

2018 Updates to the California State Implementation Plan

Adopted: October 25, 2018



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EXECUTIVE SUMMARY

California Air Resources Board (CARB or Board) staff prepared the *2018 Updates to the California State Implementation Plan* (2018 SIP Update) to address State Implementation Plan (SIP) requirements of the federal Clean Air Act (Act) for certain nonattainment areas within the State. These updates are necessary to respond to recent court actions and will simultaneously incorporate updated emissions data now available as a result of ongoing CARB staff work. The Board is scheduled to consider the 2018 SIP Update on October 25, 2018. If adopted, CARB will submit the 2018 SIP Update to the U.S. Environmental Protection Agency (U.S. EPA) as a revision to the California SIP.

Sixteen areas in California under State jurisdiction are designated as nonattainment for the 75 parts per billion (ppb) 8-hour ozone standard, with classifications of Marginal, Moderate, Serious, Severe or Extreme. Nonattainment areas were required to submit SIP revisions meeting the applicable requirements of the Act. CARB staff worked with local air quality management districts (AQMD) and air pollution control districts (APCD) to prepare SIP revisions as required to adopt and submit to U.S. EPA through CARB. Four areas in the State are designated as nonattainment for the federal 12 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) annual fine particulate matter (PM_{2.5}) standard, with attainment plans due in 2016.

Recent court decisions determined that U.S. EPA-published guidance documents on implementation of federal ambient air quality standards were not consistent with the Act. As such, despite having followed published guidance, CARB must update portions of submitted SIP revisions for certain nonattainment areas related to reasonable further progress (RFP) and contingency measures. In addition, CARB staff developed a new version of its on-road mobile source Emission FACTor model, EMFAC2017. EMFAC2017 includes updated activity levels and emission rates for on-road heavy-duty vehicles and other mobile sources now available as a result of ongoing CARB staff work.

The 2018 SIP Update contains the relevant updates to SIP elements for the following California nonattainment areas.

- Imperial County
- Ventura County
- Eastern Kern County
- Western Nevada County
- San Diego County
- Sacramento Metropolitan Area (Sacramento Area)
- Western Mojave Desert
- Coachella Valley
- San Joaquin Valley
- South Coast Air Basin

I. BACKGROUND

The Act requires U.S. EPA to set air quality standards for criteria pollutants including ozone and PM_{2.5} and periodically review the latest health research to ensure that standards remain protective of public health. Based on research demonstrating adverse health effects at lower exposure levels, U.S. EPA has set a series of increasingly health protective air quality standards.

The Act also requires that areas not meeting the federal standards develop comprehensive plans that describe how the area will attain the federal standards, known as SIPs. The Act specifies the required SIP elements based on the pollutant and the severity of the air quality problem. U.S. EPA provides guidance for the states to use to meet the requirements of the Act for each standard. Most recently, nonattainment areas within California have adopted and submitted plans as revisions to the California SIP to meet requirements under the 75 ppb 8-hour ozone and 12 µg/m³ annual PM_{2.5} standards.

CARB staff worked with local AQMDs and APCDs to prepare these plans for adoption and submittal to U.S. EPA as revisions to the California SIP. All plans submitted by CARB were developed in accordance with the Act, relevant implementation rules, and all other applicable U.S. EPA guidance available at the time of plan development. However, recent court decisions determined that certain aspects of direction given in U.S. EPA's implementation rules were inconsistent with the intent of the Act, specifically provisions relating to contingency measures and RFP.

The September 2016 decision by the U.S. Court of Appeals for the Ninth Circuit in *Bahr v. U.S. Environmental Protection Agency*¹ (*Bahr* decision) determined that U.S. EPA had erred in approving an already-implemented contingency measure for the Maricopa County, Arizona nonattainment area. U.S. EPA staff has interpreted this decision to mean that contingency measures must include a future action triggered by a failure to attain or failure to make RFP. Prior to this decision, U.S. EPA guidance had allowed areas to fulfill contingency measure requirements by demonstrating that implementation of the ongoing control programs provided emission reductions in the future. For California, ongoing implementation of CARB's mobile source emission reduction program into the future provided the emission reductions needed for contingency. Since the *Bahr* decision only affects states in the Ninth Circuit, the rest of the country still follows U.S. EPA's original policy.

In February 2018, the decision in *South Coast Air Quality Management District v. U.S. Environmental Protection Agency*² (*South Coast* decision), determined that the appropriate baseline year for RFP for the 75 ppb 8-hour ozone standard is 2011. The decision also concluded that U.S. EPA did not properly support their reasoning for allowing areas to use alternative RFP baseline years between 2008 and 2012, as was allowed in the March 2015 final rule, *Implementation of the 2008 National Ambient Air*

¹ *Bahr v. U.S. Environmental Protection Agency*, (9th Cir. 2016) 836 F.3d 1218.

² *South Coast Air Quality Management District v. U.S. Environmental Protection Agency*, (D.C. Cir. 2018)

*Quality Standards for Ozone: State Implementation Plan Requirements*³ (Ozone Rule). California used an alternative baseline year for all plans submitted for the 75 ppb 8-hour ozone standard.

Unrelated to the court decisions, CARB staff has recently updated our on-road mobile source emissions model used in the development of emission inventories and transportation conformity budgets. EMFAC2017⁴ is now available and has been submitted to U.S. EPA for approval. EMFAC2017 reflects updated information related to new emission and deterioration factors, motor vehicle population, and compliance with on-road heavy-duty vehicle regulations. Due to the update with this new information, estimated future year, on-road, mobile source emissions in many areas of the State are higher than in the previous version of the model, EMFAC2014, which was used in the recently-submitted SIPs. CARB is addressing emissions that are causing the increases and will be bringing measures forward in future years that will help to address the sources of increased emissions seen in EMFAC2017.

Given the relevance of these re-estimated emission levels to the SIP elements being updated in accordance with the court decisions, the 2018 SIP Update also accommodates the increases reflected in EMFAC2017 and includes discussion of the effects of these changes on the included SIP elements for areas as needed. Table I-1 summarizes the SIP elements addressed in the 2018 SIP Update for each nonattainment area. CARB staff have developed area chapters to discuss the SIP elements included in the 2018 SIP Update for that area. For areas that only require a contingency element, CARB is addressing these areas in Chapter X, Contingency Measures.

³ 80 FR 12264 <http://www.gpo.gov/fdsys/pkg/FR-2015-03-06/pdf/2015-04012.pdf>

⁴ CARB Mobile Source Emissions Inventory <https://www.arb.ca.gov/msei/categories.htm>

Table I-1. Elements Included in the 2018 SIP Update

Nonattainment Area	Emission Inventory	RFP Demonstration	Transportation Conformity Budgets	Contingency Measures
Imperial County	✓	✓	--	--
Ventura County	✓	✓	--	✓
Eastern Kern County	✓	✓	--	✓
Western Nevada County	--	--	--	✓
San Diego County	--	--	--	✓
Sacramento Area	✓	✓	✓	✓
Western Mojave Desert	✓	✓	✓	✓
Coachella Valley	✓	✓	✓	✓
San Joaquin Valley	✓	✓	✓	✓
South Coast Air Basin	✓	✓	✓	✓

A. Emission Inventories

Sections 172(c)(3), 182(a)(1), and 182(a)(3) of the Act require nonattainment areas to submit an emission inventory for the baseline year and every three-year period thereafter until the attainment date. CARB's planning emission inventory is divided into three major categories: stationary, area-wide, and mobile sources. The summer season inventory is used for ozone planning because it reflects the activity levels and conditions presented when higher ozone levels occur in California nonattainment areas.

California-submitted plans for the 75 ppb 8-hour ozone standard used a 2012 base year planning inventory; the inventory was calibrated to 2012 emissions and activity levels, and inventories for other years were backcasted or forecasted from that base inventory. On-road motor vehicle emissions were generated using CARB's mobile source emissions model, EMFAC2014. Off-road mobile source emissions were generated using CARB's OFFROAD model.⁵ The versions of both models developed for use in the recent SIP revisions, along with the resulting base year inventory, represent significant improvements over versions used in prior SIP updates.

⁵ CARB Mobile Source Emissions Inventory <https://www.arb.ca.gov/msei/categories.htm>

Forecasted inventories are a projection of the base year inventory that reflects expected growth trends for each source category and emission reductions due to adopted control measures. CARB develops emission forecasts by applying growth and control profiles to the base year inventory. Emissions from stationary sources that are reported by districts for previous years are included in the backcast years. For other stationary sources and area-wide sources, emissions for the backcast years are estimated in the same way as the forecast, by applying growth parameters and control profiles to 2012 emissions. In CARB's 2012 base year inventory, growth parameters and control profiles run back to 2000. Mobile source emissions are estimated in the backcast years with the same models that were used for the forecast years. The 2011 inventory reflects actual reported stationary sources and is consistent with the 2012 base year inventory.

Plans submitted into the California SIP by CARB for the 75 ppb 8-hour ozone standard included planning emission inventories consistent with the RFP baseline year of the respective RFP demonstrations. In most cases, this baseline year was 2012, but a baseline year of 2008 was used for the Imperial County and Eastern Kern County nonattainment areas, as permitted by the Ozone Rule.

Because the *South Coast* decision determined that 2011 is the only appropriate RFP baseline year for the 75 ppb 8-hour ozone standard, updated emission inventories are required for all areas in order to demonstrate RFP using a 2011 RFP baseline year. The emission inventories included in Appendix A align with the 2011 baseline year and subsequent milestone years in the RFP demonstrations included for each nonattainment area in Chapters II – IX. The 2011 inventories included to align with the RFP baseline year were backcasted as per the procedure described above.

The 2011 baseline year inventory and the 2012 baseyear inventory are consistent with each other as required by the Ozone Rule. For both, stationary source emissions reflect actual emissions reported from industrial point sources. Stationary emissions also include stationary aggregate sources, such as gasoline dispensing facilities, that are estimated as a group and reported as an aggregated total. The 2011 baseline year emissions for areawide, stationary aggregate sources and mobile are backcasted from the 2012 baseyear, relying on the same growth and control methodology as is used for future years. In addition, both inventories are comprehensive, accurate, and current inventory of actual emissions from all sources of the relevant pollutant or pollutants in each area as required by the Act.

B. Reasonable Further Progress

Sections 172(c)(2) and 182(b)(1) of the Act require attainment plans to provide for RFP. RFP is defined in section 171(1) of the Act as "...such annual incremental reductions in emissions of the relevant air pollutant as are required...for the purpose of ensuring attainment of the applicable national ambient air quality standard by the applicable date." This requirement to demonstrate steady progress in emission reductions

between the baseline year and attainment date ensures that areas will not delay implementation of control programs until immediately before the attainment deadline.

There are two separate progress requirements for ozone nonattainment areas depending upon their classification. The first is a one-time requirement for a 15 percent reduction in reactive organic gases (ROG) emissions over the first six years of the planning period for nonattainment areas classified as Moderate or above (section 182(b)(1)). The requirement for ozone nonattainment areas classified as Serious or higher (section 182(c)(2)(B)) is an additional 3 percent per year cumulative reduction in both ozone precursors, ROG and oxides of nitrogen (NOx), averaged over each consecutive three-year period until attainment.

The Ozone Rule interprets the RFP provisions of the Act, establishing requirements for RFP that depend on the area's classification and whether the area has an approved 15 percent ROG-only rate of progress demonstration for a previous ozone standard that covers all of the 75 ppb 8-hour ozone nonattainment area.⁶ For areas that have an approved 15 percent ROG-only rate of progress demonstration, the Ozone Rule interprets the requirements of the Act to allow these areas to use cumulative reductions in ozone precursors to demonstrate the required reductions by substituting NOx when the necessary reductions cannot be shown using ROG alone.

Some nonattainment areas in the State had never submitted a 15 percent ROG-only rate of progress demonstration prior to the plans submitted for the 75 ppb 8-hour ozone standard. As such, these nonattainment areas demonstrated a reduction in ROG of at least 15 percent from baseline emissions for the first 6 years of the attainment planning period in their recently-submitted plans. Areas classified as Serious and above are also subject to RFP under section 182(c)(2)(B); therefore, the plans demonstrated "an additional emissions reduction of 3 percent per year from the end of the first 6 years,"⁷ averaged over each consecutive three-year period until the attainment year.

As stated previously, CARB utilized an alternative RFP baseline year for all plans submitted for the 75 ppb 8-hour ozone standard; this 2018 SIP Update amends the previous SIP submittals by using a 2011 baseline year consistent with the *South Coast* decision. Further, demonstration of RFP contingency in plans submitted for the 75 ppb 8-hour ozone standard held in reserve 3 percent emission reductions in the baseline year that were carried through all milestone years to the attainment year; this SIP submittal amends the RFP contingency to be consistent with the *Bahr* decision.

The RFP demonstrations included in Chapters II - IX use a 2011 baseline year and do not include the calculation previously included to demonstrate the required 3 percent emission reductions set aside as contingency measures in each RFP milestone year. In addition, since the 2011 RFP baseline year results in different RFP milestone years, transportation conformity budgets must also be established for those years.

⁶ 80 FR 12264 <http://www.gpo.gov/fdsys/pkg/FR-2015-03-06/pdf/2015-04012.pdf>

⁷ Ibid.

C. Transportation Conformity Budgets

Section 176(c) of the Act establishes transportation conformity requirements which are intended to ensure that transportation activities do not interfere with a region's air quality progress. The Act requires that transportation plans, programs, and projects that obtain federal funds or approvals be consistent with, or *conform to* applicable SIPs before being approved by a Metropolitan Planning Organization (MPO).

Conformity to the SIP means that proposed transportation activities must not:

- 1) Cause or contribute to any new violation of any standard,
- 2) Increase the frequency or severity of any existing violation of any standard in any area, or
- 3) Delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

A SIP includes analysis of the region's total emissions inventory from all sources necessary to demonstrate RFP, attainment, or maintenance of the federal standard. The portion of the total emissions inventory from on-road vehicles, which provides RFP and attainment or maintenance of the standard in these analyses, becomes the "motor vehicle emissions budget."⁸ Motor vehicle emissions budgets are the mechanism for ensuring that transportation planning activities conform to the SIP. Budgets are set for each criteria pollutant for which the area is nonattainment and its precursors. Budgets are set for each future RFP milestone year and the attainment year. Subsequent transportation plans and programs produced by transportation planning agencies are required to conform to the SIP by demonstrating that the emissions from the proposed plan, program, or project do not exceed the budget levels established in the applicable SIP.

The MPO(s) with transportation planning jurisdiction over a nonattainment area, in consultation with any other regional transportation agency, prepares a long range regional transportation plan (RTP) at least every four years and a short range funding program, or regional transportation improvement program (RTIP) every two years. Before adopting the RTP or RTIP, an MPO prepares a regional emissions analysis using the proposed plan and program as specified in the federal conformity regulation⁹ and compares those emissions to the emission budgets in the SIP. The MPO may determine the RTP/RTIP conforms if the emissions from the proposed actions are less than the emissions budgets in the SIP. The conformity determination also signifies that the MPO has met other transportation conformity requirements such as interagency consultation and financial constraint.

The plans submitted by CARB to U.S. EPA for the 75 ppb 8-hour ozone established transportation conformity budgets for ozone in California nonattainment areas for the

⁸ 40 CFR Parts 51 and 93 – Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Titles 23 or 49 of the United States Code.

⁹ Ibid.

respective RFP milestone and attainment years. The transportation conformity budgets in the submitted plans were established using EMFAC2014.

On July 20, 2018, CARB transmitted to U.S. EPA for approval California's newest motor vehicle emissions model, EMFAC2017. Emission inventories and budgets developed using EMFAC2017 may exceed the EMFAC2014-based budgets due to factors inherent with the EMFAC2017 update. The federal conformity rule allows a SIP to create a safety margin in an emissions budget.¹⁰ A safety margin is defined as the difference between projected emissions and the emissions necessary to demonstrate progress or attainment. Submitted transportation conformity budgets for some areas included a safety margin for these purposes and CARB documentation has demonstrated that these budgets do not cause or contribute to any new or existing violation of any standard, or delay timely attainment of any standard.

Because the *South Coast* decision determined that 2011 is the only appropriate baseline year for RFP for the 75 ppb 8-hour ozone standard, updated transportation conformity budgets are required for all areas in order to be consistent with the milestone years of the updated RFP demonstrations. The updated emissions budgets presented in Chapters V – IX use EMFAC2014 with vehicle miles travelled (VMT) and speed distributions modeled by the appropriate MPO for each nonattainment area. Since EMFAC2017 will likely be required for use in 2020, the updated post-2020 budgets for certain areas also include a safety margin to allow for increases in projected emissions estimated by EMFAC2017. Guidance on the precursors that must be considered in transportation conformity determinations is found in Section 93.102(b)(2)(i) of the Conformity Regulation, which requires motor vehicle emissions budgets for VOC and NOx as ozone precursors.

All the transportation conformity budgets included in Chapters V – IX were developed in consultation with the appropriate MPO and U.S. EPA, using emissions for a summer average day consistent with the respective attainment and RFP demonstrations using the following method:

- 1) Calculate the on road motor vehicle emissions totals for the ozone precursors of ROG and NOx using EMFAC2014.
- 2) Add in the safety margin, if applicable, needed to allow for increased post-2020 emissions estimates in EMFAC2017 for areas having the carrying capacity to accommodate a safety margin that would not negatively affect the attainment demonstration.
- 3) Sum each pollutant and round each total as appropriate for ROG and NOx.

D. Contingency Measures

Sections 172(c)(9) and 182(c)(9) of the Act require nonattainment area plans to provide for contingency measures, defined in section 172(c)(9) as “specific measures to be undertaken if the area fails to make reasonable further progress, or to attain the national

¹⁰ 40 CFR 93.101 and 93.118(e)(4)(vi)

primary ambient air quality standard by the attainment date...” U.S. EPA guidance has stated that “contingency measures should represent one-year’s worth of progress, amounting to reductions of 3 percent of the baseline emissions inventory for the nonattainment area”.¹¹ As detailed in Chapter X, U.S. EPA has accepted a lesser amount of reductions in certain circumstances. In various rules on implementation of the federal standards, U.S. EPA allowed for the contingency measure requirement to be met via already implemented emission reduction programs, a method that CARB-submitted plans have used. This was demonstrated by including a 3 percent set-aside for RFP in all milestone years, and a separate demonstration that emissions decreased by 3 percent or more in the year following the attainment year for each area.

As previously described, U.S. EPA has interpreted the *Bahr* decision to mean that contingency measures must include a future action triggered by a failure to attain or failure to make RFP. To meet this requirement, the 2018 SIP Update includes two complementary elements for the 75 ppb 8-hour ozone, the 12 µg/m³ annual PM_{2.5}, and 35 µg/m³ 24-hour PM_{2.5} standards for the relevant districts that, together with district contingency measures, fully address the contingency measure requirements of the Act as interpreted by U.S. EPA in response to *Bahr*:

- 1) A contingency measure that specifies new actions that California will take if triggered by a finding that a nonattainment area failed to make an RFP milestone or failed to attain the standard by the applicable attainment date (Chapter X).
- 2) Demonstration of how additional VOC and NO_x emission reductions that are expected to occur due to ongoing State mobile source control programs in each of the nine areas, together with the emissions reductions from the Enhanced Enforcement Activities contingency measures and district contingency measures or commitments, provide for approximately one year’s worth of progress in the years following RFP milestone and attainment years. (Chapters III-IX).

¹¹ 80 FR 12264 <http://www.gpo.gov/fdsys/pkg/FR-2015-03-06/pdf/2015-04012.pdf>

II. SIP ELEMENTS FOR IMPERIAL COUNTY

This chapter contains the necessary elements to be submitted into the California SIP for Imperial County. On June 3, 2016, U.S. EPA classified Imperial County as a Moderate nonattainment area for the 75 ppb 8-hour ozone standard. Moderate areas were required to submit a SIP revision meeting Moderate area requirements and demonstrating attainment of the standard by July 20, 2018. The Act includes a provision under section 179B that allows consideration of the impacts of transport of pollutants across international borders. Section 179B(a) of the Act waives certain planning requirements if it is shown that an area would attain the standard but for emissions emanating from outside of the United States.

The Imperial County APCD, in coordination with CARB staff, prepared the *Imperial County 2017 State Implementation Plan for the 2008 8-Hour Ozone Standard*¹² (Imperial Ozone Plan) to fulfill the requirements of section 179B(a) of the Act by demonstrating that emissions in Imperial County are at a level sufficient to attain the 75 ppb 8-hour ozone standard absent the impact of emissions from Mexico. Imperial County APCD adopted the Imperial Ozone Plan on September 12, 2017, and submitted it to CARB on September 14, 2017. CARB adopted the Imperial Ozone Plan along with the associated CARB Staff Report on October 26, 2017, and submitted them to U.S. EPA as a revision to the California SIP on November 14, 2017. The Imperial Ozone Plan demonstrated that the area would attain the 75 ppb 8-hour ozone standard by 2017 absent the impact of emissions from Mexico, and contained the required planning elements including an emission inventory and RFP demonstration with a baseline year of 2008, following all applicable U.S. EPA-published guidance available at the time.

A. 2011 Baseline Emission Inventory

Included in the Imperial Ozone Plan was a 2012 base year emission inventory, along with the 2008 baseline year to be consistent with the RFP demonstration. Because of the *South Coast* decision, an emission inventory consistent with the updated RFP baseline year of 2011 must be submitted into the SIP. As all relevant planning milestone years have passed and CARB recently received Imperial County emission data in support of the State's submittal for the 2017 National Emissions Inventory, the Imperial County emission inventory has been updated to reflect actual emissions for calendar years 2011 and 2017. The 2018 SIP Update, including Appendix A, provides the relevant 2011 baseline year inventory, which is summarized below.

Table II-1 shows the trends in emissions by source category for the RFP baseline year of 2011 and 2017, the attainment year under a Moderate classification.

¹² Imperial County Air Quality Management Plans
<https://www.arb.ca.gov/planning/sip/planarea/imperial/imperialsip.htm>

Table II-1. Imperial County Emission Inventory
(tpd, summer planning inventory)

Source Category	ROG		NOx	
	2011	2017	2011	2017
Stationary and Area-wide	9.8	6.9	2.4	1.5
On-road Mobile	4.5	3.1	11.3	6.5
Off-road Mobile	5.2	3.5	9.2	7.1
Total	19.5	13.5	23.0	15.2

Note: numbers may not add up due to rounding

B. Reasonable Further Progress

As described in Chapter I, there are two separate progress requirements for ozone nonattainment areas: a one-time requirement for a 15 percent reduction in ROG emissions over the first six years of the planning period; and an additional 3 percent per year reduction, averaged over each consecutive three-year period, of ozone precursor emissions until attainment. Imperial County had never submitted a 15 percent ROG-only rate of progress demonstration prior to the Imperial Ozone Plan.

As such and per the Ozone Rule¹³, the Imperial Ozone Plan included a demonstration that Imperial County achieves a reduction in ROG of “at least 15 percent from baseline emissions” (section 182(b)(1)(A)(i)) for the first 6 years of the attainment planning period. The Ozone Rule allowed for an RFP baseline year of any year from 2008 to 2012. Since 2012 is designation year and is aligned with the base year of the attainment demonstration submitted with the plan; the Imperial Ozone Plan demonstrated RFP for the Imperial County using a baseline year of 2012.

Given the determination in the *South Coast* decision that RFP demonstrations for the 75 ppb 8-hour ozone standard must use a baseline year of 2011, the 2018 SIP Update includes an updated RFP demonstration for Imperial County that uses a 2011 baseline year. Table II-2 demonstrates that Imperial County makes RFP in the attainment year of 2017.

