 and 52.21). Additionally, Table VI-5 shows District rules and regulations adopted or amended since designation that control sources of $PM_{2.5}$.

Table VI-5 District $PM_{2.5}$ Rules and Regulations Adopted/Amended Since Nonattainment Designation

Rule	Version	Title	Description
2.0.F.1	10/6/2008	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.
3.17	October 2009	Wood Heating Devices	Requires newly installed residential wood heating devices to meet EPA Phase II emission standards. Also establishes voluntary no-burn advisory program. Also prohibits burning unseasoned wood
3.19	6/6/2011	Vehicle & Mobile Equipment Coating	Limits particulate matter emissions by requiring spray booths.

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 VI-6.

Table VI-6 State Strategy that Provides $PM_{2.5}$ Reductions

	Agency	Actions	Implementation
Passenger Vehicles			
Smog Check Improvements	BAR	2007-2009	2008-2010;2013[1]
Expanded Vehicle Retirement (AB 118)	ARB/BAR	2007	2009
Trucks			
Modifications to Reformulated Gasoline Program	ARB	2007	2010
Cleaner In-Use Heavy-Duty Trucks	ARB	2007, 2008, 2010	2011-2015
Goods Movement Sources			
Auxiliary Ship Engine Cold Ironing & Other Clean Tech	EPA/ARB/ Local	2007, 2008	2010
Cleaner Main Ship Engines and Fuel[2]		Fuel: 2008-2011	2009-2015
		Engines: 2008	2011
Port Truck Modernization	ARB, Local	2007,2008, 2010	2008-2020
Accelerated Intro. of Cleaner Line-Haul Locomotives[3]	EPA/ARB	2008	2012
Clean Up Existing Harbor Craft	ARB	2007, 2010	2009-2018
Off-Road Equipment			
Cleaner In-Use Off-Road Equipment[4]	ARB	2007, 2010	2009
Other Off-Road Sources			
New Emission Standards for Recreational Boats[5]	ARB	See notes	See notes
Expanded Off-Road Recreational Vehicle Emission Standards[5]	ARB	See notes	See notes
Enhanced Vapor Recovery for Above-Ground Storage Tanks	ARB	2008	2009-2016
Additional Evaporative Emission Standards[5]		2009	2010-2012
		See notes	See notes
Areawide Sources			
Consumer Products Program	ARB	2008	2010
		2009	2013-2014
		2011	2014
Pesticide Regulation	DPR	2008, 2009	2009

[1]In 2010, the State Legislature improved the effectiveness of the Smog Check program (AB 2289), requiring the Bureau of Automotive Repair to direct older vehicles to high performing auto technicians and test stations for inspection and certification. This new program will be effective in 2013.
[2] In July 2008, ARB adopted a regulation that applies to ships operating within 24 nautical miles (nm) of the California Coastline and visiting California ports. These vessels must use less polluting marine distillate fuel for their main engines, auxiliary engines, and boilers instead of heavy fuel oil. The first phase of cleaner fuel for ship main engines took effect in 2009, with a second phase currently scheduled in 2012. By 2015, the International Maritime Organization's fuel sulfur requirements for the North American Emission Control Area will match ARB's phase 2 standards and extend out to 200 miles from California Coastline.
[3]In 2008, ARB awarded Prop 1B bond funds to upgrade line-haul locomotive engines not already accounted for by enforceable agreements with the railroads. Those cleaner line-hauls will begin operation by 2012.
[4]Reductions begin in 2014.
[5] Expected action in 2013, with implementation schedules to be determined in rulemaking process.

VII. Maintenance Plan Contingency Measures

a. Measures to be adopted and "action level"

The District will use the 24-hour design value as the contingency plan trigger. The action levels will be prompted by the monitored levels at the Yuba City-Almond Street monitoring station. In the event that the 24-hour design value (the 3-year average of the 98th percentile) at this site exceeds the level of the 2006 $PM_{2.5}$ NAAQS, within 60 days the District shall commence analyses including meteorological evaluation of high $PM_{2.5}$ days and emissions inventory assessment. The analyses will also include whether the exceedence was caused by an exceptional event or an instrument malfunction.

Once the analyses are complete, 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 that can be implemented prior to the next January 1. The District will make its analyses and summary of voluntary measures available to the public at a Board Meeting.

If it is determined that the violation or exceedence occurred due to sources within the District, then by November 1 of the year following the year in which the trigger has been activated, the District will complete sufficient analyses to begin adoption of necessary rules for ensuring attainment and maintenance of the 24-hour $PM_{2.5}$ NAAQS. If new rules are necessary, then they would be adopted by the following August 31. Each adopted rule will include a schedule that will require compliance with the rule no later than 2 years after adoption of the rule.

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 nonattainment area, open burning restrictions, fugitive dust and opacity restrictions, and restrictions on residential wood burning devices.

b. Commitment to continue to operate monitoring network

The existing $PM_{2.5}$ monitoring network in the Yuba City-Marysville nonattainment area includes a $PM_{2.5}$ FRM monitor located at 773 Almond Street in Yuba City operating on a daily schedule and a non-Federal Equivalence Method (non-FEM) Beta Attenuation Monitor (BAM) running in parallel to the FRM. The two instruments complement each other in the monitoring network as the FRM monitor provides accurate and precise data for purposes of area designation, while the BAM provides real time data used for Air Quality Index reporting, forecasting, and the allocation of agricultural burning. The District is committed to working with the ARB 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).

c. Verification of Continued Attainment

The ARB is responsible for monitoring $PM_{2.5}$ in the Yuba City-Marysville Planning Area. The ARB also oversees the quality assurance of $PM_{2.5}$ data and submits annual

monitoring network plans to the EPA on behalf of the District. The ARB 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 EPA and subject to stakeholder review. To verify continued attainment of the $PM_{2.5}$ standard, the ARB 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 ARB for submission under 40 CFR Part 51, Subpart A.

VIII. 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 VIII-1 provides the motor vehicle emissions budgets (MVEB) which will be used in the conformity process. The MVEBs were considered and approved at the February 27, 2013, meeting of the Regional Planning Partnership.

Table VIII-1: MVEBs

Pollutant	2017	2024
NOx	5.3	3.1
$PM_{2.5}$	0.2	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 U.S.EPA. The District is establishing MVEB for NOx. No MVEB are being established for VOC, SOx, ammonia, or re-entrained road dust.

a. 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 nonattainment area has maintained the standard for the past four years, 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. 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.

b. SOx

Winter on-road SOx emissions are 0.025 tons per day, which equates to about 7% of the total SOx emission inventory. Based on the chemical speciation data[12], sulfate

[12] Chapter IV section C. Components of $PM_{2.5}$ in the Planning Area, page 4-5 of this Redesignation Request/Maintenance Plan.

comprised 6% of the total mass on high $PM_{2.5}$ days. Since the on-road portion is only 7% of the total SOx emissions, it contributes 7% of 6%, or less than 0.5%, 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.

c. Geologic Sources

Re-entrained road dust only needs to be considered in the conformity determination if the State air agency and/or the 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 2011 are estimated at 0.13 tons per day, which equates to 2.5% 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 10% 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 0.2% (assuming that relative ambient contributions reflect relative emissions contributions).

Wintertime unpaved road dust $PM_{2.5}$ emissions in 2011 are 0.16 tons per day or about 3% 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% 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 0.24% (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 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 0.08 tons per day during winter or about 2% 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 6% 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 0.12% (assuming that relative ambient contributions reflect relative emissions contributions).

Table VIII-2 summarizes the geologic source emission inventory for 2011 and projected inventories for 2017 and 2024, 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 VIII-2: Geologic Sources' Contribution to $PM_{2.5}$

SUMMARY CATEGORY NAME	2011	2017	2024
Farming Operations	0.913	0.932	0.878
Construction and Demolition	0.08	0.091	0.092
Paved Road Dust	0.132	0.175	0.192
Unpaved Road Dust	0.162	0.173	0.17
Fugitive Windblown Dust	0.084	0.088	0.085
All geologic sources-Winter	**1.371**	**1.459**	**1.417**
All $PM_{2.5}$ sources-Winter	**5.259**	**5.507**	**5.406**
Paved Road Dust as % of Crustal	10	12	14
Paved Road Dust as % of Winter $PM_{2.5}$ Emissions	2.5	3.2	3.6
Unpaved Road Dust as % of Crustal	12	12	12
Unpaved Road Dust as % of Winter $PM_{2.5}$ Emissions	3.1	3.1	3.1
Construction Dust as % of Crustal	6	6	6
Construction Dust as % of Winter $PM_{2.5}$ Emissions	1.5	1.7	1.7

IX. Conclusion

The Yuba City-Marysville Nonattainment area attained the 2006 24-hour $PM_{2.5}$ standard during the 2006-2008 monitoring period, and continued to monitor attainment through 2011. The determination is based on complete, quality assured, and certified monitoring data from the Yuba City-Almond Street monitor.

The area has attained the standard through the implementation of permanent and enforceable measures adopted by the Feather River Air Quality Management District and the California Air Resources Board.