¹³ 80 FR 12264 <http://www.gpo.gov/fdsys/pkg/FR-2015-03-06/pdf/2015-04012.pdf>

Table II-2. Imperial County 75 ppb 8-hour Ozone RFP Demonstration
(tpd, summer planning inventory)

Year	ROG	
	2011	2017
Baseline ROG	19.5	13.5
Required % change since 2011 (ROG or NOx)		15%
Target ROG Level		16.6
Apparent Shortfall (-)/ Surplus (+) in ROG		3.0
Apparent Shortfall (-)/ Surplus (+) in ROG, %		15.5%
ROG Shortfall previously provided by NOx Substitution, %		0%
Actual ROG shortfall (-)/ surplus (+), %		15.5%
Year	NOx	
	2011	2017
Baseline NOx	23.0	15.2
Change in NOx since 2011		7.8
Change in NOx since 2011, %		34.0%
NOx reductions since 2011 already used for ROG substitution through last milestone year, %		0.0%
NOx reductions since 2011 available for ROG substitution in this milestone year, %		34.0%
NOx reductions since 2011 used for ROG substitution in this milestone year, %		0%
NOx reductions since 2011 surplus after meeting ROG substitution needs in this milestone year, %		34.0%
Total shortfall for RFP		0%
RFP Met?		YES

Note: numbers may not add up due to rounding

C. Summary of SIP Submittal for Imperial County

CARB is amending the Imperial Ozone Plan to include RFP emission inventories for ROG and NOx for the 2011 RFP baseline year and 2017 attainment year, and an updated RFP demonstration. Since 2017 has passed and Imperial County successfully made RFP in that year, the RFP contingency measure requirement in section 172(c)(9) of the Act is irrelevant as applied to Imperial County. Further, Imperial Ozone Plan 2017 transportation conformity budgets are still applicable.

III. SIP ELEMENTS FOR VENTURA COUNTY

This chapter contains the necessary elements to be submitted into the California SIP for Ventura County. Effective on July 20, 2012, U.S. EPA designated Ventura County as a nonattainment area with a Serious classification for the 75 ppb 8-hour ozone standard. Serious areas were required to submit a SIP revision meeting Serious area requirements and demonstrating attainment of the standard by July 20, 2021.

The Ventura County APCD, in coordination with CARB staff, prepared the *2016 Ventura County Air Quality Management Plan*¹⁴ (Ventura Ozone Plan) to fulfill the requirements of the Act by demonstrating attainment of the 75 ppb 8-hour ozone standard by 2020. Ventura County APCD adopted the Ventura Ozone Plan on February 14, 2017 and submitted it to CARB on March 2, 2017. CARB adopted the Ventura Ozone Plan on March 23, 2017 and submitted it to U.S. EPA as a revision to the California SIP on April 11, 2017. The Ventura Ozone Plan demonstrated that the area will attain the 75 ppb 8-hour ozone standard in 2020 and contained the required planning elements including an emission inventory, RFP demonstration with a baseline year of 2012, and RFP and attainment contingency provisions, following all applicable U.S. EPA-published guidance available at the time.

A. 2011 Baseline Emission Inventory

Included in the Ventura Ozone Plan was a 2012 base year emission inventory, along with the 2012 baseline year for the RFP demonstration. Because of the *South Coast* decision, an emission inventory consistent with the updated RFP baseline year of 2011 must be submitted into the SIP. The 2018 SIP Update, including Appendix A, provides the relevant 2011 baseline year inventory, which is summarized below.

Table III-1 shows the trends in emissions by source category for the RFP baseline year of 2011, RFP milestone year of 2017, and 2020, the year modeled to demonstrate attainment under a Serious classification.

¹⁴ Ventura County Air Quality Management Plans
<https://www.arb.ca.gov/planning/sip/planarea/vensip.htm>

Table III-1. Ventura County Emission Inventory

(tpd, summer planning inventory)

Source Category	ROG			NOx		
	2011	2017	2020	2011	2017	2020
Stationary and Area-wide	20.2	19.2	19.5	3.0	2.6	2.5
On-road Mobile	9.2	5.4	4.2	13.9	8.0	6.0
Off-road Mobile	8.7	7.2	6.6	9.2	7.9	7.3
Total	38.1	31.7	30.4	26.0	18.5	15.8

Note: numbers may not add up due to rounding

Federal New Source Review (NSR) rules require new and modified major stationary sources that increase emissions in amounts exceeding specified thresholds to provide emission reduction offsets to mitigate the emission growth. Emission reduction offsets represent either on-site emission reductions or the use of banked emission reduction credits (ERC). ERCs are voluntary, surplus emission reductions, which are registered, or banked, with the District for future use as offsets.

Per U.S. EPA policy, ERCs banked before the plan's emission inventory base year must be explicitly treated as emissions in the air. Table III-2 shows the ERCs registered with the District for future use as offsets.

Table III-2. Ventura County ERC Balance as of January 2012

(tpd)

Pollutant	ERC Total
ROG	1.72
NOx	0.82

B. Reasonable Further Progress

As described in Chapter I, there are two separate progress requirements for ozone nonattainment areas: a one-time requirement for a 15 percent reduction in ROG emissions over the first six years of the planning period; and an additional 3 percent per year reduction, averaged over each consecutive three-year period, of ozone precursor emissions until attainment. In 1997, U.S. EPA approved a 15 percent ROG-only rate of progress demonstration for Ventura County for the 1-hour ozone standard covering the entire nonattainment area for the 75 ppb 8-hour ozone standard.¹⁵ As such, the requirement to demonstrate a reduction in ROG of "at least 15 percent from baseline

¹⁵ 62 FR 1150 <https://www.gpo.gov/fdsys/pkg/FR-1997-01-08/pdf/97-144.pdf>

emissions” (section 182(b)(1)(A)(i)) for the first 6 years of the attainment planning period has been met for Ventura County.

As per the Ozone Rule,¹⁶ the Ventura Ozone Plan included a demonstration that Ventura County achieves an 18 percent reduction in ozone precursor emissions for the first six years of the attainment planning period, and an average emission reduction of 3 percent per year after that until the attainment date (section 182(c)(2)). The Ozone Rule allowed for an RFP baseline year of any year from 2008 to 2012. Since 2012 is designation year and is aligned with the base year of the attainment demonstration submitted with the plan; the Ventura Ozone Plan demonstrated RFP for the Ventura County using a baseline year of 2012.

Given the determination in the *South Coast* decision that RFP demonstrations for the 75 ppb 8-hour ozone standard must use a baseline year of 2011, the 2018 SIP Update includes an updated RFP demonstration for Ventura County that uses a 2011 baseline year. Table III-3 demonstrates that Ventura County makes RFP in the milestone years of 2017 and 2020.

¹⁶ 80 FR 12264 <http://www.gpo.gov/fdsys/pkg/FR-2015-03-06/pdf/2015-04012.pdf>

Table III-3. Ventura County 75 ppb 8-hour Ozone RFP Demonstration
(tpd, summer planning inventory)

Year	ROG		
	2011	2017	2020
Baseline ROG*	38.1	31.7	32.1
Required % change since 2011 (ROG or NOx)		18%	27%
Target ROG Level		31.2	27.8
Apparent Shortfall (-)/ Surplus (+) in ROG		-0.5	-4.3
Apparent Shortfall (-)/ Surplus (+) in ROG, %		-1.4%	-11.3%
ROG Shortfall previously provided by NOx Substitution, %		0%	1.4%
Actual ROG shortfall (-)/ surplus (+), %		-1.4%	-9.9%
Year	NOx		
	2011	2017	2020
Baseline NOx*	26.0	18.5	16.6
Change in NOx since 2011		7.5	9.4
Change in NOx since 2011, %		28.8%	36.3%
NOx reductions since 2011 already used for ROG substitution through last milestone year, %		0.0%	1.4%
NOx reductions since 2011 available for ROG substitution in this milestone year, %		28.8%	34.8%
NOx reductions since 2011 used for ROG substitution in this milestone year, %		1.4%	9.9%
NOx reductions since 2011 surplus after meeting ROG substitution needs in this milestone year, %		27.4%	24.9%
Total shortfall for RFP		0%	0%
RFP Met?		YES	YES

* 2020 projections include addition of ERC balance as of January 1, 2012

Note: numbers may not add up due to rounding

C. Contingency Measures

The Ventura Ozone Plan contained a discussion of contingency measure requirements and how these requirements are met for Ventura County by emission reductions from continued implementation of CARB's Mobile Source Program, including fleet turnover between the attainment year and the year following. In addition, the submitted RFP demonstration included a 3 percent set-aside in the first milestone year that was carried through to the attainment year, confirming that the baseline inventory provides enough emission reductions beyond those needed for the RFP targets, to meet contingency measure requirements in the relevant years.

As described in Chapter I, U.S. EPA has interpreted the *Bahr* decision to mean that contingency measures must include a future action triggered by a failure to attain or failure to make RFP and therefore, the past practice can no longer fully meet the contingency measure requirements. As detailed in Chapter X, the 2018 SIP Update includes two complementary elements that, together with district contingency measures,

fully address the contingency measure requirements of the Act as interpreted by U.S. EPA in response to *Bahr*. The tables below represent one of the two elements as relevant to Ventura County and document the amount needed for contingency and the excess emission reduction benefits from implementing California's Mobile Source Program that can be used towards meeting RFP and attainment contingency.

Since progress must first be shown with ROG prior to using NO_x substitution, Table III-4 includes the estimated one year of progress for 2011 and 2020.

Table III-4. Ventura County Contingency Calculation

(tpd, reductions calculated on summer planning inventory)

	2011	2020
3 Percent ROG Emissions	1.1	0.9

An inventory analysis serves the purpose of demonstrating that there are emission reductions in the baseline inventory beyond what is needed for RFP of approximately one year of progress due to future implementation of the Mobile Source Program. Included in Table III-5 are calculations demonstrating that there are enough emission reductions from mobile sources in the baseline inventory for Ventura County sufficient to meet contingency measure requirements in the milestone years.

Table III-5. Ventura County RFP Contingency Reductions

(tpd, reductions calculated on summer planning inventory)

	2017	2020
ROG Reductions Used for RFP	6.3	6.0
NO_x Reductions Used for RFP	0.4	2.9
Total NO_x Reductions Since 2011	7.5	9.4
Surplus NO_x Reductions Available for RFP Contingency	7.1	6.5

Note: numbers may not add up due to rounding

Table III-6 documents the emission reductions that occur after the attainment year due to implementation of California's Mobile Source Program.

Table III-6. Ventura County Attainment Contingency Reductions

(tpd, reductions calculated on summer planning inventory)

	2020 Emissions	2021 Emissions	2020 to 2021 Emission Reductions
Mobile Source ROG	10.8	10.5	0.4
Mobile Source NO_x	13.3	12.4	0.9
Reductions in Post-Attainment Year Available for Attainment Contingency	--	--	1.3

Note: numbers may not add up due to rounding

D. Summary of SIP Submittal for Ventura County

CARB is amending the Ventura Ozone Plan to include RFP emission inventories for ROG and NO_x for the 2011 RFP baseline year, 2017 RFP milestone year, and 2020 attainment year; an updated RFP demonstration; and information needed to support the Act's contingency requirements. Since 2017 has passed and Ventura County successfully made RFP in that year, the RFP contingency measure requirement in section 172(c)(9) of the Act for the 2017 milestone year is irrelevant as applied to Ventura County. Further, Ventura Ozone Plan 2020 transportation conformity budgets are still applicable.

IV. SIP ELEMENTS FOR EASTERN KERN COUNTY

This chapter contains the necessary elements to be submitted into the California SIP for Eastern Kern County. On June 3, 2016, U.S. EPA classified Eastern Kern County as a Moderate nonattainment area for the 75 ppb 8-hour ozone standard. Moderate areas were required to submit a SIP revision meeting Moderate area requirements and demonstrating attainment of the standard by July 20, 2018.

Despite air quality progress in the region due to wide-ranging control programs that have reduced emissions of both ozone precursors, modeling performed demonstrated that Eastern Kern County would not meet the July 20, 2018 Moderate area attainment deadline. As such, the Eastern Kern APCD, in coordination with CARB staff, prepared the *2017 Ozone Attainment Plan for 2008 Federal 75 ppb 8-Hour Ozone Standard*¹⁷ (Eastern Kern Ozone Plan) to fulfill the requirements of the Act for a Serious nonattainment area by demonstrating attainment of the 75 ppb 8-hour ozone standard by 2020.

Eastern Kern APCD adopted the Eastern Kern Ozone Plan on July 27, 2017 and submitted it to CARB on August 3, 2017. CARB adopted the Eastern Kern Ozone Plan on September 28, 2017 and submitted it to U.S. EPA as a revision to the California SIP on October 25, 2017. The Eastern Kern Ozone Plan demonstrated that the area would attain the 75 ppb 8-hour ozone standard in 2020 and contained the required planning elements including an emission inventory, RFP demonstration with a baseline year of 2008, and RFP and attainment contingency provisions, following all applicable U.S. EPA-published guidance available at the time.

A. 2011 Baseline Emission Inventory

Included in the Eastern Kern Ozone Plan was a 2012 base year emission inventory, along with the 2008 baseline year to be consistent with the RFP demonstration. Because of the *South Coast* decision, an emission inventory consistent with the updated RFP baseline year of 2011 must be submitted into the SIP. The 2018 SIP Update, including Appendix A, provides the relevant 2011 baseline year inventory, which is summarized below.

Table IV-1 shows the trends in emissions by source category for the RFP baseline year of 2011, RFP milestone year of 2017, and 2020, the year modeled to demonstrate attainment under a Serious classification.

¹⁷ Eastern Kern Air Quality Management Plans
<https://www.arb.ca.gov/planning/sip/planarea/easternkern/easternkern.htm>

Table IV-1. Eastern Kern County Emission Inventory

(tpd, summer planning inventory)

Source Category	ROG			NOx		
	2011	2017	2020	2011	2017	2020
Stationary and Area-wide	2.0	2.2	2.2	16.4	18.7	19.5
On-road Mobile	2.6	1.4	1.1	8.5	4.2	3.4
Off-road Mobile	4.0	3.7	3.6	6.0	5.2	4.6
Total	8.6	7.2	6.8	31.0	28.1	27.5

Note: numbers may not add up due to rounding

B. Reasonable Further Progress

As described in Chapter I, there are two separate progress requirements for ozone nonattainment areas: a one-time requirement for a 15 percent reduction in ROG emissions over the first six years of the planning period; and an additional 3 percent per year reduction, averaged over each consecutive three-year period, of ozone precursor emissions until attainment. In 1997, U.S. EPA approved a 15 percent ROG-only rate of progress demonstration for Eastern Kern County for the 1-hour ozone standard covering the entire nonattainment area for the 75 ppb 8-hour ozone standard¹⁸. As such, the requirement to demonstrate a reduction in ROG of “at least 15 percent from baseline emissions” (section 182(b)(1)(A)(i)) for the first 6 years of the attainment planning period has been met for the Eastern Kern County.

As per the Ozone Rule¹⁹, the Eastern Kern Ozone Plan included a demonstration that Eastern Kern County achieves an 18 percent reduction in ozone precursor emissions for the first six years of the attainment planning period, and an average emission reduction of 3 percent per year after that until the attainment date (section 182(c)(2)). The Ozone Rule allowed for an RFP baseline year of any year from 2008 to 2012. Since 2012 is designation year and is aligned with the base year of the attainment demonstration submitted with the plan; the Eastern Kern Ozone Plan demonstrated RFP for the Eastern Kern County using a baseline year of 2012.

Given the determination in the *South Coast* decision that RFP demonstrations for the 75 ppb 8-hour ozone standard must use a baseline year of 2011, the 2018 SIP Update includes an updated RFP demonstration for Eastern Kern County that uses a 2011 baseline year. Table IV-2 demonstrates that Eastern Kern County makes RFP in the milestone years of 2017 and 2020.

¹⁸ 62 FR 1150 <https://www.gpo.gov/fdsys/pkg/FR-1997-01-08/pdf/97-144.pdf>

¹⁹ 80 FR 12264 <http://www.gpo.gov/fdsys/pkg/FR-2015-03-06/pdf/2015-04012.pdf>

Table IV-2. Eastern Kern County 75 ppb 8-hour Ozone RFP Demonstration
(tpd, summer planning inventory)

Year	ROG		
	2011	2017	2020
Baseline ROG	8.6	7.2	6.8
Required % change since 2011 (ROG or NOx)		18%	27%
Target ROG Level		7.0	6.3
Apparent Shortfall (-)/ Surplus (+) in ROG		-0.1	-0.6
Apparent Shortfall (-)/ Surplus (+) in ROG, %		-1.4%	-6.6%
ROG Shortfall previously provided by NOx Substitution, %		0%	1.4%
Actual ROG shortfall (-)/ surplus (+), %		-1.4%	-5.3%
Year	NOx		
	2011	2017	2020
Baseline NOx	31.0	28.1	27.5
Change in NOx since 2011		2.8	3.5
Change in NOx since 2011, %		9.2%	11.2%
NOx reductions since 2011 already used for ROG substitution through last milestone year, %		0.0%	1.4%
NOx reductions since 2011 available for ROG substitution in this milestone year, %		9.2%	9.9%
NOx reductions since 2011 used for ROG substitution in this milestone year, %		1.4%	5.3%
NOx reductions since 2011 surplus after meeting ROG substitution needs in this milestone year, %		7.8%	4.6%
Total shortfall for RFP		0%	0%
RFP Met?		YES	YES

Note: numbers may not add up due to rounding

C. Contingency Measures

The Eastern Kern Ozone Plan contained a discussion of contingency measure requirements and how these requirements are met for Eastern Kern County by emission reductions from continued implementation of CARB's Mobile Source Program, including fleet turnover between the attainment year and the year following. In addition, the submitted RFP demonstration included a 3 percent set-aside in the first milestone year that was carried through to the attainment year, confirming that the baseline inventory provides enough emission reductions beyond those needed for the RFP targets, to meet contingency measure requirements in the relevant years.

As described in Chapter I, U.S. EPA has interpreted the *Bahr* decision to mean that contingency measures must include a future action triggered by a failure to attain or failure to make RFP and therefore, the past practice can no longer fully meet the contingency measure requirements. As detailed in Chapter X, the 2018 SIP Update includes two complementary elements that, together with district contingency measures, fully address the contingency measure requirements of the Act as interpreted by

U.S. EPA in response to *Bahr*. The tables below represent one of the two elements as relevant to Eastern Kern County and document the amount needed for contingency and the excess emission reduction benefits from implementing California's Mobile Source Program that can be used towards meeting RFP and attainment contingency.

Since progress must first be shown with ROG prior to using NO_x substitution, Table IV-3 includes the estimated one year of progress for 2011 and 2020.

Table IV-3. Eastern Kern County Contingency Calculation

(tpd, reductions calculated on summer planning inventory)

	2011	2020
3 Percent ROG Emissions	0.3	0.2

An inventory analysis serves the purpose of demonstrating that there are emission reductions in the baseline inventory beyond what is needed for RFP of approximately one year of progress due to future implementation of the Mobile Source Program. Included in Table IV-4 are calculations demonstrating that there are enough emission reductions from mobile sources in the baseline inventory for Eastern Kern County sufficient to meet contingency measure requirements in the milestone years.

Table IV-4. Eastern Kern County RFP Contingency Reductions

(tpd, reductions calculated on summer planning inventory)

	2017	2020
ROG Reductions Used for RFP	1.4	1.7
NO_x Reductions Used for RFP	0.4	2.1
Total NO_x Reductions since 2011	2.8	3.5
Surplus NO_x Reductions Available for RFP Contingency	2.4	1.4

Note: numbers may not add up due to rounding

Table IV-5 documents the emission reductions that occur after the attainment year due to implementation of California's Mobile Source Program.

Table IV-5. Eastern Kern County Attainment Contingency Reductions

(tpd, reductions calculated on summer planning inventory)

	2020 Emissions	2021 Emissions	2020 to 2021 Emission Reductions
Mobile Source ROG	4.6	4.5	0.1
Mobile Source NO_x	8.0	7.5	0.5
Reduction in Post-Attainment Year Available for Attainment Contingency	--	--	0.6

Note: numbers may not add up due to rounding

D. Summary of SIP Submittal for Eastern Kern County

CARB is amending the Eastern Kern Ozone Plan to include RFP emission inventories for ROG and NO_x for the 2011 RFP baseline year, 2017 RFP milestone year, and 2020 attainment year; an updated RFP demonstration; and information needed to support the Act's contingency requirements. Since 2017 has passed and Eastern Kern County successfully made RFP in that year, the RFP contingency measure requirement in section 172(c)(9) of the Act for the 2017 milestone year is irrelevant as applied to Eastern Kern County. Further, Eastern Kern Ozone Plan 2020 transportation conformity budgets are still applicable.

V. SIP ELEMENTS FOR THE SACRAMENTO METROPOLITAN AREA

This chapter contains the necessary elements to be submitted into the California SIP for the Sacramento Metropolitan Area. Effective on July 20, 2012, U.S. EPA designated the Sacramento Metropolitan Area (Sacramento Area) as a nonattainment area with a Severe classification for the 75 ppb 8-hour ozone standard. Severe areas were required to submit a SIP revision meeting Severe area requirements, and demonstrating attainment of the standard by July 20, 2027.

The Sacramento Metropolitan AQMD, El Dorado AQMD, Feather River AQMD, Yolo-Solano AQMD, and Placer County APCD (Sacramento Air Districts), in coordination with CARB staff, prepared the *Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment and Reasonable Further Progress Plan*²⁰ (Sacramento Ozone Plan) to fulfill the requirements of the Act as applicable for a Severe nonattainment area. The Sacramento Air Districts adopted the Sacramento Ozone Plan on dates between August 24 and October 12, 2017 and submitted the plan to CARB on September 18, 2017. CARB adopted the Sacramento Ozone Plan on November 16, 2017 and submitted it to U.S. EPA as a revision to the California SIP on December 18, 2017.

Modeling performed for the plan showed that the Sacramento Area could demonstrate attainment of the 75 ppb 8-hour ozone standard in 2024, ahead of the Severe area deadline. Thus, the Sacramento Ozone Plan demonstrated that the Sacramento Area will attain in 2024 and contained the required planning elements including an emission inventory, RFP demonstration with a baseline year of 2012, transportation conformity budgets, and RFP and attainment contingency provisions, following all applicable U.S. EPA-published guidance available at the time.

A. 2011 Baseline Emission Inventory

Included in the Sacramento Ozone Plan was a 2012 base year emission inventory, along with the 2012 baseline year for the RFP demonstration. Because of the *South Coast* decision, an emission inventory consistent with the updated RFP baseline year of 2011 must be submitted into the SIP. The 2018 SIP Update, including Appendix A, provides the relevant 2011 baseline year inventory, which is summarized below.

Table V-1 shows the trends in emissions by source category for the RFP baseline year of 2011; RFP milestone years of 2017, 2020, and 2023; and 2024, the year modeled to demonstrate attainment for the Sacramento Area.