The area demonstrates maintenance of the standard for ten years through the development of future year inventories and projecting the resultant pollutant contributions to future $PM_{2.5}$ concentrations.

The Maintenance Plan has been prepared to incorporate all of the requirements in section 175A of the CAA. The District requests that EPA find all of the requirements applicable under section 110 and Part D are met and redesignate the Yuba City-Marysville area to attainment for the 2006 24-hour $PM_{2.5}$ NAAQS.

Appendix A

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 2011 Inventory

EIC	SUMMARY CATEGORY NAME	$PM_{2.5}$	NOx	ROG	NH_3	SOx
10	ELECTRIC UTILITIES	0.1129	0.9663	0.0495	0	0.0282
20	COGENERATION	0.0021	0.0046	0.0003	0	0.0002
30	OIL AND GAS PRODUCTION (COMBUSTION)	0.0418	1.7996	0.2646	0	0.0012
50	MANUFACTURING AND INDUSTRIAL	0.0179	0.5476	0.0194	0	0.0589
52	FOOD AND AGRICULTURAL PROCESSING	0.0224	0.4779	0.0409	0	0.0027
60	SERVICE AND COMMERCIAL	0.0756	0.3814	0.0331	0	0.0217
99	OTHER (FUEL COMBUSTION)	0.0069	0.2017	0.0038	0.0098	0.0111
110	SEWAGE TREATMENT	0	0	0	0.0018	0
120	LANDFILLS	0	0	0	0.0326	0
199	OTHER (WASTE DISPOSAL)	0	0	0	0.3133	0
210	LAUNDERING	0	0	0.0081	0	0
220	DEGREASING	0	0	0.2601	0	0
230	COATINGS AND RELATED PROCESS SOLVENTS	0.0042	0	0.299	0	0
240	PRINTING	0	0	0.0188	0	0
250	ADHESIVES AND SEALANTS	0	0	0.0366	0	0
299	OTHER (CLEANING AND SURFACE COATINGS)	0.0002	0.0007	0.1443	0	0
310	OIL AND GAS PRODUCTION	0	0.0001	2.4634	0	0
320	PETROLEUM REFINING	0	0	0.0139	0	0
330	PETROLEUM MARKETING	0	0	0.356	0	0
399	OTHER (PETROLEUM PRODUCTION AND MARKETING)	0	0	0.0075	0	0
410	CHEMICAL	0	0	0.0001	0	0
420	FOOD AND AGRICULTURE	0.3985	0	0.0058	0	0
430	MINERAL PROCESSES	0.0938	0.0109	0	0	0.0014
450	WOOD AND PAPER	0.0806	0	0	0	0
499	OTHER (INDUSTRIAL PROCESSES)	0.0163	0	0	0	0
510	CONSUMER PRODUCTS	0	0	0.9553	0	0
520	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0	0	0.4725	0	0
530	PESTICIDES/FERTILIZERS	0	0	0.1927	2.9231	0
540	ASPHALT PAVING / ROOFING	0	0	0.6042	0	0
610	RESIDENTIAL FUEL COMBUSTION	1.5909	0.5788	2.1301	0.0971	0.0551
620	FARMING OPERATIONS	0.9125	0	0.4316	1.0661	0
630	CONSTRUCTION AND DEMOLITION	0.0803	0	0	0	0
640	PAVED ROAD DUST	0.132	0	0	0	0
645	UNPAVED ROAD DUST	0.162	0	0	0	0
650	FUGITIVE WINDBLOWN DUST	0.084	0	0	0	0
660	FIRES	0.003	0.0006	0.002	0	0
670	MANAGED BURNING AND DISPOSAL	0.8155	0.5082	0.6564	0.0994	0.0927
690	COOKING	0.0486	0	0.0179	0	0
699	OTHER (MISCELLANEOUS PROCESSES)	0	0	0	0.3088	0
710	LIGHT DUTY PASSENGER (LDA)	0.0396	0.6751	0.7538	0.0597	0.0063
722	LIGHT DUTY TRUCKS - 1 (LDT1)	0.0045	0.1342	0.1989	0.0063	0.0007
723	LIGHT DUTY TRUCKS - 2 (LDT2)	0.0201	0.74	0.5654	0.0432	0.0042
724	MEDIUM DUTY TRUCKS (MDV)	0.0174	0.7769	0.487	0.0547	0.0047
732	LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.0038	0.2487	0.2061	0.0168	0.0016
733	LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.0002	0.014	0.013	0.0012	0.0001
734	MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.0002	0.0453	0.0729	0.0005	0
736	HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0	0.0283	0.0232	0.0002	0
742	LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.0175	1.0665	0.0497	0.0006	0.001
743	LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.0026	0.1526	0.0068	0	0.0002