²⁰ Sacramento Metro Region Air Quality Management Plans
<https://www.arb.ca.gov/planning/sip/planarea/sacsip/sacmetsip.htm>

Table V-1. Sacramento Area Emission Inventory
(tpd, summer planning inventory)

Source Category	ROG					NOx				
	2011	2017	2020	2023	2024	2011	2017	2020	2023	2024
Stationary and Area-wide	48.6	49.8	50.9	52.1	52.5	10.6	9.1	8.9	8.9	8.9
On-road Mobile	36.1	21.2	17.0	14.4	13.8	67.2	37.8	29.4	20.3	19.2
Off-road Mobile	26.9	20.7	18.4	16.9	16.5	29.9	24.8	21.6	19.1	18.5
Total	111.6	91.7	86.3	83.5	82.9	107.7	71.7	59.8	48.2	46.5

Note: numbers may not add up due to rounding

Federal New Source Review (NSR) rules require new and modified major stationary sources that increase emissions in amounts exceeding specified thresholds to provide emission reduction offsets to mitigate the emission growth. Emission reduction offsets represent either on-site emission reductions or the use of banked emission reduction credits (ERC). ERCs are voluntary, surplus emission reductions, which are registered, or banked, with the District for future use as offsets.

Per U.S. EPA policy, ERCs banked before the plan's emission inventory base year must be explicitly treated as emissions in the air. Table V-2 shows the ERCs registered in the Sacramento Area for future use as offsets.

Table V-2. Sacramento Area ERC Balance as of January 2012
(tpd)

Pollutant	
ROG	5
NOx	4

B. Reasonable Further Progress

As described in Chapter I, there are two separate progress requirements for ozone nonattainment areas: a one-time requirement for a 15 percent reduction in ROG emissions over the first six years of the planning period; and an additional 3 percent per year reduction, averaged over each consecutive three-year period, of ozone precursor emissions until attainment. In 1997, U.S. EPA approved a 15 percent ROG-only rate of progress demonstration for the Sacramento Area for the 1-hour ozone standard covering the entire nonattainment area for the 75 ppb 8-hour ozone standard²¹. As such, the requirement to demonstrate a reduction in ROG of "at least 15 percent from

²¹ 62 FR 1150 <https://www.gpo.gov/fdsys/pkg/FR-1997-01-08/pdf/97-144.pdf>

baseline emissions” (section 182(b)(1)(A)(i)) for the first 6 years of the attainment planning period has been met for the Sacramento Area.

As per the Ozone Rule²², the Sacramento Ozone Plan included a demonstration that the Sacramento Area achieves an 18 percent reduction in ozone precursor emissions for the first six years of the attainment planning period, and an average emission reduction of 3 percent per year after that until the attainment date (section 182(c)(2)). The Ozone Rule allowed for an RFP baseline year of any year from 2008 to 2012. Since 2012 is designation year and is aligned with the base year of the attainment demonstration submitted with the plan; the Sacramento Ozone Plan demonstrated RFP for the Sacramento Area using a baseline year of 2012.

Given the determination in the *South Coast* decision that RFP demonstrations for the 75 ppb 8-hour ozone standard must use a baseline year of 2011, the 2018 SIP Update includes an updated RFP demonstration for the Sacramento Area that uses a 2011 baseline year. Table V-3 demonstrates that the Sacramento Area makes RFP in the milestone years of 2017, 2020, 2023, and 2024.

²² 80 FR 12264 <http://www.gpo.gov/fdsys/pkg/FR-2015-03-06/pdf/2015-04012.pdf>

Table V-3. Sacramento Area 75 ppb 8-hour Ozone RFP Demonstration
(tpd, summer planning inventory)

Year	ROG				
	2011	2017	2020	2023	2024
Baseline ROG*	111.6	91.7	91.3	88.5	87.9
Transportation Conformity Safety Margin	0.0	0.0	0.0	0.0	0.5
Baseline ROG + Safety Margin	111.6	91.7	91.3	88.5	88.4
Required % change since 2011 (ROG or NOx)		18%	27%	36%	39%
Target ROG Level		91.5	81.5	71.4	68.1
Apparent Shortfall (-)/ Surplus (+) in ROG		-0.2	-9.9	-17.0	-20.3
Apparent Shortfall (-)/ Surplus (+) in ROG, %		-0.1%	-8.8%	-15.3%	-18.2%
ROG Shortfall previously provided by NOx Substitution, %		0%	0.1%	8.8%	15.3%
Actual ROG shortfall (-)/ surplus (+), %		-0.1%	-8.7%	-6.4%	-2.9%
Year	NOx				
	2011	2017	2020	2023	2024
Baseline NOx*	107.7	71.7	63.8	52.2	50.5
Transportation Conformity Safety Margin	0.0	0.0	0.4	0.9	1.2
Baseline NOx + Safety Margin	107.7	71.7	64.2	53.2	51.7
Change in NOx since 2011		36.0	43.4	54.5	56.0
Change in NOx since 2011, %		33.4%	40.3%	50.6%	52.0%
NOx reductions used for ROG substitution through last milestone year, %		0%	0.1%	8.8%	15.3%
NOx reductions since 2011 available for ROG substitution in this milestone year, %		33.4%	40.2%	41.8%	36.7%
NOx reductions since 2011 used for ROG substitution in this milestone year, %		0.1%	8.7%	6.4%	2.9%
NOx reductions since 2011 surplus after meeting ROG substitution needs in this milestone year, %		33.3%	31.5%	35.3%	33.8%
Total shortfall for RFP		0%	0%	0%	0%
RFP Met?		YES	YES	YES	YES

*year 2020 and beyond projections include ERC balances as of January 1, 2012

Note: numbers may not add up due to rounding

C. Transportation Conformity Budgets

As discussed in Chapter I, section 176(c) of the Act establishes transportation conformity requirements which are intended to ensure that transportation activities do not interfere with a region's air quality progress. The Act requires that transportation plans, programs, and projects that obtain federal funds or approvals conform to applicable SIPs and must not cause or contribute to any new or existing violation of any standard, or delay timely attainment of any standard.

The Sacramento Ozone Plan included transportation conformity budgets corresponding with the milestone years in the submitted RFP demonstration. To align with the updated RFP in Table V-3, and to allow for the change in on-road mobile source emissions

resulting from updated data in EMFAC2017 discussed in Chapter I, amended transportation conformity budgets are included in Table V-4.

The Sacramento Area Council of Governments (SACOG), the MPO for the greater Sacramento area, prepares a long range metropolitan transportation plan (MTP) at least every four years and a short range funding program, or metropolitan transportation improvement program (MTIP), every two years. Before adopting the MTP or MTIP, SACOG prepares a regional emissions analysis using the proposed plan and program as specified in the federal conformity regulation²³ and compares those emissions to the emission budgets in the SIP. The MPO may determine the MTP/MTIP conforms if the emissions from the proposed actions are less than the emissions budgets in the SIP. The conformity determination also signifies that the MPO has met other transportation conformity requirements such as interagency consultation and financial constraint.

The 2018 SIP Update establishes transportation conformity budgets for ozone in the Sacramento Area for the progress years of 2020 and 2023, as well as the attainment year of 2024.

The federal conformity regulation allows a SIP to create a safety margin in an emissions budget²⁴. A safety margin is defined as the difference between projected emissions and the emissions necessary to demonstrate progress or attainment. This plan creates safety margins of 0.5 tpd of ROG in 2024, and 0.41 tpd, 0.92 tpd, and 1.17 tpd of NOx in 2020, 2023 and 2024, respectively. The safety margins are included in the 2018 SIP Update to accommodate the increased emissions seen in EMFAC2017.

The safety margins are included in the RFP demonstration, thereby demonstrating that the transportation conformity budgets do not interfere with demonstrating progress. In the modeled attainment demonstration submitted as part of the Sacramento Ozone plan, the Sacramento Area was forecasted to have a design value of 75.2 ppb in 2022; based on this information, the Sacramento Air Districts selected 2024 as the year in which the Sacramento Area could demonstrate attainment as expeditiously as practicable. Given the modeled design value in 2022 and sensitivity runs performed as part of the demonstration, it can be concluded that the 0.5 tpd ROG and 1.17 tpd NOx safety margins in the attainment year of 2024 do not interfere with attainment.

The emissions budgets presented below use EMFAC2014 with SACOG-modeled VMT and speed distributions. The VMT and speed distribution data for all years except 2011 is from the 2016 MTP/SCS, Amendment 1, which was adopted by SACOG in September 2016. Year 2011 data is interpolated from Year 2012 and Year 2008 data obtained from the 2016 MTP/SCS and 2012 MTP/SCS²⁵, respectively. Because the Sacramento Federal Nonattainment Area (SFNA) includes the eastern portion of Solano County located within the Metropolitan Transportation Commission's (MTC) boundaries, vehicle activity data for this area was provided by MTC and is from their Amended Plan

²³ 40 CFR Parts 51 and 93 – Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Titles 23 or 49 of the United States Code.

²⁴ 40 CFR 93.101 and 93.118(e)(4)(vi)

²⁵ The 2012 MTP/SCS was adopted by SACOG in April 2012 and last amended in September 2014.

Bay Area (2015). Because these data represent the most recent data available, there are small differences between the budgets and planning inventory. These differences do not impact the RFP or attainment demonstrations. EMFAC2014 was approved for use in SIPs and transportation conformity by U.S. EPA on December 14, 2015.

Calculation Methodology

The budgets in Table V-4 were developed in consultation with SACOG and U.S. EPA, using emissions for a summer average day consistent with the ozone attainment and progress demonstrations, using the following method:

- 1) Calculate the on-road motor vehicle emissions totals for the ozone precursors (ROG and NO_x) using EMFAC2014.
- 2) Add in the safety margin which can be accommodated by the region's attainment demonstration.
- 3) Sum each pollutant and round each total up to the nearest ton for ROG and NO_x.

Table V-4 contains the emissions budgets for the Sacramento Area.

Table V-4. Transportation Conformity Budgets for the 75 ppb 8-hour Ozone Standard in the Sacramento Area
(tpd, summer planning inventory)

Sacramento Area	2020		2023		2024	
	ROG	NO _x	ROG	NO _x	ROG	NO _x
Baseline Emissions	16.82	29.19	14.39	20.31	13.81	19.26
Safety Margin	0	0.41	0	0.92	0.5	1.17
Total	16.82	29.60	14.39	21.23	14.31	20.43
Conformity (Emissions) Budget	17	30	15	22	15	21

D. Contingency Measures

The Sacramento Ozone Plan contained a discussion of contingency measure requirements and how these requirements are met for Sacramento Area by emission reductions from continued implementation of CARB's Mobile Source Program, including fleet turnover between the attainment year and the year following. In addition, the submitted RFP demonstration included a 3 percent set-aside in the first milestone year that was carried through to the attainment year, confirming that the baseline inventory provides enough emission reductions beyond those needed for the RFP targets, to meet contingency measure requirements in the relevant years.

As described in Chapter I, U.S. EPA has interpreted the *Bahr* decision to mean that contingency measures must include a future action triggered by a failure to attain or failure to make RFP and therefore, the past practice can no longer fully meet the contingency measure requirements. As detailed in Chapter X, the 2018 SIP Update includes two complementary elements that, together with district contingency measures, fully address the contingency measure requirements of the Act as interpreted by U.S. EPA in response to *Bahr*. The tables below represent one of the two elements as relevant to the Sacramento Area and document the amount needed for contingency and the excess emission reduction benefits from implementing California's Mobile Source Program that can be used towards meeting RFP and attainment contingency.

Since progress must first be shown with ROG prior to using NO_x substitution, Table V-5 includes the estimated one year of progress for 2011 and 2024.

Table V-5. Sacramento Area Contingency Calculation

(tpd, reductions calculated on summer planning inventory)

	2011	2024
3 Percent ROG Emissions	3.3	2.6

An inventory analysis serves the purpose of demonstrating that there are emission reductions in the baseline inventory beyond what is needed for RFP of approximately one year of progress due to future implementation of the Mobile Source Program. Included in Table V-6 are calculations demonstrating that there are enough emission reductions from mobile sources in the baseline inventory for the Sacramento Area sufficient to meet contingency measure requirements in the milestone years.

Table V-6. Sacramento Area RFP Contingency Reductions

(tpd, reductions calculated on summer planning inventory)

	2017	2020	2023	2024
ROG Reductions Used for RFP	19.9	20.3	23.1	23.2
NO_x Reductions Used for RFP	0.2	9.5	16.5	19.6
Total NO_x Reductions since 2011	36.0	43.4	54.5	56.0
Surplus NO_x Reductions Available for RFP Contingency	35.8	33.9	38.1	36.4

Note: numbers may not add up due to rounding

Table V-7 documents the emission reductions that occur after the attainment year due to implementation of California's Mobile Source Program.

Table V-7. Sacramento Metropolitan Area Attainment Contingency Reductions
(tpd reductions calculated on summer planning inventory)

	2024 Emissions	2025 Emissions	2024 to 2025 Emission Reductions
Mobile Source ROG	30.3	29.4	0.9
Mobile Source NOx	37.7	35.9	1.8
Reductions in Post-Attainment Year Available for Attainment Contingency	--	--	2.7

Note: numbers may not add up due to rounding

E. Summary of SIP Submittal for the Sacramento Area

CARB is amending the Sacramento Ozone Plan to include RFP emission inventories for ROG and NOx for the 2011 RFP baseline year, 2017, 2020, and 2023 RFP milestone years, and 2024 attainment year; an updated RFP demonstration; updated transportation conformity budgets; and information needed to support the Act's contingency requirements. Since 2017 has passed and the Sacramento Area successfully made RFP in that year, the RFP contingency measure requirement in section 172(c)(9) of the Act for the 2017 milestone year is irrelevant as applied to the Sacramento Area.

VI. SIP ELEMENTS FOR THE WESTERN MOJAVE DESERT

This chapter contains the necessary elements to be submitted into the California SIP for the Western Mojave Desert. Effective on July 20, 2012, U.S. EPA designated the Western Mojave Desert as a nonattainment area with a Severe classification for the 75 ppb 8-hour ozone standard. Severe areas were required to submit a SIP revision meeting Severe area requirements, and demonstrating attainment of the standard by July 20, 2027.

The Mojave Desert AQMD and Antelope Valley AQMD (Mojave Air Districts), in coordination with CARB staff, prepared the *Mojave Desert Federal 75 ppb Ozone Nonattainment Plan for the Western Mojave Desert Nonattainment Plan*, and the *Antelope Valley Federal 75 ppb Ozone Nonattainment Plan for the Western Mojave Desert Nonattainment Area*²⁶ (Mojave Ozone Plan), to fulfill the requirements of the Act by demonstrating attainment of the standard by 2026. The Mojave Desert AQMD and Antelope Valley AQMD adopted the Mojave Ozone Plan on February 27, 2017 and March 21, 2017, respectively, and submitted the plans to CARB on September 18, 2017. CARB adopted the Mojave Ozone Plan on May 25, 2017 and submitted it to U.S. EPA as a revision to the California SIP on June 2, 2017.

The Mojave Ozone Plan demonstrated that the area will attain the 75 ppb 8-hour ozone standard in 2026 and contained the required planning elements including an emission inventory, RFP demonstration with a baseline year of 2012, transportation conformity budgets, and RFP and attainment contingency provisions, following all applicable U.S. EPA-published guidance available at the time.

A. 2011 Baseline Emission Inventory

Included in the Mojave Ozone Plan was a 2012 base year emission inventory, along with the 2012 baseline year for the RFP demonstration. Because of the *South Coast* decision, an emission inventory consistent with the updated RFP baseline year of 2011 must be submitted into the SIP. The 2018 SIP Update, including Appendix A, provides the relevant 2011 baseline year inventory, which is summarized below.

Table VI-1 shows the trends in emissions by source category for the RFP baseline year of 2011; RFP milestone years of 2017, 2020 and 2023; and 2026, the year modeled to demonstrate attainment for the Western Mojave Desert.

²⁶ Western Mojave Desert Air Quality Management Plans
<https://www.arb.ca.gov/planning/sip/planarea/mojavesedsip.htm>

Table VI-1. Western Mojave Desert Emission Inventory
(tpd, summer planning inventory)

Source Category	ROG					NOx				
	2011	2017	2020	2023	2026	2011	2017	2020	2023	2026
Stationary and Area-wide	24.4	25.9	27.3	28.5	29.5	21.9	34.9	39.0	41.4	43.0
On-road Mobile	16.7	9.9	7.9	6.7	6.0	42.7	22.1	17.6	11.0	9.8
Off-road Mobile	7.6	5.8	5.3	5.1	5.0	33.9	27.6	23.2	19.7	15.7
Total	48.7	41.5	40.4	40.4	40.5	98.4	84.5	79.8	72.1	68.5

Note: numbers may not add up due to rounding

B. Reasonable Further Progress

As described in Chapter I, there are two separate progress requirements for ozone nonattainment areas: a one-time requirement for a 15 percent reduction in ROG emissions over the first six years of the planning period; and an additional 3 percent per year reduction, averaged over each consecutive three-year period, of ozone precursor emissions until attainment. In 2017, U.S. EPA approved a 15 percent ROG-only rate of progress demonstration for the Western Mojave Desert for the 80 ppb 8-hour ozone standard covering the entire nonattainment area for the 75 ppb 8-hour ozone standard.²⁷ As such, the requirement to demonstrate a reduction in ROG of “at least 15 percent from baseline emissions” (section 182(b)(1)(A)(i)) for the first 6 years of the attainment planning period has been met for the Western Mojave Desert.

As per the Ozone Rule,²⁸ the Mojave Ozone Plan included a demonstration that the Western Mojave Desert achieves an 18 percent reduction in ozone precursor emissions for the first six years of the attainment planning period, and an average emission reduction of 3 percent per year after that until the attainment date (section 182(c)(2)). The Ozone Rule allowed for an RFP baseline year of any year from 2008 to 2012. Since 2012 is designation year and is aligned with the base year of the attainment demonstration submitted with the plan; the Mojave Ozone Plan demonstrated RFP for the Western Mojave Desert using a baseline year of 2012.

Given the determination in the *South Coast* decision that RFP demonstrations for the 75 ppb 8-hour ozone standard must use a baseline year of 2011, the 2018 SIP Update includes an updated RFP demonstration for the Western Mojave Desert that uses a

²⁷ 82 FR 28560 <https://www.gpo.gov/fdsys/pkg/FR-2017-06-23/pdf/2017-12966.pdf>

²⁸ 80 FR 12264 <http://www.gpo.gov/fdsys/pkg/FR-2015-03-06/pdf/2015-04012.pdf>

2011 baseline year. Table VI-2 demonstrates that the Western Mojave Desert makes RFP in the milestone years of 2017, 2020, 2023, and 2026.

Table VI-2. Western Mojave Desert 75 ppb 8-hour Ozone RFP Demonstration
(tpd, summer planning inventory)

Year	ROG				
	2011	2017	2020	2023	2026
Baseline ROG	48.7	41.5	40.4	40.4	40.5
Transportation Conformity Safety Margin	0.0	0.0	0.0	0.0	0.2
Baseline ROG + Safety Margin	48.7	41.5	40.4	40.4	40.7
Required % change since 2011 (ROG or NOx)		18%	27%	36%	45%
Target ROG Level		40.0	35.6	31.2	26.8
Apparent Shortfall (-)/ Surplus (+) in ROG		-1.5	-4.8	-9.2	-13.9
Apparent Shortfall (-)/ Surplus (+) in ROG, %		-3.1%	-9.9%	-18.8%	-28.4%
ROG Shortfall previously provided by NOx Substitution, %		0%	3.1%	9.9%	18.8%
Actual ROG shortfall (-)/ surplus (+), %		-3.1%	-6.8%	-8.9%	-9.6%
Year	NOx				
	2011	2017	2020	2023	2026
Baseline NOx	98.4	84.5	79.8	72.1	68.5
Transportation Conformity Safety Margin	0.0	0.0	0.0	0.0	0.4
Baseline NOx + Safety Margin	98.4	84.5	79.8	72.1	68.9
Change in NOx since 2011		13.8	18.6	26.2	29.4
Change in NOx since 2011, %		14.1%	18.9%	26.7%	29.9%
NOx reductions used for ROG substitution through last milestone year, %		0	3.1%	9.9%	18.8%
NOx reductions since 2011 available for ROG substitution in this milestone year, %		14.1%	15.8%	16.7%	11.1%
NOx reductions since 2011 used for ROG substitution in this milestone year, %		3.1%	6.8%	8.9%	9.6%
NOx reductions since 2011 surplus after meeting ROG substitution needs in this milestone year, %		10.9%	9.0%	7.9%	1.5%
Total shortfall for RFP		0%	0%	0%	0%
RFP Met?		YES	YES	YES	YES

Note: numbers may not add up due to rounding

C. Transportation Conformity Budgets

As discussed in Chapter I, section 176(c) of the Act establishes transportation conformity requirements which are intended to ensure that transportation activities do not interfere with a region's air quality progress. The Act requires that transportation plans, programs, and projects that obtain federal funds or approvals conform to

applicable SIPs and must not cause or contribute to any new or existing violation of any standard, or delay timely attainment of any standard.

The Mojave Ozone Plan included transportation conformity budgets corresponding with the milestone years in the submitted RFP demonstration. To align with the updated RFP in Table VI-2, and to allow for the change in on-road mobile source emissions resulting from updated data in EMFAC2017 discussed in Chapter I, amended transportation conformity budgets are included in Table VI-3.

The Southern California Association of Governments (SCAG), the MPO in Southern California, in consultation with the Los Angeles and San Bernardino County Transportation Commissions, prepares a long range RTP at least every four years and a short range funding program, or RTIP, every two years. Before adopting the RTP/RTIP, SCAG prepares a regional emissions analysis using the proposed plan and program as specified in the federal conformity regulation²⁹ and compares those emissions to the emission budgets in the SIP. The MPO may determine the RTP/RTIP conforms if the emissions from the proposed actions are less than the emissions budgets in the SIP. The conformity determination also signifies that the MPO has met other transportation conformity requirements such as interagency consultation and financial constraint.

The 2018 SIP Update establishes transportation conformity budgets for ozone in the Western Mojave Desert for the progress years of 2020 and 2023, as well as the attainment year of 2026.

The federal conformity regulation allows a SIP to create a safety margin in an emissions budget.³⁰ A safety margin is defined as the difference between projected emissions and the emissions necessary to demonstrate progress or attainment. This plan creates safety margins of 0.2 tpd of ROG and 0.4 tpd of NOx in 2026. Including these safety margins, the transportation conformity budgets remain less than those submitted in the Mojave Ozone Plan; as such, these budgets do not interfere with the modeled attainment demonstration. The safety margins are also included in the updated RFP demonstration in Table VI-2, thereby demonstrating that the transportation conformity budgets do not interfere with demonstrating progress.

The emissions budgets presented below use EMFAC2014 with SCAG-modeled VMT and speed distributions. EMFAC2014 was approved for use in SIPs and transportation conformity by U.S. EPA on December 14, 2015. The VMT and speed distribution data are from the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Amendment 2, which was adopted by SCAG in July 2017. Because these data represent the most recent data available, there are some differences between the budgets and planning inventory. These differences do not impact the RFP or attainment demonstrations.

²⁹ 40 CFR Parts 51 and 93 – Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Titles 23 or 49 of the United States Code.

³⁰ 40 CFR 93.101 and 93.118(e)(4)(vi)

Calculation Methodology

The budgets in Table VI-3 were developed in consultation with SCAG and U.S. EPA, using emissions for a summer average day consistent with the ozone attainment and progress demonstrations, using the following method:

- 1) Calculate the on-road motor vehicle emissions totals for the ozone precursors (ROG and NO_x) using EMFAC2014.
- 2) Add in the safety margin which can be accommodated by the region's attainment demonstration.
- 3) Sum each pollutant and round each total up to the nearest tenth (0.1) of a ton for ROG and NO_x.

Table VI-3 contains the emissions budgets for the Western Mojave Desert.

Table VI-3. Transportation Conformity Budgets for the 75 ppb 8-hour Ozone Standard in the Western Mojave Desert Ozone Nonattainment Area
(tpd, summer planning inventory)

Western Mojave Desert Ozone Nonattainment Area	2020		2023		2026	
	ROG	NO _x	ROG	NO _x	ROG	NO _x
Baseline Emissions	7.87	17.57	6.73	10.98	5.98	9.79
Safety Margin	--	--	--	--	0.20	0.40
Total	7.87	17.57	6.73	10.98	6.18	10.19
Conformity (Emissions) Budget	7.9	17.6	6.8	11.0	6.2	10.2

D. Contingency Measures

The Mojave Ozone Plan included a commitment by the Mojave Desert AQMD to request implementation of the Enhanced Smog Check Program for the area should the need for an attainment contingency measure be triggered. The Enhanced Smog Check Program is already being implemented in Antelope Valley AQMD. Participation in the Enhanced Smog Check Program does not require adoption of additional regulations.

In addition, the Mojave Ozone Plan contained a discussion of contingency measure requirements and how these requirements are met for the Western Mojave Desert by emission reductions from continued implementation of CARB's Mobile Source Program, including fleet turnover between the attainment year and the year following. The submitted RFP demonstration also included a 3 percent set-aside in the first milestone year that was carried through to the attainment year, confirming that the baseline

inventory provides enough emission reductions beyond those needed for the RFP targets, to meet contingency measure requirements in the relevant years.

As described in Chapter I, U.S. EPA has interpreted the *Bahr* decision to mean that contingency measures must include a future action triggered by a failure to attain or failure to make RFP and therefore, the past practice can no longer fully meet the contingency measure requirements. As detailed in Chapter X, the 2018 SIP Update includes two complementary elements that, together with district contingency measures, fully address the contingency measure requirements of the Act as interpreted by U.S. EPA in response to *Bahr*. The tables below represent one of the two elements as relevant to the Western Mojave Desert and document the amount needed for contingency and the excess emission reduction benefits from implementing California's Mobile Source Program that can be used towards meeting RFP and attainment contingency.

Since progress must first be shown with ROG prior to using NO_x substitution, Table VI-4 includes the estimated one year of progress for 2011 and 2026.

Table VI-4. Western Mojave Desert Contingency Calculation

(tpd, reductions calculated on summer planning inventory)

	2011	2026
3 Percent ROG Emissions	1.5	1.2

An inventory analysis serves the purpose of demonstrating that there are emission reductions in the baseline inventory beyond what is needed for RFP of approximately one year of progress due to future implementation of the Mobile Source Program. Included in Table VI-5 are calculations demonstrating that there are enough emission reductions from mobile sources in the baseline inventory for Western Mojave Desert sufficient to meet contingency measure requirements in the milestone years.

Table VI-5. Western Mojave Desert RFP Contingency Reductions

(tpd, reductions calculated on summer planning inventory)

	2017	2020	2023	2026
ROG Reductions Used for RFP	7.2	8.3	8.4	8.3
NO_x Reductions Used for RFP	3.1	9.8	18.5	28.0
Total NO_x Reductions since 2011	13.8	18.6	26.2	29.4
Surplus NO_x Reductions Available for RFP Contingency	10.7	8.8	7.8	1.5

Note: numbers may not add up due to rounding

Table VI-6 documents the emission reductions that occur after the attainment year due to implementation of California's Mobile Source Program.

Table VI-6. Western Mojave Desert Attainment Contingency Reductions

(tpd, reductions calculated on summer planning inventory)

	2026 Emissions	2027 Emissions	2026 to 2027 Emission Reductions
Mobile Source-ROG Emissions	11.0	10.8	0.2
Mobile Source-NOx Emissions	25.5	24.0	1.6
Reductions in Post-Attainment Year Available for Attainment Contingency	--	--	1.8

Note: numbers may not add up due to rounding

E. Summary of SIP Submittal for the Western Mojave Desert

CARB is amending the Mojave Ozone Plan to include RFP emission inventories for ROG and NOx for the 2011 RFP baseline year, 2017, 2020, and 2023 RFP milestone years, and 2026 attainment year; an updated RFP demonstration; updated transportation conformity budgets; and information needed to support the Act's contingency requirements. Since 2017 has passed and the Western Mojave Desert successfully made RFP in that year, the RFP contingency measure requirement in section 172(c)(9) of the Act for the 2017 milestone year is irrelevant as applied to the Western Mojave Desert.

VII. SIP ELEMENTS FOR THE COACHELLA VALLEY

This chapter contains the necessary elements to be submitted into the California SIP for the Coachella Valley. Effective on July 20, 2012, U.S. EPA designated the Coachella Valley as a nonattainment area with a Severe classification for the 75 ppb 8-hour ozone standard. Severe areas were required to submit a SIP revision meeting Severe area requirements, and demonstrating attainment of the standard by July 20, 2027.

The South Coast AQMD, in coordination with CARB staff, prepared the *2016 Air Quality Management Plan*³¹ (2016 AQMP) to fulfill requirements of the Act as applicable for both the South Coast Air Basin and the Coachella Valley nonattainment areas. The South Coast AQMD adopted the 2016 AQMP on March 3, 2017 and submitted the plan to CARB on March 10, 2017. CARB adopted the 2016 AQMP on March 23, 2017 and submitted it to U.S. EPA as a revision to the California SIP on April 27, 2017.

The 2016 AQMP demonstrated that the Coachella Valley will attain the 75 ppb 8-hour ozone standard by the end of 2026 and contained the required planning elements including an emission inventory, RFP demonstration with a baseline year of 2012, transportation conformity budgets, and RFP and attainment contingency provisions, following all applicable U.S. EPA-published guidance available at the time.

A. 2011 Baseline Emission Inventory

Because of the *South Coast* decision, an emission inventory consistent with the updated RFP baseline year of 2011 must be submitted into the SIP. The 2018 SIP Update, including Appendix A, provides the relevant 2011 baseline year inventory as well as a 2012 base year emission inventory as needed for the previously submitted vehicle miles travelled offset demonstration, which is summarized below.

Table VII-1 shows the trends in emissions by source category for the RFP baseline year of 2011; inventory base year of 2012, RFP milestone years of 2017, 2020 and 2023; and 2026, the year modeled to demonstrate attainment for the Coachella Valley.

³¹ South Coast Air Quality Management Plans
<https://www.arb.ca.gov/planning/sip/planarea/scabsip/scabsip.htm>

Table VII-1. Coachella Valley Emission Inventory
(tpd, summer planning inventory)

Source Category	ROG					
	2011	2012	2017	2020	2023	2026
Stationary and Area-wide	6.1	6.4	7.0	7.7	8.3	8.8
On-road Mobile	7.0	6.4	4.4	3.6	3.2	2.9
Off-road Mobile	3.8	3.7	3.4	3.2	3.2	3.3
Total	16.9	16.5	14.8	14.5	14.7	15.1
Source Category	NOx					
	2011	2012	2017	2020	2023	2026
Stationary and Area-wide	1.1	1.2	1.4	1.4	1.4	1.4
On-road Mobile	22.2	18.9	10.8	8.4	4.5	4.1
Off-road Mobile	6.5	6.5	5.9	5.1	4.3	3.6
Total	29.8	26.6	18.1	14.9	10.2	9.1

Note: numbers may not add up due to rounding

B. Reasonable Further Progress

As described in Chapter I, there are two separate progress requirements for ozone nonattainment areas: a one-time requirement for a 15 percent reduction in ROG emissions over the first six years of the planning period; and an additional 3 percent per year reduction, averaged over each consecutive three-year period, of ozone precursor emissions until attainment. In 2017, U.S. EPA approved a 15 percent ROG-only rate of progress demonstration for the Coachella Valley for the 80 ppb 8-hour ozone standard covering the entire nonattainment area for the 75 ppb 8-hour ozone standard³². As such, the requirement to demonstrate a reduction in ROG of “at least 15 percent from baseline emissions” (section 182(b)(1)(A)(i)) for the first 6 years of the attainment planning period has been met for the Coachella Valley.

As per the Ozone Rule,³³ the 2016 AQMP included a demonstration that the Coachella Valley achieves an 18 percent reduction in ozone precursor emissions for the first six years of the attainment planning period, and an average emission reduction of 3 percent

³² 82 FR 26854 <https://www.gpo.gov/fdsys/pkg/FR-2017-06-12/pdf/2017-12019.pdf>

³³ 80 FR 12264 <http://www.gpo.gov/fdsys/pkg/FR-2015-03-06/pdf/2015-04012.pdf>

per year after that until the attainment date (section 182(c)(2)). The Ozone Rule allowed for an RFP baseline year of any year from 2008 to 2012. Since 2012 is designation year and is aligned with the base year of the attainment demonstration submitted with the plan; the 2016 AQMP demonstrated RFP for the Coachella Valley using a baseline year of 2012.

Given the determination in the *South Coast* decision that RFP demonstrations for the 75 ppb 8-hour ozone standard must use a baseline year of 2011, the 2018 SIP Update includes an updated RFP demonstration for the Coachella Valley that uses a 2011 baseline year. Table VII-2 demonstrates that the Coachella Valley makes RFP in the milestone years of 2017, 2020, 2023, and 2026.

Table VII-2. Coachella Valley 75 ppb 8-hour Ozone RFP Demonstration

(tpd, summer planning inventory)

Year	ROG				
	2011	2017	2020	2023	2026
Baseline ROG	16.9	14.8	14.5	14.7	15.1
Required % change since 2011 (ROG or NOx)		18%	27%	36%	45%
Target ROG Level		13.9	12.3	10.8	9.3
Apparent Shortfall (-)/ Surplus (+) in ROG		-0.9	-2.2	-3.9	-5.8
Apparent Shortfall (-)/ Surplus (+) in ROG, %		-5.6%	-13.0%	-23.0%	-34.1%
ROG Shortfall previously provided by NOx Substitution, %		0%	5.6%	13.0%	23.0%
Actual ROG shortfall (-)/ surplus (+), %		-5.6%	-7.5%	-10.0%	-11.1%
Year	NOx				
	2011	2017	2020	2023	2026
Baseline NOx	29.8	18.1	14.9	10.2	9.1
Change in NOx since 2011		11.8	15.0	19.6	20.7
Change in NOx since 2011, %		39.4%	50.2%	65.8%	69.4%
NOx reductions used for ROG substitution through last milestone year, %		0%	5.6%	13.0%	23.0%
NOx reductions since 2011 available for ROG substitution in this milestone year, %		39.4%	44.6%	52.8%	46.4%
NOx reductions since 2011 used for ROG substitution in this milestone year, %		5.6%	7.5%	10.0%	11.1%
NOx reductions since 2011 surplus after meeting ROG substitution needs in this milestone year, %		33.9%	37.2%	42.9%	35.3%
Total shortfall for RFP		0%	0%	0%	0%
RFP Met?		YES	YES	YES	YES

Note: numbers may not add up due to rounding

C. Transportation Conformity Budgets

As discussed in Chapter I, section 176(c) of the Act establishes transportation conformity requirements which are intended to ensure that transportation activities do not interfere with a region's air quality progress. The Act requires that transportation

plans, programs, and projects that obtain federal funds or approvals conform to applicable SIPs and must not cause or contribute to any new or existing violation of any standard, or delay timely attainment of any standard.

The 2016 AQMP included transportation conformity budgets for the Coachella Valley corresponding with the milestone years in the submitted RFP demonstration. To align with the updated RFP in Table VII-2, amended transportation conformity budgets are included in Table VII-3.

SCAG, the MPO in Southern California, prepares a long range RTP at least every four years and a short range funding program, or RTIP, every two years. Before adopting the RTP/RTIP, SCAG prepares a regional emissions analysis using the proposed plan and program as specified in the federal conformity regulation³⁴ and compares those emissions to the emission budgets in the SIP. The MPO may determine the RTP/RTIP conforms if the emissions from the proposed actions are less than the emissions budgets in the SIP. The conformity determination also signifies that the MPO has met other transportation conformity requirements such as interagency consultation and financial constraint.

The 2018 SIP Update establishes transportation conformity budgets for ozone in the Coachella Valley for the progress years of 2020 and 2023, as well as the attainment year of 2026.

The emissions budgets presented below use EMFAC2014 with SCAG-modeled VMT and speed distributions. EMFAC2014 was approved for use in SIPs and transportation conformity by U.S. EPA on December 14, 2015. The VMT and speed distribution data are from the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Amendment 2, which was adopted by SCAG in July 2017. Because these data represent the most recent data available, there are some differences between the budgets and planning inventory. These differences do not impact the RFP or attainment demonstrations.

Calculation Methodology

The budgets in Table VII-3 were developed in consultation with SCAG and U.S. EPA, using emissions for a summer average day consistent with the ozone attainment and progress demonstrations, using the following method:

- 1) Calculate the on-road motor vehicle emissions totals for the ozone precursors (ROG and NO_x) using EMFAC2014.
- 2) Sum each pollutant and round each total up to the nearest tenth (0.1) of a ton for ROG and NO_x.

Table VII-3 contains the emissions budgets for the Coachella Valley.

³⁴ 40 CFR Parts 51 and 93 – Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Titles 23 or 49 of the United States Code.

Table VII-3. Transportation Conformity Budgets for the 75 ppb 8-hour Ozone Standard in the Coachella Valley Ozone Nonattainment Area

(tpd, summer planning inventory)

Coachella Valley Ozone Nonattainment Area	2020		2023		2026	
	ROG	NOx	ROG	NOx	ROG	NOx
Baseline Emissions	3.62	8.32	3.20	4.50	2.93	4.11
Total	3.62	8.32	3.20	4.50	2.93	4.11
Conformity (Emissions) Budget	3.7	8.4	3.3*	4.6*	3.0	4.2

* As budgets are rounded up to nearest tenth (0.1), the significant digit convention in Table VII-3 do not display the additional emissions that result in the final rounded values (i.e., ROG budget of 3.3 was rounded up from 3.203 and NOx budget of 4.6 was rounded up from 4.504)

D. Contingency Measures

The 2016 AQMP contained a discussion of contingency measure requirements and how these requirements are met for the Coachella Valley by emission reductions from continued implementation of CARB's Mobile Source Program, including fleet turnover between the attainment year and the year following. In addition, the submitted RFP demonstration included a 3 percent set-aside in the first milestone year that was carried through to the attainment year, confirming that the baseline inventory provides enough emission reductions beyond those needed for the RFP targets, to meet contingency measure requirements in the relevant years.

As described in Chapter I, U.S. EPA has interpreted the *Bahr* decision to mean that contingency measures must include a future action triggered by a failure to attain or failure to make RFP and therefore, the past practice can no longer fully meet the contingency measure requirements. As detailed in Chapter X, the 2018 SIP Update includes two complementary elements that, together with district contingency measures, fully address the contingency measure requirements of the Act as interpreted by U.S. EPA in response to *Bahr*. The tables below represent one of the two elements as relevant to the Coachella Valley and document the amount needed for contingency and the excess emission reduction benefits from implementing California's Mobile Source Program that can be used towards meeting RFP and attainment contingency.

Since progress must first be shown with ROG prior to using NOx substitution, Table VII-4 includes the estimated one year of progress for 2011 and 2026.

Table VII-4. Coachella Valley Contingency Calculation

(tpd, reductions calculated on summer planning inventory)

	2011	2026
3 percent ROG emissions	0.50	0.45

An inventory analysis serves the purpose of demonstrating that there are emission reductions in the baseline inventory beyond what is needed for RFP of approximately one year of progress due to future implementation of the Mobile Source Program. Included in Table VII-5 are calculations demonstrating that there are enough emission reductions from mobile sources in the baseline inventory for the Coachella Valley sufficient to meet contingency measure requirements in the milestone years.

Table VII-5. Coachella Valley RFP Contingency Reductions

(tpd, reductions calculated on summer planning inventory)

	2017	2020	2023	2026
ROG Reductions Used for RFP	2.1	2.4	2.2	1.8
NOx Reductions Used for RFP	1.6	3.9	6.9	10.2
Total NOx Reductions since 2011	11.8	15.0	19.6	20.7
Surplus NOx Reductions Available for RFP Contingency	10.1	11.1	12.8	10.5

Note: numbers may not add up due to rounding

Table VII-6 documents the emission reductions that occur after the attainment year due to implementation of California's Mobile Source Program.

Table VII-6. Coachella Valley Attainment Contingency Reductions

(tpd, reductions calculated on summer planning inventory)

	2026 Emissions	2027 Emissions	2026 to 2027 Emission Reductions
Mobile Source ROG	6.25	6.24	0.01
Mobile Source NOx	7.73	7.42	0.31
Attainment Contingency Reductions Post-Attainment	--	--	0.32

Note: numbers may not add up due to rounding

E. Summary of SIP Submittal for the Coachella Valley

CARB is amending the 2016 AQMP to include Coachella Valley RFP emission inventories for ROG and NO_x for the 2011 RFP baseline year, 2017, 2020, and 2023 RFP milestone years, and 2026 attainment year; an updated RFP demonstration; updated transportation conformity budgets; and information needed to support the Act's contingency requirements. Since 2017 has passed and the Coachella Valley successfully made RFP in that year, the RFP contingency measure requirement in section 172(c)(9) of the Act for the 2017 milestone year is irrelevant as applied to the Coachella Valley.

VIII. SIP ELEMENTS FOR THE SAN JOAQUIN VALLEY

This chapter contains the necessary elements to be submitted into the California SIP for the San Joaquin Valley. Effective on July 20, 2012, U.S. EPA designated the San Joaquin Valley as a nonattainment area with an Extreme classification for the 75 ppb 8-hour ozone standard. Extreme areas were required to submit a SIP revision meeting Extreme area requirements, and demonstrating attainment of the standard by July 20, 2032.

The San Joaquin Valley APCD, in coordination with CARB staff, prepared the *2016 Ozone Plan for 2008 8-Hour Ozone Standard*³⁵ (SJV Ozone Plan) to fulfill requirements of the Act as applicable for the San Joaquin Valley nonattainment area. The San Joaquin Valley APCD adopted the SJV Ozone Plan on June 16, 2016 and submitted the plan to CARB on June 17, 2016. CARB adopted the SJV Ozone Plan on July 21, 2016 and submitted it to U.S. EPA as a revision to the California SIP on August 24, 2016.

The SJV Ozone Plan demonstrated that the San Joaquin Valley will attain the 75 ppb 8-hour ozone standard in 2031. The SJV Ozone Plan contained the required planning elements including an emission inventory, RFP demonstration with a baseline year of 2012, transportation conformity budgets, and RFP and attainment contingency provisions, following all applicable U.S. EPA-published guidance available at the time.

A. 2011 Baseline Emission Inventory

Included in the SJV Ozone Plan was a 2012 base year emission inventory, along with the 2012 baseline year for the RFP demonstration. Because of the *South Coast* decision, an emission inventory consistent with the updated RFP baseline year of 2011 must be submitted into the SIP. The 2018 SIP Update, including Appendix A, provides the relevant 2011 baseline year inventory, which is summarized below.

Table VIII-1 shows the trends in emissions by source category for the RFP baseline year of 2011; RFP milestone years of 2017, 2020, 2023, 2026 and 2029; and 2031, the year modeled to demonstrate attainment for the San Joaquin Valley.

³⁵ San Joaquin Valley 2016 8-Hour Ozone Plan
<https://www.arb.ca.gov/planning/sip/planarea/sjv8hrozone.htm>

Table VIII-1. San Joaquin Valley Emission Inventory
(tpd, summer planning inventory)

Source Category	ROG						
	2011	2017	2020	2023	2026	2029	2031
Stationary and Area-wide	264.1	238.1	241.5	245.7	250.4	255.6	259.2
On-road Mobile	68.0	36.2	28.7	23.7	21.3	19.5	18.3
Off-road Mobile	46.5	36.3	33.6	30.9	28.6	26.9	25.5
Total	378.7	310.6	303.8	300.2	300.3	301.9	302.9
Source Category	NOx						
	2011	2017	2020	2023	2026	2029	2031
Stationary and Area-wide	49.9	35.4	34.5	33.7	32.9	32.3	32.0
On-road Mobile	217.9	113.4	92.5	55.3	50.4	46.7	45.1
Off-road Mobile	107.8	89.6	80.9	69.4	59.7	52.1	48.0
Total	375.6	238.4	207.9	158.4	143.0	131.1	125.0

Note: numbers may not add up due to rounding

B. Reasonable Further Progress

As described in Chapter I, there are two separate progress requirements for ozone nonattainment areas: a one-time requirement for a 15 percent reduction in ROG emissions over the first six years of the planning period; and an additional 3 percent per year reduction, averaged over each consecutive three-year period, of ozone precursor emissions until attainment. In 1997, U.S. EPA approved a 15 percent ROG-only rate of progress demonstration for the San Joaquin Valley for the 1-hour ozone standard covering the entire nonattainment area for the 75 ppb 8-hour ozone standard.³⁶ As such, the requirement to demonstrate a reduction in ROG of “at least 15 percent from baseline emissions” (section 182(b)(1)(A)(i)) for the first 6 years of the attainment planning period has been met for the San Joaquin Valley.

As per the Ozone Rule³⁷, the SJV Ozone Plan included a demonstration that the San Joaquin Valley achieves an 18 percent reduction in ozone precursor emissions for the first six years of the attainment planning period, and an average emission reduction of 3 percent per year after that until the attainment date (section 182(c)(2)). The Ozone

³⁶ 62 FR 1150 <https://www.gpo.gov/fdsys/pkg/FR-1997-01-08/pdf/97-144.pdf>

³⁷ 80 FR 12264 <http://www.gpo.gov/fdsys/pkg/FR-2015-03-06/pdf/2015-04012.pdf>

Rule allowed for an RFP baseline year of any year from 2008 to 2012. Since 2012 is designation year and is aligned with the base year of the attainment demonstration submitted with the plan; the SJV Ozone Plan demonstrated RFP for the San Joaquin Valley using a baseline year of 2012.

Given the determination in the *South Coast* decision that RFP demonstrations for the 75 ppb 8-hour ozone standard must use a baseline year of 2011, the 2018 SIP Update includes an updated RFP demonstration for the San Joaquin Valley that uses a 2011 baseline year. Table VIII-2 demonstrates that the San Joaquin Valley makes RFP in the milestone years of 2017, 2020, 2023, 2026, 2029, and 2031.

Table VIII-2. San Joaquin Valley 75 ppb 8-hour Ozone RFP Demonstration
(tpd, summer planning inventory)

Year	ROG						
	2011	2017	2020	2023	2026	2029	2031
Baseline ROG	378.7	310.6	303.8	300.2	300.3	301.9	302.9
Transportation Conformity Safety Margin	0	0	0	0	0	0	0
Baseline ROG + Safety Margin	378.7	310.6	303.8	300.2	300.3	301.9	302.9
Required % change since 2011 (ROG or NOx)		18%	27%	36%	45%	54%	60%
Target ROG Level		310.5	276.4	242.4	208.3	174.2	151.5
Apparent Shortfall (-)/ Surplus (+) in ROG		-0.1	-27.3	-57.9	-92.0	-127.7	-151.5
Apparent Shortfall (-)/ Surplus (+) in ROG, %		0%	-7.2%	-15.3%	-24.3%	-33.7%	-40.0%
ROG Shortfall previously provided by NOx Substitution, %		0%	0%	7.2%	15.3%	24.3%	33.7%
Actual ROG shortfall (-)/ surplus (+), %		0%	-7.2%	-8.1%	-9.0%	-9.4%	-6.3%
Year	NOx						
	2011	2017	2020	2023	2026	2029	2031
Baseline NOx	375.6	238.4	207.9	158.4	143.0	131.1	125.0
Transportation Conformity Safety Margin	0.0	0.0	0.0	2.5	5.3	7.1	8.0
Baseline NOx + Safety Margin	375.6	238.4	207.9	160.9	148.3	138.2	133.1
Change in NOx since 2011		137.2	167.7	214.7	227.3	237.4	242.5
Change in NOx since 2011, %		36.5%	44.6%	57.2%	60.5%	63.2%	64.6%
NOx reductions used for ROG substitution through last milestone year, %		0%	0%	7.2%	15.3%	24.3%	33.7%
NOx reductions since 2011 available for ROG substitution in this milestone year, %		36.5%	44.6%	49.9%	45.2%	38.9%	30.8%
NOx reductions since 2011 used for ROG substitution in this milestone year, %		0%	7.2%	8.1%	9.0%	9.4%	6.3%
NOx reductions since 2011 surplus after meeting ROG substitution needs in this milestone year, %		36.5%	37.4%	41.9%	36.2%	29.5%	24.6%
Total shortfall for RFP		0%	0%	0%	0%	0%	0%
RFP Met?		YES	YES	YES	YES	YES	YES

Note: numbers may not add up due to rounding

C. Transportation Conformity Budgets

As discussed in Chapter I, section 176(c) of the Act establishes transportation conformity requirements which are intended to ensure that transportation activities do not interfere with a region's air quality progress. The Act requires that transportation plans, programs, and projects that obtain federal funds or approvals conform to applicable SIPs and must not cause or contribute to any new or existing violation of any standard, or delay timely attainment of any standard.