		$PM_{2.5}$	NOx	ROG	NH_3	SOx
744	MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.028	0.7189	0.0391	0.0018	0.0009
746	HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	0.1273	3.5449	0.2071	0.0067	0.0048
750	MOTORCYCLES (MCY)	0.0005	0.0468	0.1533	0.0002	0
760	HEAVY DUTY DIESEL URBAN BUSES (UB)	0.0017	0.0325	0.0012	0.0001	0.0001
762	HEAVY DUTY GAS URBAN BUSES (UB)	0	0.0084	0.0026	0	0
771	SCHOOL BUSES - GAS (SBG)	0	0.0032	0.0029	0	0
772	SCHOOL BUSES - DIESEL (SBD)	0.0029	0.0481	0.0031	0.0001	0
777	OTHER BUSES - GAS (OBG)	0	0.0083	0.0061	0.0001	0
778	OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.0008	0.0266	0.0015	0	0
779	ALL OTHER BUSES - DIESEL (OBD)	0.0008	0.0185	0.0012	0	0
780	MOTOR HOMES (MH)	0.0009	0.0385	0.0068	0.0004	0
810	AIRCRAFT	0.039	0.3706	0.7743	0	0.0519
820	TRAINS	0.0323	1.2534	0.0791	0	0.001
840	RECREATIONAL BOATS	0.0145	0.0536	0.2755	0	0
850	OFF-ROAD RECREATIONAL VEHICLES	0.0012	0.0054	0.1572	0	0
860	OFF-ROAD EQUIPMENT	0.0586	1.1788	0.4488	0.0001	0.0003
870	FARM EQUIPMENT	0.1424	2.5708	0.5383	0.0019	0.0028
890	FUEL STORAGE AND HANDLING	0	0	0.076	0	0
	GRAND TOTAL FOR Yuba City-Marysville $PM_{2.5}$ Nonattainment Area	**5.2589**	**19.2873**	**14.6386**	**5.0466**	**0.3539**

Table B-2: 2017 Projected Inventory

EIC	SUMMARY CATEGORY NAME	$PM_{2.5}$	NOx	SOx
10	ELECTRIC UTILITIES	0.1166	1.0841	0.0508
20	COGENERATION	0.0024	0.0073	0.0004
30	OIL AND GAS PRODUCTION (COMBUSTION)	0.0401	2.0267	0.0021
50	MANUFACTURING AND INDUSTRIAL	0.0196	0.6539	0.113
52	FOOD AND AGRICULTURAL PROCESSING	0.0129	0.2852	0.0021
60	SERVICE AND COMMERCIAL	0.0861	0.4712	0.0428
99	OTHER (FUEL COMBUSTION)	0.008	0.2262	0.0228
110	SEWAGE TREATMENT	0	0	0
120	LANDFILLS	0	0	0
199	OTHER (WASTE DISPOSAL)	0	0	0
210	LAUNDERING	0	0	0
220	DEGREASING	0	0	0
230	COATINGS AND RELATED PROCESS SOLVENTS	0.0052	0	0
240	PRINTING	0	0	0
250	ADHESIVES AND SEALANTS	0	0	0
299	OTHER (CLEANING AND SURFACE COATINGS)	0.0002	0.0008	0
310	OIL AND GAS PRODUCTION	0	0.0001	0
320	PETROLEUM REFINING	0	0	0
330	PETROLEUM MARKETING	0	0	0
399	OTHER (PETROLEUM PRODUCTION AND MARKETING)	0	0	0
410	CHEMICAL	0	0	0
420	FOOD AND AGRICULTURE	0.4928	0	0
430	MINERAL PROCESSES	0.1307	0.0162	0.0035
450	WOOD AND PAPER	0.0977	0	0
499	OTHER (INDUSTRIAL PROCESSES)	0.0323	0	0
510	CONSUMER PRODUCTS	0	0	0
520	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0	0	0
530	PESTICIDES/FERTILIZERS	0	0	0
540	ASPHALT PAVING / ROOFING	0	0	0
610	RESIDENTIAL FUEL COMBUSTION	1.6979	0.7053	0.083
620	FARMING OPERATIONS	0.9317	0	0
630	CONSTRUCTION AND DEMOLITION	0.091	0	0
640	PAVED ROAD DUST	0.1752	0	0
645	UNPAVED ROAD DUST	0.1732	0	0
650	FUGITIVE WINDBLOWN DUST	0.0885	0	0
660	FIRES	0.0041	0.001	0
670	MANAGED BURNING AND DISPOSAL	0.8538	0.5728	0.1688
690	COOKING	0.0578	0	0
699	OTHER (MISCELLANEOUS PROCESSES)	0	0	0
	ON-ROAD MOTOR VEHICLES*	0.2	5.3	0.028
810	AIRCRAFT	0.039	0.3704	0.0518
820	TRAINS	0.0303	1.3433	0.0014
840	RECREATIONAL BOATS	0.0115	0.0522	0
850	OFF-ROAD RECREATIONAL VEHICLES	0.0012	0.0067	0
860	OFF-ROAD EQUIPMENT	0.0535	1.1912	0.0003
870	FARM EQUIPMENT	0.0827	1.6541	0.0028
890	FUEL STORAGE AND HANDLING	0	0	0
	GRAND TOTAL FOR Yuba City-Marysville $PM_{2.5}$ Nonattainment Area	**5.536**	**15.9687**	**0.5736**
	*ON-ROAD MOTOR VEHICLE inventory has been replaced with Motor Vehicle Emission Budgets			