The SJV Ozone Plan included transportation conformity budgets for the San Joaquin Valley corresponding with the milestone years in the submitted RFP demonstration. To align with the updated RFP in Table VIII-2, and to allow for the change in on-road mobile source emissions resulting from updated data in EMFAC2017 discussed in Chapter I, amended transportation conformity budgets are included in Table VIII-3.

The eight MPOs in the San Joaquin Valley each prepare a long range RTP at least every four years and a short range funding program, or RTIP, every two years. Before adopting the RTP/RTIP, the MPOs prepare a regional emissions analysis using the proposed plan and program as specified in the federal conformity regulation³⁸ and compares those emissions to the emission budgets in the SIP. The MPOs may determine the RTP/RTIP conforms if the emissions from the proposed actions are less than the emissions budgets in the SIP. The conformity determination also signifies that the MPOs have met other transportation conformity requirements such as interagency consultation and financial constraint.

The 2018 SIP Update establishes transportation conformity budgets for ozone in the San Joaquin Valley for the progress years of 2020, 2023, 2026, and 2029, as well as the attainment year of 2031.

The federal conformity regulation allows a SIP to create a safety margin in an emissions budget.³⁹ A safety margin is defined as the difference between projected emissions and the emissions necessary to demonstrate progress or attainment. This plan creates safety margins as detailed below in Table VIII-3 through Table VIII-10. The safety margins are included in the RFP demonstration, thereby demonstrating that the transportation conformity budgets do not interfere with demonstrating progress.

On August 31, 2018, U.S. EPA proposed approval of portions of the SJV Ozone Plan that address the requirements to demonstrate attainment and implementation of reasonably available control measures. As part of this, U.S. EPA proposed approval of the 2016 State SIP Strategy State commitment for NO_x reductions of 8 tpd in the attainment year of 2031 in the San Joaquin Valley. This commitment for reductions was above and beyond the levels needed to demonstrate attainment of the 75 ppb 8-hour

³⁸ 40 CFR Parts 51 and 93 – Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Titles 23 or 49 of the United States Code.

³⁹ 40 CFR 93.101 and 93.118(e)(4)(vi)

ozone standard in 2031. As such, the safety margins included in Tables VIII-3 through VIII-10 do not interfere with attainment in the San Joaquin Valley.

The emissions budgets presented below use EMFAC2014 with MPO-modeled VMT and speed distributions. The VMT and speed distribution data are from the individual 2018 RTP/SCSs adopted by each San Joaquin Valley MPO in Summer and Fall 2018. Because these data represent the most recent data available, there are small differences between the budgets and planning inventory. These differences do not impact the RFP or attainment demonstrations. EMFAC2014 was approved for use in SIPs and transportation conformity by U.S. EPA on December 14, 2015.

Calculation Methodology

The budgets in Table VIII-3 were developed in consultation with the eight San Joaquin Valley MPOs and U.S. EPA, using emissions for a summer average day consistent with the attainment and progress demonstrations, using the following method:

- 1) Calculate the on-road motor vehicle emissions totals for the ozone precursors (ROG and NO_x) using EMFAC2014.
- 2) Add in the safety margin for each MPO which can be accommodated by the region's attainment demonstration.
- 3) Sum each pollutant and round each total up to the nearest tenth (0.1) of a ton for ROG and NO_x for each MPO.

Tables VIII-3 through VIII-10 contain the emissions budgets for the eight MPOs in the San Joaquin Valley.

Table VIII-3. Transportation Conformity Budgets for the 75 ppb 8-hour Ozone Standard in the Fresno County Portion of San Joaquin Valley
(tpd, summer planning inventory)

Fresno County	2020		2023		2026		2029		2031	
	ROG	NO _x	ROG	NO _x	ROG	NO _x	ROG	NO _x	ROG	NO _x
Baseline Emissions	6.66	23.81	5.44	14.09	4.89	13.16	4.43	12.36	4.14	12.02
Safety Margin	0	0	0	0	0	0	0	0	0	0
Total	6.66	23.81	5.44	14.09	4.89	13.16	4.43	12.36	4.14	12.02
Conformity (Emissions) Budget	6.7	23.9	5.5	14.1	4.9	13.2	4.5	12.4	4.2	12.1

Table VIII-4. Transportation Conformity Budgets for the 75 ppb 8-hour Ozone Standard in the Kern County Portion of San Joaquin Valley
(tpd, summer planning inventory)

Kern County	2020		2023		2026		2029		2031	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline Emissions	5.25	20.57	4.48	11.82	4.19	10.94	3.97	10.29	3.80	10.00
Safety Margin	0.11	0.31	0	2.61	0	3.45	0	3.97	0	4.28
Total	5.37	20.88	4.48	14.44	4.19	14.39	3.97	14.26	3.80	14.28
Conformity (Emissions) Budget	5.4	20.9	4.5	14.5	4.2	14.4	4.0	14.3	3.9	14.3

Table VIII-5. Transportation Conformity Budgets for the 75 ppb 8-hour Ozone Standard in the Kings County Portion of San Joaquin Valley
(tpd, summer planning inventory)

Kings County	2020		2023		2026		2029		2031	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline Emissions	1.10	4.46	0.91	2.59	0.83	2.40	0.76	2.25	0.72	2.19
Safety Margin	0	0	0	0.01	0	0.19	0	0.31	0	0.38
Total	1.10	4.46	0.91	2.61	0.83	2.59	0.76	2.56	0.72	2.58
Conformity (Emissions) Budget	1.2	4.5	1.0	2.7	0.9	2.6	0.8	2.6	0.8	2.6

Table VIII-6. Transportation Conformity Budgets for the 75 ppb 8-hour Ozone Standard in the Madera County Portion of San Joaquin Valley
(tpd, summer planning inventory)

Madera County	2020		2023		2026		2029		2031	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline Emissions	1.40	4.02	1.06	2.25	0.90	1.93	0.79	1.73	0.72	1.63
Safety Margin	0.07	0.20	0.01	0.43	0.02	0.54	0.02	0.61	0.02	0.65
Total	1.48	4.22	1.07	2.68	0.92	2.47	0.81	2.34	0.74	2.28
Conformity (Emissions) Budget	1.5	4.3	1.1	2.7	1.0	2.5	0.9	2.4	0.8	2.3

Table VIII-7. Transportation Conformity Budgets for the 75 ppb 8-hour Ozone Standard in the Merced County Portion of San Joaquin Valley
(tpd, summer planning inventory)

Merced County	2020		2023		2026		2029		2031	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline Emissions	2.04	8.27	1.62	4.81	1.41	4.37	1.23	3.94	1.10	3.69
Safety Margin	0.11	0.51	0.00	1.15	0.01	1.47	0.01	1.61	0.02	1.66
Total	2.16	8.79	1.62	5.97	1.41	5.84	1.23	5.55	1.12	5.35
Conformity (Emissions) Budget	2.2	8.8	1.7	6.0	1.5	5.9	1.3	5.6	1.2	5.4

Table VIII-8. Transportation Conformity Budgets for the 75 ppb 8-hour Ozone Standard in the San Joaquin County Portion of San Joaquin Valley
(tpd, summer planning inventory)

San Joaquin County	2020		2023		2026		2029		2031	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline Emissions	4.68	10.21	3.85	6.39	3.41	5.58	3.05	4.95	2.78	4.59
Safety Margin	0	0.95	0	0.99	0	1.34	0	1.57	0	1.69
Total	4.68	11.16	3.85	7.39	3.41	6.92	3.05	6.52	2.78	6.29
Conformity (Emissions) Budget	4.7	11.2	3.9	7.4	3.5	7.0	3.1	6.6	2.8	6.3

Table VIII-9. Transportation Conformity Budgets for the 75 ppb 8-hour Ozone Standard in the Stanislaus County Portion of San Joaquin Valley
(tpd, summer planning inventory)

Stanislaus County	2020		2023		2026		2029		2031	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline Emissions	3.09	8.78	2.53	5.52	2.18	4.89	1.94	4.45	1.77	4.21
Safety Margin	0	0	0	0	0	0	0.01	0	0.03	0
Total	3.09	8.78	2.53	5.52	2.18	4.89	1.95	4.45	1.79	4.21
Conformity (Emissions) Budget	3.1	8.8	2.6	5.6	2.2	4.9	2.0	4.5	1.8	4.3

Table VIII-10. Transportation Conformity Budgets for the 75 ppb 8-hour Ozone Standard in the Tulare County Portion of San Joaquin Valley
(tpd, summer planning inventory)

Tulare County	2020		2023		2026		2029		2031	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline Emissions	2.91	7.57	2.32	4.56	2.02	3.95	1.78	3.49	1.64	3.28
Safety Margin	0	0	0	0	0	0	0	0.11	0	0.18
Total	2.91	7.57	2.32	4.56	2.02	3.95	1.78	3.60	1.64	3.46
Conformity (Emissions) Budget	3.0	7.6	2.4	4.6	2.1	4.0	1.8	3.7	1.7	3.5

D. Contingency Measures

The SJV Ozone Plan contained a discussion of contingency measure requirements and how these requirements are met for the San Joaquin Valley by emission reductions from continued implementation of CARB's Mobile Source Program, including fleet turnover between the attainment year and the year following. In addition, the submitted RFP demonstration included a 3 percent set-aside in the first milestone year that was carried through to the attainment year, confirming that the baseline inventory provides enough emission reductions beyond those needed for the RFP targets, to meet contingency measure requirements in the relevant years.

As described in Chapter I, U.S. EPA has interpreted the *Bahr* decision to mean that contingency measures must include a future action triggered by a failure to attain or failure to make RFP and therefore, the past practice can no longer fully meet the contingency measure requirements. As detailed in Chapter X, the 2018 SIP Update includes two complementary elements that, together with district contingency measures, fully address the contingency measure requirements of the Act as interpreted by U.S. EPA in response to *Bahr*. For the San Joaquin Valley, the measure included in Chapter X addresses contingency requirements for both ozone and PM_{2.5} standards for which the area is nonattainment. The tables below represent one of the two elements as relevant to the San Joaquin Valley and document the amount needed for contingency and the excess emission reduction benefits from implementing California's Mobile Source Program that can be used towards meeting RFP and attainment contingency as required under the 75 ppb 8-hour ozone standard.

Since progress must first be shown with ROG prior to using NO_x substitution, Table VIII-11 includes the estimated one year of progress for 2011 and 2031.

Table VIII-11. San Joaquin Valley Contingency Calculation

(tpd reductions calculated on summer planning inventory)

	2011	2031
3 Percent ROG Emissions	11.4	9.1

An inventory analysis serves the purpose of demonstrating that there are emission reductions in the baseline inventory beyond what is needed for RFP of approximately one year of progress due to future implementation of the Mobile Source Program. Included in Table VIII-12 are calculations demonstrating that there are enough emission reductions from mobile sources in the baseline inventory the San Joaquin Valley sufficient to meet contingency measure requirements in the milestone years.

Table VIII-12. San Joaquin Valley RFP Contingency Reductions

(tpd, reductions calculated on summer planning inventory)

	2017	2020	2023	2026	2029	2031
ROG Reductions Used for RFP	68.1	74.9	78.5	78.4	76.8	75.8
NOx Reductions Used for RFP	0.1	27.1	57.4	91.3	126.7	150.2
Total NOx Reductions since 2011	137.2	167.6	217.1	232.6	244.5	250.6
Surplus NOx Reductions Available for RFP Contingency	137.1	140.5	159.7	141.3	117.8	100.3

Note: numbers may not add up due to rounding

Table VIII-13 documents the emission reductions that occur after the attainment year due to implementation of California's Mobile Source Program.

Table VIII-13. San Joaquin Valley Attainment Contingency Reductions

(tpd, reductions calculated on summer planning inventory)

	2031 Emissions	2032 Emissions	2031 to 2032 Emission Reductions
Mobile Source ROG	43.7	42.9	0.9
Mobile Source NOx	93.0	90.9	2.1
Reductions in Post-Attainment Year Available for Attainment Contingency	--	--	3.0

Note: numbers may not add up due to rounding

E. Summary of SIP Submittal for the San Joaquin Valley

CARB is amending the San Joaquin Valley Ozone Plan to include RFP emission inventories for ROG and NOx for the 2011 RFP baseline year, 2017, 2020, 2023, 2026, and 2029 RFP milestone years, and 2031 attainment year; an updated RFP demonstration; updated transportation conformity budgets; and information needed to

support the Act's contingency requirements. Since 2017 has passed and the San Joaquin Valley successfully made RFP in that year, the RFP contingency measure requirement in section 172(c)(9) of the Act for the 2017 milestone year is irrelevant as applied to the San Joaquin Valley.

IX. SIP ELEMENTS FOR THE SOUTH COAST AIR BASIN

This chapter contains the necessary elements to be submitted into the California SIP for the South Coast Air Basin. Effective on July 20, 2012, U.S. EPA designated the South Coast Air Basin as a nonattainment area with an Extreme classification for the 75 ppb 8-hour ozone standard. Extreme areas were required to submit a SIP revision meeting Extreme area requirements, and demonstrating attainment of the standard by July 20, 2032.

The South Coast AQMD, in coordination with CARB staff, prepared the 2016 AQMP to fulfill requirements of the Act as applicable for both the South Coast Air Basin and the Coachella Valley nonattainment areas. The South Coast AQMD adopted the 2016 AQMP on March 3, 2017 and submitted the plan to CARB on March 10, 2017. CARB adopted the 2016 AQMP, and the 2016 State SIP Strategy with its complementary commitments, on March 23, 2017 and submitted them to U.S. EPA as revisions to the California SIP on April 27, 2017.

The 2016 AQMP demonstrated that the South Coast Air Basin will attain the 75 ppb 8-hour ozone standard in 2031. The 2016 AQMP contained the required planning elements including an emission inventory, RFP demonstration with a baseline year of 2012, transportation conformity budgets, RFP and attainment contingency provisions, and commitments to achieve the reductions needed for attainment, following all applicable U.S. EPA-published guidance available at the time.

A. 2011 Baseline Emission Inventory

The 2016 AQMP included both summer-averaged and annual-averaged emission inventories for the South Coast Air Basin with years as applicable for the 75 ppb 8-hour ozone and 12 $\mu\text{g}/\text{m}^3$ annual PM_{2.5} standards, respectively. The emission inventories were consistent with the 2012 baseline year of the RFP demonstrations. Because of the *South Coast* decision, without a rehearing on the decision, an emission inventory consistent with the updated RFP baseline year of 2011 for the 75 ppb 8-hour ozone standard must be submitted into the SIP. The 2018 SIP Update, including Appendix A, provides the relevant 2011 baseline year inventory, which is summarized below.

Table IX-1 shows the trends in emissions by source category for the RFP baseline year of 2011; RFP milestone years of 2017, 2020, 2023, 2026, and 2029; and 2031, the year modeled to demonstrate attainment of the 75 ppb 8-hour ozone standard for the South Coast Air Basin.

Table IX-1. South Coast Air Basin Emission Inventory
(tpd, summer planning inventory)

Source Category	ROG						
	2011	2017	2020	2023	2026	2029	2031
Stationary and Area-wide	213.4	209.1	215.2	220.9	225.1	228.7	231.2
On-road Mobile	178.5	102.6	79.7	67.7	59.2	53.4	49.5
Off-road Mobile	130.1	102.0	93.7	87.4	83.2	80.4	77.6
Total	522	413.7	388.6	376.0	367.5	362.5	358.3
Source Category	NOx						
	2011	2017	2020	2023	2026	2029	2031
Stationary and Area-wide	63.9	60.3	55.3	49	48.7	48.5	48.6
On-road Mobile	330.7	185.2	141.6	88.9	76.9	69.3	65.7
Off-road Mobile	139.7	120.7	109.6	101.1	95.4	92.1	90.6
Total	534.3	366.2	306.5	239.0	220.9	209.9	204.9

Note: numbers may not add up due to rounding

B. Reasonable Further Progress

As described in Chapter I, there are two separate progress requirements for ozone nonattainment areas: a one-time requirement for a 15 percent reduction in ROG emissions over the first six years of the planning period; and an additional 3 percent per year reduction, averaged over each consecutive three-year period, of ozone precursor emissions until attainment. In 1997, U.S. EPA approved a 15 percent ROG-only rate of progress demonstration for the South Coast Air Basin for the 1-hour ozone standard covering the entire nonattainment area for the 75 ppb 8-hour ozone standard⁴⁰. As such, the requirement to demonstrate a reduction in ROG of “at least 15 percent from baseline emissions” (section 182(b)(1)(A)(i)) for the first 6 years of the attainment planning period has been met for the South Coast Air Basin.

As per the Ozone Rule⁴¹, the 2016 AQMP included a demonstration that the South Coast Air Basin achieves an 18 percent reduction in ozone precursor emissions for the first six years of the attainment planning period, and an average emission reduction of 3 percent per year after that until the attainment date (section 182(c)(2)). The Ozone

⁴⁰ 62 FR 1150 <https://www.gpo.gov/fdsys/pkg/FR-1997-01-08/pdf/97-144.pdf>

⁴¹ 80 FR 12264 <http://www.gpo.gov/fdsys/pkg/FR-2015-03-06/pdf/2015-04012.pdf>

Rule allowed for an RFP baseline year of any year from 2008 to 2012. Since 2012 is designation year and is aligned with the base year of the attainment demonstration submitted with the plan; the 2016 AQMP demonstrated RFP for the South Coast Air Basin using a baseline year of 2012.

Given the determination in the *South Coast* decision that RFP demonstrations for the 75 ppb 8-hour ozone standard must use a baseline year of 2011, the 2018 SIP Update includes an updated RFP demonstration for the South Coast Air Basin that uses a 2011 baseline year. Table IX-2 demonstrates that the South Coast Air Basin makes RFP in the ozone milestone years of 2017, 2020, 2023, 2026, 2029, and 2031.

Table IX-2. South Coast Air Basin 75 ppb 8-hour Ozone RFP Demonstration
(summer planning inventory, tpd)

Year	ROG						
	2011	2017	2020	2023	2026	2029	2031
Baseline ROG	522.0	413.7	388.6	376.0	367.5	362.5	358.3
Required % change since 2011 (ROG or NOx)		18%	27%	36%	45%	54%	60%
Target ROG Level		428.0	381.1	334.1	287.1	240.1	208.8
Apparent Shortfall (-)/ Surplus (+) in ROG		14.4	-7.5	-41.9	-80.4	-122.4	-149.5
Apparent Shortfall (-)/ Surplus (+) in ROG, %		2.8%	-1.4%	-8.0%	-15.4%	-23.4%	-28.6%
ROG Shortfall previously provided by NOx Substitution, %		0.0%	0.0%	1.4%	8.0%	15.4%	23.4%
Actual ROG shortfall (-)/ surplus (+), %		2.8%	-1.4%	-6.6%	-7.4%	-8.1%	-5.2%
Year	NOx						
	2011	2017	2020	2023	2026	2029	2031
Baseline NOx	534.3	366.2	306.5	239.0	220.9	209.9	204.9
Change in NOx since 2011		168.1	227.9	295.3	313.4	324.4	329.4
Change in NOx since 2011, %		31.5%	42.6%	55.3%	58.7%	60.7%	61.7%
NOx reductions used for ROG substitution through last milestone year, %		0%	0%	1.4%	8.0%	15.4%	23.4%
NOx reductions since 2011 available for ROG substitution in this milestone year, %		31.5%	42.6%	53.8%	50.6%	45.3%	38.2%
NOx reductions since 2011 used for ROG substitution in this milestone year, %		0%	1.4%	6.6%	7.4%	8.1%	5.2%
NOx reductions since 2011 surplus after meeting ROG substitution needs in this milestone year, %		31.5%	41.2%	47.2%	43.3%	37.3%	33.0%
Total shortfall for RFP		0%	0%	0%	0%	0%	0%
RFP Met?		YES	YES	YES	YES	YES	YES

Note: numbers may not add up due to rounding

C. Transportation Conformity Budgets

As discussed in Chapter I, section 176(c) of the Act establishes transportation conformity requirements which are intended to ensure that transportation activities do not interfere with a region's air quality progress. The Act requires that transportation plans, programs, and projects that obtain federal funds or approvals conform to applicable SIPs and must not cause or contribute to any new or existing violation of any standard, or delay timely attainment of any standard.

The 2016 AQMP included transportation conformity budgets for the South Coast Air Basin corresponding with the milestone years in the submitted RFP demonstrations for the 75 ppb 8-hour ozone standard. To align with the updated RFP in Table IX-2, amended transportation conformity budgets are included in Table IX-3.

SCAG, the MPO in Southern California, prepares a long range RTP at least every four years and a short range funding program, or RTIP, every two years. Before adopting the RTP or RTIP, SCAG prepares a regional emissions analysis using the proposed plan and program as specified in the federal conformity regulation⁴² and compares those emissions to the emission budgets in the SIP. The MPO may determine the RTP/RTIP conforms if the emissions from the proposed actions are less than the emissions budgets in the SIP. The conformity determination also signifies that the MPO has met other transportation conformity requirements such as interagency consultation and financial constraint.

The 2018 SIP Update establishes transportation conformity budgets in the South Coast Air Basin for the ozone progress years of 2020, 2023, 2026, and 2029, as well as the attainment year of 2031.

The emissions budgets presented below use EMFAC2014 with SCAG-modeled VMT and speed distributions. EMFAC2014 was approved for use in SIPs and transportation conformity by U.S. EPA on December 14, 2015. The VMT and speed distribution data are from the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Amendment 2, which was adopted by SCAG in July 2017. Because these data represent the most recent data available, there are some differences between the budgets and planning inventory. These differences do not impact the RFP or attainment demonstrations.

Calculation Methodology

The budgets in Table IX-3 were developed in consultation with SCAG and U.S. EPA, using emissions for a summer average day consistent with the ozone attainment and progress demonstrations, using the following method:

- 1) Calculate the on-road motor vehicle emissions totals for the ozone precursors (ROG and NO_x) using EMFAC2014.

⁴² 40 CFR Parts 51 and 93 – Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Titles 23 or 49 of the United States Code.

- 2) Sum each pollutant and round each total up to the nearest ton for ROG, NOx.

Table IX-3 below contains the ozone emissions budgets for the South Coast Air Basin.

Table IX-3. Transportation Conformity Budgets for the 75 ppb 8-hour Ozone Standard in the South Coast Air Basin
(tpd, summer planning inventory)

South Coast Air Basin	2020		2023		2026		2029		2031	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline Emissions	79.78	140.17	67.72	88.21	59.13	76.14	53.44	68.44	49.45	65.10
Total	79.78	140.17	67.72	88.21	59.13	76.14	53.44	68.44	49.45	65.10
Conformity (Emissions) Budget	80	141	68	89	60	77	54	69	50	66

Note: numbers may not add up due to rounding

D. Contingency Measures

The RFP demonstration in the 2016 AQMP included a 3 percent set-aside in the first milestone year that was carried through to the attainment year, confirming that the baseline inventory provides enough emission reductions beyond those needed for the RFP targets, to meet contingency measure requirements in the relevant years. In addition, the 2016 AQMP contained a discussion of emission reductions from continued implementation of CARB's Mobile Source Program and new measures as needed for attainment, including fleet turnover through the attainment year.

As described in Chapter I, U.S. EPA has interpreted the *Bahr* decision to mean that contingency measures must include a future action triggered by a failure to attain or failure to make RFP and therefore, the past practice of using the 3 percent set aside can no longer fully meet the contingency measure requirements. As detailed in Chapter X, the 2018 SIP Update includes two complementary elements that, together with district contingency measures, fully address the contingency measure requirements of the Act as interpreted by U.S. EPA in response to *Bahr*. The tables below represent one of the two elements as relevant to the South Coast Air Basin and document the amount needed for contingency and the excess emission reduction benefits from implementing California's Mobile Source Program that can be used towards meeting RFP contingency.

Since progress must first be shown with ROG prior to using NOx substitution, Table IX-5 includes the estimated one year of progress for 2011 and 2031.

Table IX-5. South Coast Contingency Calculation

(tpd, reductions calculated on summer planning inventory)

	2011	2031
3 Percent ROG Emissions	15.7	10.7

An inventory analysis serves the purpose of demonstrating that there are emission reductions in the baseline inventory beyond what is needed for RFP of approximately one year of progress due to future implementation of the Mobile Source Program. Included in Table IX-6 are calculations demonstrating that there are enough emission reductions from mobile sources in the baseline inventory for South Coast sufficient to meet contingency measure requirements in the milestone years.

Table IX-6. South Coast RFP Contingency Reductions

(tpd, reductions calculated on summer planning inventory)

	2017	2020	2023	2026	2029	2031
ROG Reductions Used for RFP	94.0	133.5	146.0	154.5	159.5	163.7
NOx Reductions Used for RFP	0.0	7.7	42.9	82.3	125.3	153.0
Total NOx Reductions since 2011	168.1	227.9	295.3	313.4	324.4	329.4
Surplus NOx Reductions Available for RFP Contingency	168.1	220.2	252.4	231.1	199.1	176.4

Note: numbers may not add up due to rounding

E. Summary of SIP Submittal for the South Coast Air Basin

CARB is amending the 2016 AQMP to include South Coast Air Basin RFP emission inventories for ROG and NOx for the 2011 RFP baseline year, 2017, 2020, 2023, 2026, and 2029 RFP milestone years, and 2031 attainment year; an updated RFP demonstration; updated transportation conformity budgets; and information needed to support the Act's contingency requirements. Since 2017 has passed and the South Coast Air Basin successfully made RFP in that year, the RFP contingency measure requirement in section 172(c)(9) of the Act for the 2017 milestone year is irrelevant as applied to the South Coast Air Basin.

X. CONTINGENCY MEASURES

In all, the State must submit SIP revisions meeting the contingency measure requirements for 9 of the 18 areas designated as nonattainment for the 75 ppb 8-hour ozone standard, and one area designated as nonattainment for the 12 $\mu\text{g}/\text{m}^3$ annual and 35 $\mu\text{g}/\text{m}^3$ 24-hour PM_{2.5} standards. These areas are listed below along with their respective classification, RFP milestone years, and attainment dates.

Table X-1 includes nonattainment areas for which a plan has been adopted and submitted to U.S. EPA for the applicable standard. Chapters II through IX discussed the SIP elements included in the 2018 SIP Update for these areas.

Table X-1. California Nonattainment Areas Covered by this SIP Revision with Submitted Plans

Nonattainment Area	Classification	RFP Milestone and Attainment Years	Applicable Attainment Date ⁴³
Eastern Kern County	Serious	2017, 2020	July 20, 2021
Ventura County	Serious	2017, 2020	July 20, 2021
Coachella Valley	Severe-15	2017, 2020, 2023, 2026	July 20, 2027
Sacramento Metro	Severe-15	2017, 2020, 2023, 2024	July 20, 2025
Western Mojave Desert	Severe-15	2017, 2020, 2023, 2026	July 20, 2027
San Joaquin Valley (Ozone)	Extreme	2017, 2020, 2023, 2026, 2029, 2031	July 20, 2032
South Coast Air Basin	Extreme	2017, 2020, 2023, 2026, 2029, 2031	July 20, 2032

Table X-2 includes nonattainment areas for which a plan is still in development for the applicable standard. Contingency is the only SIP element included in the 2018 SIP Update for these areas and as such, these areas were not addressed in an earlier chapter.

⁴³ Under 40 CFR 51.1100(h), the attainment year ozone season refers to the ozone season immediately preceding a nonattainment area's maximum attainment date. Because the maximum applicable attainment dates for the 75 ppb 8-hour ozone standard are in the middle of the year, the attainment demonstration must show attainment by no later than the year prior to the maximum applicable attainment date. For example, for an extreme area, the attainment demonstration must show attainment by no later than 2031, which makes 2032 the year immediately following the attainment year the year for which for attainment contingency measures are required under CAA section 172(c)(9).

**Table X-2. California Nonattainment Areas Covered by this SIP Revision
Submitting Separate SIPs**

Nonattainment Area	Classification	RFP Milestone and Attainment Years	Applicable Attainment Date⁴⁴
Western Nevada County	Serious (Expected)	2017, 2020	July 20, 2021
San Diego County	Serious (Expected)	2017, 2020	July 20, 2021
San Joaquin Valley (35 µg/m ³ 24-hour PM _{2.5})	Serious	2017, 2020, 2023	December 31, 2024
San Joaquin Valley (12 µg/m ³ annual PM _{2.5})	Serious (Expected)	2019, 2022, 2025	December 31, 2025

CARB staff has been working with the staffs of the various affected air districts to develop a framework for addressing the contingency measure requirements under sections 172(c)(9) and 182(c)(9) of the Act for the 75 ppb 8-hour ozone standard and relevant PM_{2.5} standards. This document identifies the applicable nonattainment areas and sets forth what CARB will do on behalf of these areas upon a failure of any applicable area to meet RFP milestones or upon a failure to attain the relevant standards by the applicable attainment date. CARB staff has informed the relevant air districts that, in addition to CARB's actions, U.S. EPA has informed CARB it will require each district to include a complementary contingency measure or measures, or a commitment on the part of the district for such measures, suitable for providing the basis for a full approval or conditional approval by the U.S. EPA of the contingency measure SIP element for the area.⁴⁵ Once CARB receives such a district measure or commitment from a district, it will rapidly transmit it to U.S. EPA.

This 2018 SIP Update describes a contingency measure specifying the new actions California will take if they are triggered by an area's failure to meet an RFP milestone or failure to attain by the applicable attainment date, and an emissions analysis that shows that emissions reductions from the state's contingency measure. These emission reductions, an appropriate district measure or commitment, along with reductions from on-going mobile source control programs, would be roughly equivalent to one year's worth of progress in each of the given areas in the relevant years. Collectively, these

⁴⁴ Under 40 CFR 51.1100(h), the attainment year ozone season refers to the ozone season immediately preceding a nonattainment area's maximum attainment date. Because the maximum applicable attainment dates for the 75 ppb 8-hour ozone standard are in the middle of the year, the attainment demonstration must show attainment by no later than the year prior to the maximum applicable attainment date. For example, for an extreme area, the attainment demonstration must show attainment by no later than 2031, which makes 2032 the year immediately following the attainment year the year for which for attainment contingency measures are required under CAA section 172(c)(9).

⁴⁵ While CARB has communicated U.S. EPA's position regarding additional district measures, CARB does not concede as a matter of law that such additional district measures are required under the Act or *Bahr*.

elements address the requirements for contingency measures consistent with the decision by the U.S. Court of Appeals for the Ninth Circuit in *Bahr*.

A. Background

Current SIP Development Process

The SIP development processes for each of the seven areas with plans already submitted to U.S. EPA are detailed in Chapters II to IX above. For all nine areas, this SIP revision will supplement or replace the contingency measure elements in their current or forthcoming plans.

Contingency Measure Requirements

Basic requirements for contingency measures are defined in the Act. The Act's General Preamble and U.S. EPA guidance also provide a framework for implementing this provision of the Act. In addition, a recent court case has provided further interpretation of implementation requirements. Specifically, for ozone areas classified as moderate or above, the Act requires that nonattainment SIPs:

Provide for the implementation of specific measures to be undertaken if the area fails to make reasonable further progress, or to attain the national primary ambient air quality standard by the attainment date applicable under this part. Such measures shall be included in the plan revision as contingency measures to take effect in any such case without further action by the state or the Administrator.⁴⁶

For ozone areas classified as serious or above, the Act further requires that nonattainment SIPs:

In addition to the contingency provisions required under section 7502(c)(9) of this title, the plan revision shall provide for the implementation of specific measures to be undertaken if the area fails to meet any applicable milestone. Such measures shall be included in the plan revision as contingency measures to take effect without further action by the State or the Administrator upon a failure by the State to meet the applicable milestone.⁴⁷

In past SIP approvals, U.S. EPA has stated that "the purpose of contingency measures is to provide extra reductions [] that will provide a cushion while the plan is being revised to fully address the failure to [attain or make reasonable further progress]."⁴⁸ U.S. EPA has also described the purpose of contingency measures as providing

⁴⁶ CAA, § 172(c)(9).

⁴⁷ CAA, § 182(c)(9).

⁴⁸ 79 Fed.Reg. 61799, 61815 (Oct. 15, 2014).

“interim public health and welfare protection” until a more formal SIP revision corrects for any failure.⁴⁹

In light of its view of the general purpose of contingency measures, and in the absence of specific requirements for the level of emission reductions required, U.S. EPA has generally accepted contingency measures that “equal approximately 1 year’s worth of emission reductions necessary to achieve [reasonable further progress] for the area” in the aggregate.⁵⁰ U.S. EPA has accepted contingency measures that equal less than a year’s worth of RFP when the circumstances fit under “U.S. EPA’s long-standing recommendation that states should consider ‘the potential nature and extent of any attainment shortfall for the area’ and that contingency measures ‘should represent a portion of the actual emissions reductions necessary to bring about attainment in the area.’”⁵¹

Additional detail regarding the amount of reductions needed can be found in U.S. EPA’s broadest statement interpreting SIP requirements: the General Preamble.⁵² In the General Preamble, U.S. EPA explains that a somewhat smaller amount of reductions might be appropriate as a contingency if a state can show that “its SIP can be revised to correct any possible failure in less than 1 year” and in that case, only the emissions needed to maintain RFP for whatever portion of the year the state was off track would be needed in the contingency measures.⁵³ In essence, the ability to maintain RFP is the key consideration in measuring the appropriateness of contingency measure stringency, and the ability to maintain RFP can be addressed - in part - through the required plan revision.

As noted above, a decision by the U.S. Court of Appeals for the Ninth Circuit, *Bahr* determined that contingency measures must include a future action triggered by a failure to attain or failure to make reasonable further progress. These actions can take many forms including an adopted rule that has a requirement that is only implemented when triggered, or a policy under the discretion of the agency that can occur with little further action when triggered.

B. Description of Contingency Measures

This SIP Revision consists of two complementary elements for the 75 ppb 8-hour ozone, 35 µg/m³ 24-hour PM_{2.5}, and 12 µg/m³ annual PM_{2.5} standards, as relevant for the covered districts, that together with the districts’ contingency measures address the contingency measure requirements of the Act as interpreted in *Bahr*:

- 1) Inclusion of a trigger mechanism directing the Executive Officer to allocate resources and enhance enforcement activities in any of the nine nonattainment

⁴⁹ 59 Fed.Reg. 41998, 42015 (Aug. 16, 1994).

⁵⁰ 72 Fed.Reg. 20586, 20643 (Apr. 25, 2007).

⁵¹ 78 Fed.Reg. 37741, 37750 (Jun. 24, 2013).

⁵² 57 Fed. Reg. 13498 (Apr. 16, 1992).

⁵³ *Id.* at pp. 13511-13512.

areas listed in Tables X-1 and X-2 to provide additional NO_x reductions in the event that U.S. EPA determines the area failed to meet an RFP milestone or failed to attain the 75 ppb 8-hour ozone, 35 µg/m³ 24-hour PM_{2.5}, and/or 12 µg/m³ annual PM_{2.5} standards, as relevant, by the applicable attainment date; and

- 2) Demonstration of how additional VOC and NO_x emission reductions that are expected to occur due to ongoing State mobile source control programs in each of the nine areas, together with the emissions reductions from the Enhanced Enforcement Activities contingency measures and district contingency measures or commitments, provide for approximately one year's worth of progress in the years following RFP milestone and attainment years.

A detailed description of each element is provided in the next two sections:

1. Trigger Mechanism for Enhanced Enforcement Activities

The contingency measure will include enhanced enforcement activities in any area listed in Tables X-1 and X-2 that fails to meet an RFP milestone or fails to attain by the applicable attainment date to be initiated within 60 days of a U.S. EPA determination of a failure to meet an RFP milestone or failure to attain. These enhanced enforcement activities will identify and reduce emissions from sources most likely to be causing the failure to meet RFP or attain the standard. The enhanced enforcement efforts will continue, in the case of a failure to attain, until CARB submits a new SIP to U.S. EPA demonstrating attainment of the relevant NAAQS, or in the case of a failure to make RFP, for one year from the date the enhanced enforcement program is initiated.

The initial step of a triggered enhanced enforcement effort will be the development and publishing of a report that identifies the probable causes of the failure and that states the type and quantity of additional enforcement resources that will be utilized within the failing area along with an explanation of why the type and quantity of enforcement resources allocated are appropriate to reduce emissions and health impacts in the failing area. To expedite this process, in practice CARB will closely monitor these districts' progress towards meeting the applicable deadlines, and would begin the analysis for such reports before the applicable deadline.

As noted above, CARB staff has informed these nine air districts that in addition to CARB's actions, U.S. EPA has informed CARB it will require each district to include a complementary contingency measure or measures, or a commitment on the part of the district for such measures, suitable for providing the basis for a full approval or conditional approval by the U.S. EPA of the contingency measure SIP element for the area. Once CARB receives such a district measure or commitment from a district, it will rapidly transmit it to U.S. EPA.

Incremental Emissions Reductions in Years Following RFP Milestone Years and Attainment Years

California has a long history of developing and implementing regulations to reduce emissions from on-road and off-road sources, which has resulted in the strongest mobile source control program in the nation. Several key recent regulatory efforts include the Advanced Clean Cars (ACC) program, the Cleaner In-Use Heavy-Duty Truck Regulation, and the Off-Road Regulation. Together, these programs are providing significant reductions in NO_x and diesel particulate matter through 2020 and beyond.

The ACC program, approved in January 2012, is a suite of regulations that addresses both ambient air quality needs and climate change goals. The ACC program combines the control of smog and PM_{2.5} causing pollutants, and greenhouse gas emissions, into a package of requirements for passenger car model years 2015 through 2025. In 2025, cars under the ACC program will emit 75 percent less smog-forming pollution than the average new car sold in 2012.

The Truck and Bus Regulation addresses the need to reduce emissions from older, high-emitting, heavy-duty trucks with long service lives. The regulation represents a multi-year effort to turn over the legacy fleet of engines and replace them with the cleanest technology available. Starting in 2012, the Truck and Bus Regulation phases in requirements so that by 2014, nearly all vehicles operating in California will have PM emission controls, and by 2023 nearly all vehicles will meet 2010 model year engine emissions levels.

The Off-Road Regulation is designed to accelerate the penetration of the cleanest equipment into California's fleets and significantly reduce emissions of diesel particulate matter and NO_x from the over 150,000 in-use off-road diesel vehicles that operate in California by requiring their owners to modernize their fleets and install exhaust retrofits. The regulation affects dozens of vehicle types used in thousands of fleets by requiring owners to modernize their fleets by replacing older engines or vehicles with newer, cleaner models, retiring older vehicles or using them less often, or by applying retrofit exhaust controls.

Implementation of CARB's mobile source control program provides new emission reductions each year as cleaner vehicles and engines enter the fleet meeting CARB's regulatory requirements for new engines standards, accelerated vehicle turn over, and zero emission vehicle mandates. These new reductions occur immediately after the missed RFP milestone years and attainment year, ensuring continuing air quality progress and health protection.

Since progress must first be shown with ROG prior to using NO_x substitution, Table X-3 includes the estimated one year of progress for each area in 2011 and the area's respective attainment year.

Table X-3. Contingency Calculations

(tpd, summer planning inventory)

3 Percent ROG Emissions	2011	Attainment Year
Ventura County	1.1	0.9
Eastern Kern County	0.3	0.2
Sacramento Area	3.3	2.6
Western Mojave Desert	1.5	1.2
Coachella Valley	0.5	0.5
San Joaquin Valley (Ozone)	11.4	9.1
South Coast Air Basin	15.7	10.7

Included in Table X-4 are calculations demonstrating the amount of surplus emission reductions from mobile sources in the baseline inventory in each area available to meet contingency measure requirements in the relevant milestone years.

Table X-4. RFP Contingency Reductions

(tpd reductions calculated on summer planning inventory)

Surplus NOx Reductions Available for RFP Contingency	2017	2020	2023	2026*	2029	2031
Ventura County	7.1	6.5	--	--	--	--
Eastern Kern County	2.4	1.4	--	--	--	--
Sacramento Area	35.8	33.9	38.1	36.4	--	--
Western Mojave Desert	10.7	8.8	7.8	1.7	--	--
Coachella Valley	10.1	11.1	12.8	10.5	--	--
San Joaquin Valley (Ozone)	137.1	140.5	159.7	141.3	117.8	100.3
South Coast Air Basin	168.1	220.2	252.4	231.1	199.1	176.4

* 2024 for the Sacramento Area

Table X-5 documents the amount of emission reductions that occur in each area after the attainment year due to continued implementation of California's Mobile Source Program.

Table X-5. Attainment Contingency Reductions

(tpd reductions calculated on summer planning inventory)

Reductions in Post-Attainment Year available for Attainment Contingency	Attainment Year to Post-Attainment Year Emission Reductions
Imperial County	N/A
Eastern Kern County	0.56
Ventura County	1.25
Coachella Valley	0.32
Sacramento Area	2.7
Western Mojave Desert	1.78
San Joaquin Valley (Ozone)	2.97
South Coast Air Basin	N/A

Integrity Element Analysis

Where a state relies upon a nontraditional emission reduction measure in a SIP such as the triggered enhanced enforcement activities described here, U.S. EPA evaluates the programmatic elements of that measure to determine whether the resulting emission reductions are quantifiable, surplus, enforceable and permanent. These four “integrity elements,” are designed to ensure that such measures satisfy the applicable requirements of the Act.⁵⁴ Each of these elements is addressed below:

- **Quantifiable:** CARB will quantify the emission reductions achieved from implementation of an enhanced enforcement program in the final report documenting emission reductions achieved, these reductions and the continuing reductions from existing mobile source measures can be measured in a reliable and replicable fashion through existing air monitoring;
- **Surplus:** The emission reductions anticipated from implementation of the enhanced enforcement activities and reductions from existing mobile source measures are surplus in that they are not otherwise required by or assumed in a SIP-related program, any other adopted State air quality program, a consent decree, or a federal rule designed to reduce emission of a criteria pollutant or its precursors;
- **Enforceable:** The enhanced enforcement activities are enforceable once triggered in that citizens will have access to reports CARB will provide to

⁵⁴ See “Guidance on Incorporating Voluntary Mobile Source Emission Reduction Programs in State Implementation Plans,” October 24, 1997, at pp. 6-7; “Improving Air Quality with Economic Incentive Programs,” January 2001 at Section 4.1; “Incorporating Emerging and Voluntary Measures in a State Implementation Plan,” September 2004 at pp. 3-4’ and “Diesel Retrofits: Quantifying and Using Their Emission Benefits in SIPs and Conformity,” February 2014 at pp. 27-29.

U.S. EPA that quantify the triggered activities. CARB is responsible for undertaking the enhanced enforcement activities if the contingency measure is triggered, and citizens may file suit if CARB does not take the committed actions; and

- Permanent: The reductions from the enhanced enforcement activities are permanent in that, if triggered, they will occur until submission of a revised SIP following a failure which is as long as such reductions are relied upon in the SIP.

C. Contingency Measure SIP Commitment and Demonstration of Compliance with the Contingency Measure Requirements of the Clean Air Act

CARB staff recommends the Board adopt the SIP revision addressing contingency measure requirements for the 75 ppb 8-hour ozone, 35 $\mu\text{g}/\text{m}^3$ 24-hour PM_{2.5}, and/or 12 $\mu\text{g}/\text{m}^3$ annual PM_{2.5} standards. If adopted, the SIP revision will include a commitment for the following actions:

- 1) Within 60 days of a U.S. EPA finding that an area in Table X-1 or X-2 has failed to meet an RFP milestone or has failed to attain the 75 ppb 8-hour ozone, 35 $\mu\text{g}/\text{m}^3$ 24-hour PM_{2.5}, and/or 12 $\mu\text{g}/\text{m}^3$ annual PM_{2.5} standards, as relevant, by the applicable attainment date, the CARB Executive Officer will direct enhanced enforcement activities in the given nonattainment area minimally consisting of:
 - A published report describing the enforcement history, inspection locations, and compliance status of stationary and mobile sources in the area (Enhanced Enforcement Report). The report will include a determination of the probable causes of the failure and will state the type and quantity of additional enforcement resources that will be utilized within the failing area along with an explanation of why the type and quantity of enforcement resources allocated (Enhanced Enforcement Program) are appropriate to reduce emissions and health impacts in the failing area.
 - Implementation of the Enhanced Enforcement Program documented in the Enhanced Enforcement Report.
 - The actions described in the Enhanced Enforcement Program will continue:
 - o In the case of a failure to attain, until CARB submits a new SIP to U.S. EPA demonstrating attainment of the relevant NAAQS.
 - o In the case of a failure to make RFP, for one year from the date the actions in the Enhanced Enforcement Program are initiated.
 - A published final report documenting the activities and emissions and exposure reductions resulting from the implemented Enhanced Enforcement Program.

- 2) CARB staff has informed the districts in Tables X-1 and X-2 that in addition to CARB's actions, U.S. EPA has informed CARB it will require each district to include a complementary contingency measure or measures, or a commitment on the part of the district for such measures, suitable for providing the basis for a full approval or conditional approval by the U.S. EPA of the contingency measure SIP element for the area. Once CARB receives such a district measure or commitment from a district, it will rapidly transmit it to U.S. EPA.

The Enhanced Enforcement Activities contingency measure, along with an appropriate district contingency measure or commitment, would be adequate to meet the contingency measure requirements of the Clean Air Act because the emissions reductions from ongoing implementation of State mobile source programs would ensure that the overall reduction in emissions in the years following RFP milestone years and attainment years would be roughly equal to one year's worth of progress in each of the nonattainment areas.