Table B-3: 2024 Projected Inventory

EIC	SUMMARY CATEGORY NAME	$PM_{2.5}$	NOx	SOx
10	ELECTRIC UTILITIES	0.1089	1.0276	0.0481
20	COGENERATION	0.0026	0.0086	0.0004
30	OIL AND GAS PRODUCTION (COMBUSTION)	0.0343	1.7016	0.0017
50	MANUFACTURING AND INDUSTRIAL	0.0193	0.6569	0.1142
52	FOOD AND AGRICULTURAL PROCESSING	0.0081	0.2018	0.0014
60	SERVICE AND COMMERCIAL	0.0878	0.4879	0.0444
99	OTHER (FUEL COMBUSTION)	0.0084	0.2198	0.0246
110	SEWAGE TREATMENT	0	0	0
120	LANDFILLS	0	0	0
199	OTHER (WASTE DISPOSAL)	0	0	0
210	LAUNDERING	0	0	0
220	DEGREASING	0	0	0
230	COATINGS AND RELATED PROCESS SOLVENTS	0.0055	0	0
240	PRINTING	0	0	0
250	ADHESIVES AND SEALANTS	0	0	0
299	OTHER (CLEANING AND SURFACE COATINGS)	0.0002	0.0008	0
310	OIL AND GAS PRODUCTION	0	0.0001	0
320	PETROLEUM REFINING	0	0	0
330	PETROLEUM MARKETING	0	0	0
399	OTHER (PETROLEUM PRODUCTION AND MARKETING)	0	0	0
410	CHEMICAL	0	0	0
420	FOOD AND AGRICULTURE	0.5519	0	0
430	MINERAL PROCESSES	0.1528	0.0188	0.0039
450	WOOD AND PAPER	0.0998	0	0
499	OTHER (INDUSTRIAL PROCESSES)	0.0452	0	0
510	CONSUMER PRODUCTS	0	0	0
520	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0	0	0
530	PESTICIDES/FERTILIZERS	0	0	0
540	ASPHALT PAVING / ROOFING	0	0	0
610	RESIDENTIAL FUEL COMBUSTION	1.6562	0.7179	0.0839
620	FARMING OPERATIONS	0.8785	0	0
630	CONSTRUCTION AND DEMOLITION	0.0922	0	0
640	PAVED ROAD DUST	0.1916	0	0
645	UNPAVED ROAD DUST	0.17	0	0
650	FUGITIVE WINDBLOWN DUST	0.0845	0	0
660	FIRES	0.0049	0.0012	0
670	MANAGED BURNING AND DISPOSAL	0.8226	0.5557	0.1632
690	COOKING	0.0637	0	0
699	OTHER (MISCELLANEOUS PROCESSES)	0	0	0
	ON-ROAD MOTOR VEHICLES*	0.2	3.1	0.028
810	AIRCRAFT	0.039	0.3704	0.0518
820	TRAINS	0.0239	1.1611	0.0016
840	RECREATIONAL BOATS	0.0089	0.0522	0
850	OFF-ROAD RECREATIONAL VEHICLES	0.0012	0.0083	0
860	OFF-ROAD EQUIPMENT	0.034	0.8445	0.0005
870	FARM EQUIPMENT	0.0368	0.9228	0.0028
890	FUEL STORAGE AND HANDLING	0	0	0
	GRAND TOTAL FOR Yuba City-Marysville $PM_{2.5}$ Nonattainment Area	**5.4328**	**12.058**	**0.5705**

*On-Road Motor Vehicle Inventory has been replaced with Motor Vehicle Emission Budgets