XI. ENVIRONMENTAL IMPACTS

A. Introduction

This chapter provides the basis for CARB's determination that the 2018 SIP Update is exempt from the requirements of the California Environmental Quality Act (CEQA). A brief explanation of this determination is provided in section B below. CARB's regulatory program, which involves the adoption, approval, amendment, or repeal of standards, rules, regulations, or plans for the protection and enhancement of the State's ambient air quality, has been certified by the California Secretary for Natural Resources under Public Resources Code section 21080.5 of CEQA (14 CCR 15251(d)). Public agencies with certified regulatory programs are exempt from certain CEQA requirements, including but not limited to, preparing environmental impact reports, negative declarations, and initial studies. CARB, as a lead agency, prepares a substitute environmental document (referred to as an "Environmental Analysis" or "EA") as part of the Report prepared for a proposed action to comply with CEQA (17 CCR 60000-60008). If the 2018 SIP Update is finalized, a Notice of Exemption will be filed with the Office of the Secretary for the Natural Resources Agency and the State Clearinghouse for public inspection.

B. Analysis

CARB has determined that the 2018 SIP Update is exempt from CEQA under the "general rule" or "common sense" exemption (14 CCR 15061(b)(3)). The common sense exemption states a project is exempt from CEQA if "the activity is covered by the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA." The Contingency Measures component of the 2018 SIP Update is also categorically exempt from CEQA under the "Class 21" exemption (14 CCR 15321) "enforcement actions by regulatory agencies" because it includes contingency measures that consist of enforcement actions taken by CARB, a regulatory agency.

As described in more detail above, the 2018 SIP Update consists of updates to RFP demonstrations and other baseline-year dependent SIP elements of submitted plans for the 75 ppb 8-hour ozone standard for eight California nonattainment areas; and a contingency measure to assign enhanced levels of enforcement if a nonattainment area has failed to attain the 75 ppb 8-hour ozone, 35 $\mu\text{g}/\text{m}^3$ 24-hour PM_{2.5}, and/or 12 $\mu\text{g}/\text{m}^3$ annual PM_{2.5} standards, or make reasonable further progress towards attainment. This proposed enhanced enforcement effort is within the scope of the previously adopted regulations affected by this enforcement effort, and would serve to achieve the reductions contemplated by those previously adopted regulations.

Based on CARB's review it can be seen with certainty that there is no possibility that the 2018 SIP Update may result in a significant adverse impact on the environment, and

that the proposed action includes contingency measures that consist of enforcement actions that are exempt from CEQA; therefore, this activity is exempt from CEQA.

XII. STAFF RECOMMENDATION

CARB staff recommends that the Board:

1. Adopt the SIP elements for California nonattainment areas, as specified in Chapter II through Chapter IX, as revisions to the California SIP.
2. Adopt the Statewide Contingency Measure included in Chapter X as a revision to the California SIP.
3. Direct the Executive Officer to submit the nonattainment area SIP elements and Statewide Contingency Measure to U.S. EPA as a revision to the California SIP.

APPENDIX A. NONATTAINMENT AREA INVENTORIES

Statewide Emission Projections

Emission inventories included in Appendix A were prepared for inclusion in the California SIP as planning tools to be used in the preparation of reasonable further progress demonstrations. These planning inventories will supplement or replace the planning inventories submitted as part of each nonattainment area plan recently submitted for the 75 ppb 8-hour ozone standard.

The emission inventories included in Appendix A are based on California Emission Projection Analysis Model (CEPAM), 2016 State Implementation Plan (SIP) Emission Projections, Version 1.05,⁵⁵ for all included nonattainment areas aside from Imperial County. For Imperial County, all relevant planning milestone years have passed. As such, the emission inventory for Imperial County has been updated to reflect actual emissions and is thereby based on the California Emission Inventory Development and Reporting System (CEIDARS), for calendar years 2011 and 2017.

The 2011 baseline year inventory and the 2012 baseyear inventory are consistent with each other as required by the Ozone Rule. For both, stationary source emissions reflect actual emissions reported from industrial point sources. Stationary emissions also include stationary aggregate sources, such as gasoline dispensing facilities, that are estimated as a group and reported as an aggregated total. The 2011 baseline year emissions for areawide, stationary aggregate sources and mobile are backcasted from the 2012 baseyear, relying on the same growth and control methodology as is used for future years. In addition, both inventories are comprehensive, accurate, and current inventory of actual emissions from all sources of the relevant pollutant or pollutants in each area as required by the Act.

Stationary and Areawide Sources

Stationary emissions reflect actual emissions reported from industrial point sources. Stationary emissions also include stationary aggregate sources, which are categories such as gasoline dispensing facilities that are not inventoried individually but are estimated as a group and reported as an aggregated total.

Areawide sources are categories such as consumer products, unpaved road dust, fireplaces, and prescribed burning for which emissions occur over a wide geographic area. Areawide emissions are estimated by both CARB and the local air districts using various models and methodologies.

The inventory reflects actual emissions for stationary point sources for all years through 2012. Emissions beyond 2012 are projected based on growth profiles developed by CARB and the Districts that capture expected changes in population and economic growth. Projections also account for expected emissions reductions from adopted rules and regulations as provided by the Districts through November 2015.

⁵⁵ ARB's Emission Inventory Activities <https://www.arb.ca.gov/ei/ei.htm>

Mobile

Inventory for on-road mobile sources are based on the EMFAC2014 model. The projections are based on expected activity rates and vehicle fleet turnover by vehicle model year. The projections also account for all regulatory actions adopted through December 2014.

Inventory for off-road mobile sources are estimated by CARB using a new modular approach for different source categories. Aircraft emission estimates are provided by the Districts.

The following updates were made to the mobile inventory for CEPAM version 1.05 (relative to CEPAM version 1.04):

- **Locomotives.** In 2016, CARB adopted the following updates to California's Class I and Class II line-haul locomotive model: age and model year distribution based on 2011 and 2014 rail company data, activity based on Freight Analysis Framework (FAF) data, fuel growth based on Board of Equalization historical rail data, and new locomotive populations, survival rates, and Tier distributions.
- **Ocean-Going Vessels (OGV).** CARB extensively revised and updated the OGV inventory in 2016. Activity data was updated through 2014. Emissions for all vessels were revised to incorporate efficiency changes for fuel slide valves. Emissions for bulk carriers, containerships, and oil tankers were revised to reflect reduced fuel consumption due to the recent widespread adoption of slower shipping speeds. Growth rates for containerships were updated to reflect the trend of larger ships visiting California. The inventory also reflects the delayed introduction of Tier 3 engines in California waters to 2020 through 2040, depending on the vessel type.
- **Military Aircraft.** Emissions for the El Centro Naval Air Facility in Imperial County were updated based on actual operational data and growth projections provided by El Centro staff.
- **Aircraft in South Coast Air Quality Management District (AQMD).** Emissions projections for aircraft in South Coast AQMD were updated by the District.
- **On-road special scenarios.** Separate EMFAC scenarios were run for West San Bernardino County and Eastern Kern County based on unique input data and geographic boundaries.

Additional information and documentation on stationary, areawide, and mobile methodologies can be found in prior SIPs here:

<https://www.arb.ca.gov/planning/sip/sip.htm>.

Emission Projections by Summary Category

Season: Summer

Imperial County Ozone Nonattainment Area

Reactive Organic Gases (Tons/Day)⁵⁶

Data Source: CEIDARS – Calendar Years 2011 and 2017

Stationary Sources

SUMMARY CATEGORY NAME	2011	2017
ELECTRIC UTILITIES	0.05	0.02
COGENERATION	0.00	0.00
MANUFACTURING AND INDUSTRIAL	0.03	0.02
FOOD AND AGRICULTURAL PROCESSING	0.03	0.02
SERVICE AND COMMERCIAL	0.01	0.01
OTHER (FUEL COMBUSTION)	0.01	0.01
TOTAL FUEL COMBUSTION	0.12	0.09
SEWAGE TREATMENT	0.00	0.00
LANDFILLS	0.00	0.00
OTHER (WASTE DISPOSAL)	0.00	0.00
TOTAL WASTE DISPOSAL	0.00	0.00
LAUNDERING	0.01	0.01
DEGREASING	0.19	0.27
COATINGS AND RELATED PROCESS SOLVENTS	0.14	0.17
ADHESIVES AND SEALANTS	0.06	0.09
TOTAL CLEANING AND SURFACE COATINGS	0.40	0.54
PETROLEUM REFINING	0.00	0.00
PETROLEUM MARKETING	0.73	0.61
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.00	0.00
TOTAL PETROLEUM PRODUCTION AND MARKETING	0.73	0.61
FOOD AND AGRICULTURE	0.00	0.00
MINERAL PROCESSES	0.01	0.00
METAL PROCESSES	0.00	0.00
ELECTRONICS	0.00	0.00
OTHER (INDUSTRIAL PROCESSES)	0.00	0.00
TOTAL INDUSTRIAL PROCESSES	0.01	0.00
TOTAL STATIONARY	1.27	1.24

⁵⁶ Emissions may appear as zero due to rounding.

Areawide Sources

SUMMARY CATEGORY NAME	2011	2017
CONSUMER PRODUCTS	0.11	0.11
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.37	0.41
PESTICIDES/FERTILIZERS	2.49	2.21
ASPHALT PAVING / ROOFING	1.87	0.17
TOTAL SOLVENT EVAPORATION	4.83	2.90
RESIDENTIAL FUEL COMBUSTION	0.00	0.00
FARMING OPERATIONS	2.21	2.47
CONSTRUCTION AND DEMOLITION	0.00	0.00
PAVED ROAD DUST	0.00	0.00
UNPAVED ROAD DUST	0.00	0.00
FUGITIVE WINDBLOWN DUST	0.00	0.00
FIRES	0.00	0.00
MANAGED BURNING AND DISPOSAL	1.42	0.30
COOKING	0.01	0.01
OTHER (MISCELLANEOUS PROCESSES)	0.00	0.00
TOTAL MISCELLANEOUS PROCESSES	3.65	2.78
TOTAL AREAWIDE	8.48	5.68

Mobile Sources

SUMMARY CATEGORY NAME	2011	2017
LIGHT DUTY PASSENGER (LDA)	1.47	1.13
LIGHT DUTY TRUCKS - 1 (LDT1)	0.62	0.38
LIGHT DUTY TRUCKS - 2 (LDT2)	0.75	0.54
MEDIUM DUTY TRUCKS (MDV)	0.66	0.61
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	0.15	0.12
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	0.02	0.01
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.10	0.04
HEAVY HEAVY DUTY GAS TRUCKS (HHGT)	0.03	0.01
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	0.02	0.01
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	0.00	0.00
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	0.03	0.01
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	0.43	0.06
MOTORCYCLES (MCY)	0.17	0.19
HEAVY DUTY DIESEL URBAN BUSES (UBD)	0.00	0.00
HEAVY DUTY GAS URBAN BUSES (UBG)	0.00	0.00
SCHOOL BUSES - GAS (SBG)	0.02	0.00
SCHOOL BUSES - DIESEL (SBD)	0.00	0.00
OTHER BUSES - GAS (OBG)	0.01	0.00
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.00	0.00
ALL OTHER BUSES - DIESEL (OBD)	0.00	0.00
MOTOR HOMES (MH)	0.01	0.00
TOTAL ON-ROAD MOTOR VEHICLES	4.49	3.13
AIRCRAFT	2.21	1.25
TRAINS	0.24	0.13
COMMERCIAL HARBOR CRAFT	0.00	0.00
RECREATIONAL BOATS	0.99	0.73
OFF-ROAD RECREATIONAL VEHICLES	0.62	0.47
OFF-ROAD EQUIPMENT	0.54	0.45
FARM EQUIPMENT	0.50	0.36
FUEL STORAGE AND HANDLING	0.13	0.10
TOTAL OTHER MOBILE SOURCES	5.24	3.49
TOTAL MOBILE	9.72	6.62
	2011	2017
Grand Total	19.48	13.54

Imperial County Ozone Nonattainment Area**Oxides of Nitrogen (Tons/Day)⁵⁷****Data Source: CEIDARS – Calendar Years 2011 and 2017****Stationary Sources**

SUMMARY CATEGORY NAME	2011	2017
ELECTRIC UTILITIES	0.48	0.26
COGENERATION	0.00	0.03
MANUFACTURING AND INDUSTRIAL	0.55	0.55
FOOD AND AGRICULTURAL PROCESSING	0.31	0.14
SERVICE AND COMMERCIAL	0.33	0.31
OTHER (FUEL COMBUSTION)	0.00	0.00
TOTAL FUEL COMBUSTION	1.68	1.29
SEWAGE TREATMENT	0.00	0.00
LANDFILLS	0.00	0.00
OTHER (WASTE DISPOSAL)	0.00	0.00
TOTAL WASTE DISPOSAL	0.00	0.00
LAUNDERING	0.00	0.00
DEGREASING	0.00	0.00
COATINGS AND RELATED PROCESS SOLVENTS	0.00	0.00
ADHESIVES AND SEALANTS	0.00	0.00
TOTAL CLEANING AND SURFACE COATINGS	0.00	0.00
PETROLEUM REFINING	0.00	0.00
PETROLEUM MARKETING	0.00	0.00
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.00	0.00
TOTAL PETROLEUM PRODUCTION AND MARKETING	0.00	0.00
FOOD AND AGRICULTURE	0.02	0.00
MINERAL PROCESSES	0.01	0.05
METAL PROCESSES	0.00	0.00
ELECTRONICS	0.00	0.00
OTHER (INDUSTRIAL PROCESSES)	0.00	0.00
TOTAL INDUSTRIAL PROCESSES	0.03	0.05
TOTAL STATIONARY	1.71	1.34

⁵⁷ Emissions may appear as zero due to rounding.

Areawide Sources

SUMMARY CATEGORY NAME	2011	2017
CONSUMER PRODUCTS	0.00	0.00
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.00	0.00
PESTICIDES/FERTILIZERS	0.00	0.00
ASPHALT PAVING / ROOFING	0.00	0.00
TOTAL SOLVENT EVAPORATION	0.00	0.00
RESIDENTIAL FUEL COMBUSTION	0.05	0.05
FARMING OPERATIONS	0.00	0.00
CONSTRUCTION AND DEMOLITION	0.00	0.00
PAVED ROAD DUST	0.00	0.00
UNPAVED ROAD DUST	0.00	0.00
FUGITIVE WINDBLOWN DUST	0.00	0.00
FIRES	0.00	0.00
MANAGED BURNING AND DISPOSAL	0.68	0.13
COOKING	0.00	0.00
OTHER (MISCELLANEOUS PROCESSES)	0.00	0.00
TOTAL MISCELLANEOUS PROCESSES	0.73	0.18
TOTAL AREAWIDE	0.73	0.18

Mobile Sources

SUMMARY CATEGORY NAME	2011	2017
LIGHT DUTY PASSENGER (LDA)	1.18	1.16
LIGHT DUTY TRUCKS - 1 (LDT1)	0.27	0.14
LIGHT DUTY TRUCKS - 2 (LDT2)	0.58	0.34
MEDIUM DUTY TRUCKS (MDV)	0.78	0.55
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	0.16	0.11
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	0.02	0.02
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.09	0.06
HEAVY HEAVY DUTY GAS TRUCKS (HHDGT)	0.04	0.02
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	0.66	0.43
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	0.14	0.09
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	0.58	0.37
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	6.57	3.06
MOTORCYCLES (MCY)	0.03	0.04
HEAVY DUTY DIESEL URBAN BUSES (UBD)	0.07	0.04
HEAVY DUTY GAS URBAN BUSES (UBG)	0.00	0.00
SCHOOL BUSES - GAS (SBG)	0.01	0.00
SCHOOL BUSES - DIESEL (SBD)	0.03	0.03
OTHER BUSES - GAS (OBG)	0.01	0.01
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.03	0.02
ALL OTHER BUSES - DIESEL (OBD)	0.04	0.03
MOTOR HOMES (MH)	0.02	0.01
TOTAL ON-ROAD MOTOR VEHICLES	11.34	6.52
AIRCRAFT	1.52	0.91
TRAINS	3.68	2.92
COMMERCIAL HARBOR CRAFT	0.02	0.01
RECREATIONAL BOATS	0.19	0.16
OFF-ROAD RECREATIONAL VEHICLES	0.02	0.02
OFF-ROAD EQUIPMENT	1.04	1.00
FARM EQUIPMENT	2.73	2.12
FUEL STORAGE AND HANDLING	0.00	0.00
TOTAL OTHER MOBILE SOURCES	9.20	7.14
TOTAL MOBILE	20.54	13.66
	2011	2017
Grand Total	22.98	15.17

Ventura County Ozone Nonattainment Area**Reactive Organic Gases (Tons/Day)^{58 59}****Data Source: CEPAM 2016 SIP Version 1.05****Stationary Sources**

SUMMARY CATEGORY NAME	2011	2017	2020	2021
ELECTRIC UTILITIES	0.09	0.09	0.09	0.09
COGENERATION	0.00	0.00	0.00	0.00
OIL AND GAS PRODUCTION (COMBUSTION)	0.04	0.02	0.02	0.02
PETROLEUM REFINING (COMBUSTION)	0.00	0.00	0.00	0.00
MANUFACTURING AND INDUSTRIAL	0.02	0.02	0.03	0.03
FOOD AND AGRICULTURAL PROCESSING	0.03	0.02	0.02	0.02
SERVICE AND COMMERCIAL	0.04	0.03	0.03	0.03
OTHER (FUEL COMBUSTION)	0.01	0.01	0.01	0.01
TOTAL FUEL COMBUSTION	0.23	0.20	0.20	0.20
SEWAGE TREATMENT	0.01	0.01	0.01	0.01
LANDFILLS	0.09	0.13	0.13	0.14
INCINERATORS	0.00	0.00	0.00	0.00
SOIL REMEDIATION	0.00	0.00	0.00	0.00
OTHER (WASTE DISPOSAL)	0.73	0.77	0.79	0.79
TOTAL WASTE DISPOSAL	0.83	0.91	0.93	0.94
LAUNDERING	0.04	0.04	0.05	0.05
DEGREASING	1.85	2.02	2.11	2.12
COATINGS AND RELATED PROCESS SOLVENTS	0.84	0.98	1.06	1.07
PRINTING	0.27	0.33	0.38	0.38
ADHESIVES AND SEALANTS	0.40	0.43	0.45	0.46
OTHER (CLEANING AND SURFACE COATINGS)	0.57	0.62	0.65	0.66
TOTAL CLEANING AND SURFACE COATINGS	3.97	4.43	4.70	4.74
OIL AND GAS PRODUCTION	1.40	1.18	1.08	1.08
PETROLEUM REFINING	0.00	0.00	0.00	0.00
PETROLEUM MARKETING	1.41	1.08	1.03	1.02
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.00	0.00	0.00	0.00
TOTAL PETROLEUM PRODUCTION AND MARKETING	2.81	2.26	2.10	2.09
CHEMICAL	0.07	0.09	0.10	0.11
FOOD AND AGRICULTURE	0.01	0.02	0.02	0.02
MINERAL PROCESSES	0.02	0.02	0.02	0.02
METAL PROCESSES	0.00	0.00	0.00	0.00
WOOD AND PAPER	0.09	0.13	0.15	0.15
ELECTRONICS	0.02	0.04	0.04	0.05
OTHER (INDUSTRIAL PROCESSES)	0.40	0.31	0.32	0.32
TOTAL INDUSTRIAL PROCESSES	0.61	0.60	0.65	0.66
TOTAL STATIONARY	8.44	8.39	8.58	8.63

⁵⁸ Emissions may appear as zero due to rounding.⁵⁹ Marine emissions beyond three nautical miles are not included.

Areawide Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2021
CONSUMER PRODUCTS	4.80	4.54	4.63	4.65
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	2.57	2.40	2.45	2.46
PESTICIDES/FERTILIZERS	3.11	2.41	2.34	2.33
ASPHALT PAVING / ROOFING	0.58	0.73	0.82	0.83
TOTAL SOLVENT EVAPORATION	11.06	10.07	10.24	10.27
RESIDENTIAL FUEL COMBUSTION	0.38	0.40	0.41	0.41
FARMING OPERATIONS	0.12	0.12	0.12	0.12
CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00
PAVED ROAD DUST	0.00	0.00	0.00	0.00
UNPAVED ROAD DUST	0.00	0.00	0.00	0.00
FUGITIVE WINDBLOWN DUST	0.00	0.00	0.00	0.00
FIRES	0.01	0.01	0.01	0.01
MANAGED BURNING AND DISPOSAL	0.11	0.13	0.13	0.13
COOKING	0.04	0.05	0.05	0.05
OTHER (MISCELLANEOUS PROCESSES)	0.00	0.00	0.00	0.00
TOTAL MISCELLANEOUS PROCESSES	0.67	0.70	0.71	0.71
TOTAL AREAWIDE	11.73	10.77	10.95	10.98

Mobile Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2021
LIGHT DUTY PASSENGER (LDA)	3.90	1.98	1.47	1.38
LIGHT DUTY TRUCKS - 1 (LDT1)	1.07	0.57	0.42	0.39
LIGHT DUTY TRUCKS - 2 (LDT2)	1.42	0.86	0.64	0.60
MEDIUM DUTY TRUCKS (MDV)	1.27	0.96	0.76	0.71
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	0.30	0.24	0.21	0.20
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	0.03	0.03	0.02	0.02
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.07	0.03	0.03	0.02
HEAVY HEAVY DUTY GAS TRUCKS (HHGT)	0.01	0.00	0.00	0.00
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	0.03	0.03	0.03	0.02
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	0.01	0.01	0.01	0.01
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	0.10	0.05	0.03	0.01
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	0.21	0.05	0.04	0.04
MOTORCYCLES (MCY)	0.68	0.58	0.53	0.53
HEAVY DUTY DIESEL URBAN BUSES (UBD)	0.01	0.01	0.01	0.01
HEAVY DUTY GAS URBAN BUSES (UBG)	0.00	0.00	0.00	0.00
SCHOOL BUSES - GAS (SBG)	0.01	0.00	0.00	0.00
SCHOOL BUSES - DIESEL (SBD)	0.00	0.00	0.00	0.00
OTHER BUSES - GAS (OBG)	0.01	0.01	0.01	0.01
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.00	0.00	0.00	0.00
ALL OTHER BUSES - DIESEL (OBD)	0.00	0.00	0.00	0.00
MOTOR HOMES (MH)	0.02	0.01	0.01	0.01
TOTAL ON-ROAD MOTOR VEHICLES	9.18	5.41	4.21	3.95
AIRCRAFT	0.58	0.86	0.91	0.93
TRAINS	0.01	0.01	0.01	0.01
OCEAN GOING VESSELS	0.04	0.04	0.04	0.04
COMMERCIAL HARBOR CRAFT	0.10	0.08	0.09	0.09
RECREATIONAL BOATS	3.22	2.38	2.04	1.93
OFF-ROAD RECREATIONAL VEHICLES	0.41	0.38	0.37	0.37
OFF-ROAD EQUIPMENT	3.18	2.56	2.42	2.41
FARM EQUIPMENT	0.55	0.41	0.35	0.34
FUEL STORAGE AND HANDLING	0.62	0.45	0.40	0.39
TOTAL OTHER MOBILE SOURCES	8.71	7.17	6.63	6.50
TOTAL MOBILE	17.88	12.58	10.84	10.45
	2011	2017	2020	2021
Grand Total	38.06	31.74	30.37	30.06

Ventura County Ozone Nonattainment Area**Oxides of Nitrogen (Tons/Day)^{60 61}****Data Source: CEPAM 2016 SIP Version 1.05****Stationary Sources**

SUMMARY CATEGORY NAME	2011	2017	2020	2021
ELECTRIC UTILITIES	0.36	0.46	0.47	0.48
COGENERATION	0.00	0.00	0.00	0.00
OIL AND GAS PRODUCTION (COMBUSTION)	0.13	0.11	0.10	0.10
PETROLEUM REFINING (COMBUSTION)	0.00	0.00	0.00	0.00
MANUFACTURING AND INDUSTRIAL	0.27	0.31	0.34	0.34
FOOD AND AGRICULTURAL PROCESSING	0.48	0.32	0.30	0.29
SERVICE AND COMMERCIAL	0.35	0.31	0.31	0.31
OTHER (FUEL COMBUSTION)	0.21	0.17	0.14	0.14
TOTAL FUEL COMBUSTION	1.82	1.68	1.67	1.67
SEWAGE TREATMENT	0.01	0.01	0.01	0.01
LANDFILLS	0.08	0.10	0.11	0.11
INCINERATORS	0.00	0.00	0.00	0.00
SOIL REMEDIATION	0.00	0.00	0.00	0.00
OTHER (WASTE DISPOSAL)	0.00	0.00	0.00	0.00
TOTAL WASTE DISPOSAL	0.09	0.11	0.12	0.12
LAUNDERING	0.00	0.00	0.00	0.00
DEGREASING	0.00	0.00	0.00	0.00
COATINGS AND RELATED PROCESS SOLVENTS	0.00	0.00	0.00	0.00
PRINTING	0.00	0.00	0.00	0.00
ADHESIVES AND SEALANTS	0.00	0.00	0.00	0.00
OTHER (CLEANING AND SURFACE COATINGS)	0.00	0.00	0.00	0.00
TOTAL CLEANING AND SURFACE COATINGS	0.00	0.00	0.00	0.00
OIL AND GAS PRODUCTION	0.03	0.03	0.03	0.03
PETROLEUM REFINING	0.00	0.00	0.00	0.00
PETROLEUM MARKETING	0.00	0.00	0.00	0.00
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.00	0.00	0.00	0.00
TOTAL PETROLEUM PRODUCTION AND MARKETING	0.03	0.03	0.03	0.03
CHEMICAL	0.00	0.00	0.00	0.00
FOOD AND AGRICULTURE	0.00	0.00	0.00	0.00
MINERAL PROCESSES	0.00	0.00	0.00	0.00
METAL PROCESSES	0.00	0.00	0.00	0.00
WOOD AND PAPER	0.00	0.00	0.00	0.00
ELECTRONICS	0.00	0.00	0.00	0.00
OTHER (INDUSTRIAL PROCESSES)	0.06	0.06	0.06	0.06
TOTAL INDUSTRIAL PROCESSES	0.06	0.06	0.06	0.06
TOTAL STATIONARY	1.99	1.89	1.87	1.88

⁶⁰ Emissions may appear as zero due to rounding.⁶¹ Marine emissions beyond three nautical miles are not included.

Areawide Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2021
CONSUMER PRODUCTS	0.00	0.00	0.00	0.00
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.00	0.00	0.00	0.00
PESTICIDES/FERTILIZERS	0.00	0.00	0.00	0.00
ASPHALT PAVING / ROOFING	0.00	0.00	0.00	0.00
TOTAL SOLVENT EVAPORATION	0.00	0.00	0.00	0.00
RESIDENTIAL FUEL COMBUSTION	0.92	0.63	0.54	0.54
FARMING OPERATIONS	0.00	0.00	0.00	0.00
CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00
PAVED ROAD DUST	0.00	0.00	0.00	0.00
UNPAVED ROAD DUST	0.00	0.00	0.00	0.00
FUGITIVE WINDBLOWN DUST	0.00	0.00	0.00	0.00
FIRES	0.01	0.01	0.01	0.01
MANAGED BURNING AND DISPOSAL	0.06	0.08	0.08	0.08
COOKING	0.00	0.00	0.00	0.00
OTHER (MISCELLANEOUS PROCESSES)	0.00	0.00	0.00	0.00
TOTAL MISCELLANEOUS PROCESSES	0.99	0.71	0.62	0.62
TOTAL AREAWIDE	0.99	0.71	0.62	0.62

Mobile Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2021
LIGHT DUTY PASSENGER (LDA)	2.45	1.27	0.90	0.82
LIGHT DUTY TRUCKS - 1 (LDT1)	0.60	0.27	0.18	0.16
LIGHT DUTY TRUCKS - 2 (LDT2)	1.50	0.72	0.45	0.40
MEDIUM DUTY TRUCKS (MDV)	1.65	0.91	0.60	0.52
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	0.42	0.29	0.24	0.22
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	0.05	0.04	0.04	0.04
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.11	0.07	0.05	0.05
HEAVY HEAVY DUTY GAS TRUCKS (HHGT)	0.02	0.01	0.01	0.01
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	1.32	0.98	0.79	0.72
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	0.38	0.26	0.19	0.17
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	1.68	1.03	0.71	0.52
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	3.11	1.74	1.48	1.39
MOTORCYCLES (MCY)	0.13	0.12	0.11	0.11
HEAVY DUTY DIESEL URBAN BUSES (UBD)	0.17	0.12	0.09	0.08
HEAVY DUTY GAS URBAN BUSES (UBG)	0.01	0.01	0.01	0.01
SCHOOL BUSES - GAS (SBG)	0.01	0.00	0.00	0.00
SCHOOL BUSES - DIESEL (SBD)	0.06	0.05	0.05	0.04
OTHER BUSES - GAS (OBG)	0.03	0.02	0.01	0.01
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.02	0.01	0.01	0.01
ALL OTHER BUSES - DIESEL (OBD)	0.04	0.02	0.02	0.02
MOTOR HOMES (MH)	0.13	0.08	0.06	0.06
TOTAL ON-ROAD MOTOR VEHICLES	13.87	8.03	6.01	5.36
AIRCRAFT	0.30	0.45	0.48	0.49
TRAINS	0.16	0.15	0.14	0.14
OCEAN GOING VESSELS	0.95	0.84	0.89	0.92
COMMERCIAL HARBOR CRAFT	1.04	0.73	0.72	0.72
RECREATIONAL BOATS	0.58	0.49	0.46	0.45
OFF-ROAD RECREATIONAL VEHICLES	0.01	0.01	0.01	0.01
OFF-ROAD EQUIPMENT	3.43	3.08	2.66	2.53
FARM EQUIPMENT	2.70	2.16	1.90	1.80
FUEL STORAGE AND HANDLING	0.00	0.00	0.00	0.00
TOTAL OTHER MOBILE SOURCES	9.19	7.91	7.27	7.06
TOTAL MOBILE	23.06	15.94	13.28	12.42
	2011	2017	2020	2021
Grand Total	26.04	18.55	15.78	14.92

Eastern Kern Ozone Nonattainment Area**Reactive Organic Gases (Tons/Day)⁶²****Data Source: CEPAM 2016 SIP Version 1.05****Stationary Sources**

SUMMARY CATEGORY NAME	2011	2017	2020	2021
COGENERATION	0.03	0.03	0.03	0.03
MANUFACTURING AND INDUSTRIAL	0.01	0.01	0.01	0.01
FOOD AND AGRICULTURAL PROCESSING	0.00	0.00	0.00	0.00
SERVICE AND COMMERCIAL	0.05	0.06	0.06	0.06
OTHER (FUEL COMBUSTION)	0.02	0.02	0.02	0.02
TOTAL FUEL COMBUSTION	0.11	0.11	0.11	0.11
SEWAGE TREATMENT	0.00	0.00	0.00	0.00
LANDFILLS	0.04	0.04	0.04	0.04
OTHER (WASTE DISPOSAL)	0.00	0.00	0.00	0.00
TOTAL WASTE DISPOSAL	0.04	0.04	0.04	0.04
LAUNDERING	0.00	0.00	0.00	0.00
DEGREASING	0.47	0.43	0.44	0.45
COATINGS AND RELATED PROCESS SOLVENTS	0.13	0.15	0.15	0.16
PRINTING	0.00	0.00	0.00	0.00
ADHESIVES AND SEALANTS	0.03	0.04	0.04	0.04
OTHER (CLEANING AND SURFACE COATINGS)	0.02	0.01	0.01	0.01
TOTAL CLEANING AND SURFACE COATINGS	0.66	0.63	0.65	0.66
PETROLEUM REFINING	0.00	0.00	0.00	0.00
PETROLEUM MARKETING	0.10	0.10	0.09	0.09
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.00	0.00	0.00	0.00
TOTAL PETROLEUM PRODUCTION AND MARKETING	0.10	0.10	0.10	0.09
CHEMICAL	0.00	0.00	0.00	0.00
FOOD AND AGRICULTURE	0.00	0.00	0.00	0.00
MINERAL PROCESSES	0.06	0.11	0.11	0.11
METAL PROCESSES	0.00	0.00	0.00	0.00
WOOD AND PAPER	0.00	0.00	0.00	0.00
OTHER (INDUSTRIAL PROCESSES)	0.00	0.00	0.00	0.00
TOTAL INDUSTRIAL PROCESSES	0.07	0.11	0.11	0.11
TOTAL STATIONARY	0.97	0.99	1.01	1.03

⁶² Emissions may appear as zero due to rounding.

Areawide Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2021
CONSUMER PRODUCTS	0.61	0.60	0.63	0.64
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.27	0.26	0.27	0.28
PESTICIDES/FERTILIZERS	0.01	0.12	0.11	0.11
ASPHALT PAVING / ROOFING	0.04	0.06	0.07	0.07
TOTAL SOLVENT EVAPORATION	0.93	1.04	1.09	1.11
RESIDENTIAL FUEL COMBUSTION	0.02	0.02	0.02	0.02
FARMING OPERATIONS	0.09	0.09	0.09	0.09
CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00
PAVED ROAD DUST	0.00	0.00	0.00	0.00
UNPAVED ROAD DUST	0.00	0.00	0.00	0.00
FUGITIVE WINDBLOWN DUST	0.00	0.00	0.00	0.00
FIRES	0.00	0.00	0.00	0.00
MANAGED BURNING AND DISPOSAL	0.01	0.01	0.01	0.01
COOKING	0.01	0.01	0.01	0.01
OTHER (MISCELLANEOUS PROCESSES)	0.00	0.00	0.00	0.00
TOTAL MISCELLANEOUS PROCESSES	0.13	0.13	0.13	0.13
TOTAL AREAWIDE	1.06	1.17	1.22	1.24

Mobile Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2021
LIGHT DUTY PASSENGER (LDA)	0.68	0.34	0.25	0.23
LIGHT DUTY TRUCKS - 1 (LDT1)	0.20	0.09	0.06	0.05
LIGHT DUTY TRUCKS - 2 (LDT2)	0.47	0.27	0.20	0.19
MEDIUM DUTY TRUCKS (MDV)	0.28	0.21	0.17	0.16
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	0.14	0.09	0.07	0.06
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	0.01	0.01	0.00	0.00
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.02	0.01	0.00	0.00
HEAVY HEAVY DUTY GAS TRUCKS (HHGT)	0.01	0.00	0.00	0.00
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	0.03	0.02	0.02	0.01
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	0.01	0.01	0.00	0.00
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	0.02	0.01	0.01	0.00
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	0.46	0.09	0.08	0.07
MOTORCYCLES (MCY)	0.25	0.20	0.19	0.18
HEAVY DUTY DIESEL URBAN BUSES (UBD)	0.00	0.00	0.00	0.00
HEAVY DUTY GAS URBAN BUSES (UBG)	0.00	0.00	0.00	0.00
SCHOOL BUSES - GAS (SBG)	0.00	0.00	0.00	0.00
SCHOOL BUSES - DIESEL (SBD)	0.00	0.00	0.00	0.00
OTHER BUSES - GAS (OBG)	0.00	0.00	0.00	0.00
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.00	0.00	0.00	0.00
ALL OTHER BUSES - DIESEL (OBD)	0.00	0.00	0.00	0.00
MOTOR HOMES (MH)	0.01	0.00	0.00	0.00
TOTAL ON-ROAD MOTOR VEHICLES	2.60	1.35	1.05	0.99
AIRCRAFT	2.75	2.77	2.78	2.78
TRAINS	0.19	0.10	0.07	0.07
RECREATIONAL BOATS	0.34	0.25	0.21	0.20
OFF-ROAD RECREATIONAL VEHICLES	0.06	0.06	0.06	0.06
OFF-ROAD EQUIPMENT	0.35	0.28	0.26	0.26
FARM EQUIPMENT	0.18	0.13	0.12	0.11
FUEL STORAGE AND HANDLING	0.08	0.06	0.05	0.05
TOTAL OTHER MOBILE SOURCES	3.95	3.65	3.55	3.54
TOTAL MOBILE	6.56	5.00	4.60	4.52
	2011	2017	2020	2021
Grand Total	8.59	7.16	6.84	6.79

Eastern Kern Ozone Nonattainment Area**Oxides of Nitrogen (Tons/Day)⁶³****Data Source: CEPAM 2016 SIP Version 1.05****Stationary Sources**

SUMMARY CATEGORY NAME	2011	2017	2020	2021
COGENERATION	0.46	0.33	0.34	0.35
MANUFACTURING AND INDUSTRIAL	0.90	0.85	0.87	0.91
FOOD AND AGRICULTURAL PROCESSING	0.03	0.01	0.01	0.01
SERVICE AND COMMERCIAL	0.50	0.49	0.51	0.51
OTHER (FUEL COMBUSTION)	0.47	0.41	0.42	0.42
TOTAL FUEL COMBUSTION	2.36	2.09	2.15	2.19
SEWAGE TREATMENT	0.00	0.00	0.00	0.00
LANDFILLS	0.00	0.00	0.00	0.00
OTHER (WASTE DISPOSAL)	0.00	0.00	0.00	0.00
TOTAL WASTE DISPOSAL	0.00	0.00	0.00	0.00
LAUNDERING	0.00	0.00	0.00	0.00
DEGREASING	0.00	0.00	0.00	0.00
COATINGS AND RELATED PROCESS SOLVENTS	0.00	0.00	0.00	0.00
PRINTING	0.00	0.00	0.00	0.00
ADHESIVES AND SEALANTS	0.00	0.00	0.00	0.00
OTHER (CLEANING AND SURFACE COATINGS)	0.00	0.00	0.00	0.00
TOTAL CLEANING AND SURFACE COATINGS	0.00	0.00	0.00	0.00
PETROLEUM REFINING	0.00	0.00	0.00	0.00
PETROLEUM MARKETING	0.00	0.00	0.00	0.00
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.00	0.00	0.00	0.00
TOTAL PETROLEUM PRODUCTION AND MARKETING	0.00	0.00	0.00	0.00
CHEMICAL	0.00	0.00	0.00	0.00
FOOD AND AGRICULTURE	0.00	0.00	0.00	0.00
MINERAL PROCESSES	13.91	16.47	17.23	17.43
METAL PROCESSES	0.01	0.01	0.01	0.01
WOOD AND PAPER	0.00	0.00	0.00	0.00
OTHER (INDUSTRIAL PROCESSES)	0.00	0.00	0.00	0.00
TOTAL INDUSTRIAL PROCESSES	13.92	16.48	17.24	17.44
TOTAL STATIONARY	16.28	18.56	19.39	19.63

⁶³ Emissions may appear as zero due to rounding.

Areawide Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2021
CONSUMER PRODUCTS	0.00	0.00	0.00	0.00
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.00	0.00	0.00	0.00
PESTICIDES/FERTILIZERS	0.00	0.00	0.00	0.00
ASPHALT PAVING / ROOFING	0.00	0.00	0.00	0.00
TOTAL SOLVENT EVAPORATION	0.00	0.00	0.00	0.00
RESIDENTIAL FUEL COMBUSTION	0.13	0.13	0.13	0.14
FARMING OPERATIONS	0.00	0.00	0.00	0.00
CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00
PAVED ROAD DUST	0.00	0.00	0.00	0.00
UNPAVED ROAD DUST	0.00	0.00	0.00	0.00
FUGITIVE WINDBLOWN DUST	0.00	0.00	0.00	0.00
FIRES	0.00	0.00	0.00	0.00
MANAGED BURNING AND DISPOSAL	0.00	0.00	0.00	0.00
COOKING	0.00	0.00	0.00	0.00
OTHER (MISCELLANEOUS PROCESSES)	0.00	0.00	0.00	0.00
TOTAL MISCELLANEOUS PROCESSES	0.13	0.13	0.14	0.14
TOTAL AREAWIDE	0.13	0.13	0.14	0.14

Mobile Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2021
LIGHT DUTY PASSENGER (LDA)	0.41	0.21	0.15	0.14
LIGHT DUTY TRUCKS - 1 (LDT1)	0.10	0.04	0.02	0.02
LIGHT DUTY TRUCKS - 2 (LDT2)	0.40	0.19	0.12	0.11
MEDIUM DUTY TRUCKS (MDV)	0.34	0.18	0.12	0.11
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	0.15	0.08	0.06	0.06
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	0.01	0.01	0.01	0.00
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.03	0.01	0.01	0.01
HEAVY HEAVY DUTY GAS TRUCKS (HHGT)	0.01	0.01	0.00	0.00
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	0.66	0.39	0.28	0.25
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	0.16	0.09	0.06	0.05
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	0.29	0.17	0.11	0.09
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	5.74	2.68	2.27	2.08
MOTORCYCLES (MCY)	0.06	0.05	0.04	0.04
HEAVY DUTY DIESEL URBAN BUSES (UBD)	0.05	0.03	0.02	0.02
HEAVY DUTY GAS URBAN BUSES (UBG)	0.00	0.00	0.00	0.00
SCHOOL BUSES - GAS (SBG)	0.00	0.00	0.00	0.00
SCHOOL BUSES - DIESEL (SBD)	0.04	0.04	0.03	0.03
OTHER BUSES - GAS (OBG)	0.01	0.00	0.00	0.00
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.02	0.01	0.01	0.01
ALL OTHER BUSES - DIESEL (OBD)	0.02	0.01	0.01	0.01
MOTOR HOMES (MH)	0.03	0.02	0.01	0.01
TOTAL ON-ROAD MOTOR VEHICLES	8.53	4.23	3.36	3.05
AIRCRAFT	1.44	1.44	1.44	1.45
TRAINS	2.94	2.36	1.95	1.86
RECREATIONAL BOATS	0.06	0.05	0.05	0.05
OFF-ROAD RECREATIONAL VEHICLES	0.00	0.00	0.00	0.00
OFF-ROAD EQUIPMENT	0.57	0.56	0.48	0.46
FARM EQUIPMENT	1.02	0.79	0.69	0.64
FUEL STORAGE AND HANDLING	0.00	0.00	0.00	0.00
TOTAL OTHER MOBILE SOURCES	6.04	5.21	4.62	4.46
TOTAL MOBILE	14.57	9.44	7.98	7.50
	2011	2017	2020	2021
Grand Total	30.98	28.13	27.5	27.28

Sacramento Metro Ozone Nonattainment Area**Reactive Organic Gases (Tons/Day)⁶⁴****Data Source: CEPAM 2016 SIP Version 1.05****Stationary Sources**

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2024	2025
ELECTRIC UTILITIES	0.17	0.21	0.21	0.21	0.21	0.22
COGENERATION	0.00	0.00	0.00	0.00	0.00	0.00
OIL AND GAS PRODUCTION (COMBUSTION)	0.04	0.03	0.03	0.02	0.02	0.02
MANUFACTURING AND INDUSTRIAL	0.15	0.12	0.12	0.12	0.12	0.12
FOOD AND AGRICULTURAL PROCESSING	0.22	0.11	0.10	0.09	0.09	0.08
SERVICE AND COMMERCIAL	0.12	0.10	0.11	0.11	0.11	0.11
OTHER (FUEL COMBUSTION)	0.07	0.09	0.08	0.09	0.09	0.09
TOTAL FUEL COMBUSTION	0.77	0.66	0.65	0.64	0.64	0.64
SEWAGE TREATMENT	0.03	0.04	0.04	0.04	0.04	0.04
LANDFILLS	0.72	0.74	0.76	0.79	0.80	0.80
INCINERATORS	0.01	0.01	0.01	0.01	0.01	0.01
SOIL REMEDIATION	0.03	0.01	0.01	0.01	0.01	0.01
OTHER (WASTE DISPOSAL)	2.10	4.33	4.48	4.68	4.75	4.82
TOTAL WASTE DISPOSAL	2.90	5.12	5.29	5.52	5.60	5.68
LAUNDERING	0.06	0.08	0.09	0.09	0.09	0.09
DEGREASING	1.91	2.31	2.39	2.54	2.59	2.65
COATINGS AND RELATED PROCESS SOLVENTS	3.47	3.20	3.35	3.57	3.65	3.74
PRINTING	1.34	1.43	1.46	1.49	1.50	1.51
ADHESIVES AND SEALANTS	0.71	0.89	0.96	0.99	1.00	1.01
OTHER (CLEANING AND SURFACE COATINGS)	0.22	0.25	0.26	0.27	0.27	0.28
TOTAL CLEANING AND SURFACE COATINGS	7.70	8.17	8.51	8.95	9.11	9.28
OIL AND GAS PRODUCTION	1.32	1.15	1.08	1.01	0.99	0.96
PETROLEUM REFINING	0.00	0.00	0.00	0.00	0.00	0.00
PETROLEUM MARKETING	4.65	4.22	3.94	3.71	3.63	3.56
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.01	0.00	0.00	0.00	0.00	0.00
TOTAL PETROLEUM PRODUCTION AND MARKETING	5.97	5.38	5.02	4.72	4.62	4.53
CHEMICAL	0.68	0.77	0.86	0.95	0.98	1.01
FOOD AND AGRICULTURE	0.54	0.64	0.68	0.71	0.72	0.73
MINERAL PROCESSES	0.25	0.29	0.31	0.33	0.34	0.34
METAL PROCESSES	0.00	0.00	0.00	0.00	0.00	0.00
WOOD AND PAPER	0.70	0.76	0.77	0.77	0.78	0.78
ELECTRONICS	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (INDUSTRIAL PROCESSES)	0.38	0.36	0.45	0.49	0.51	0.52
TOTAL INDUSTRIAL PROCESSES	2.55	2.84	3.07	3.25	3.32	3.38
TOTAL STATIONARY	19.89	22.16	22.55	23.08	23.29	23.51

⁶⁴ Emissions may appear as zero due to rounding.

Areawide Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2024	2025
CONSUMER PRODUCTS	12.87	12.22	12.57	12.95	13.07	13.20
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	8.11	6.86	7.05	7.25	7.32	7.39
PESTICIDES/FERTILIZERS	0.84	1.23	1.22	1.21	1.21	1.20
ASPHALT PAVING / ROOFING	0.97	1.32	1.45	1.52	1.54	1.56
TOTAL SOLVENT EVAPORATION	22.78	21.61	22.29	22.92	23.13	23.35
RESIDENTIAL FUEL COMBUSTION	2.08	2.12	2.16	2.21	2.23	2.25
FARMING OPERATIONS	2.89	2.88	2.88	2.88	2.88	2.88
CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00	0.00	0.00
PAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00
UNPAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00
FUGITIVE WINDBLOWN DUST	0.00	0.00	0.00	0.00	0.00	0.00
FIRES	0.04	0.04	0.04	0.04	0.04	0.04
MANAGED BURNING AND DISPOSAL	0.82	0.81	0.80	0.80	0.80	0.80
COOKING	0.15	0.16	0.16	0.17	0.17	0.17
OTHER (MISCELLANEOUS PROCESSES)	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL MISCELLANEOUS PROCESSES	5.97	6.00	6.05	6.10	6.12	6.13
TOTAL AREAWIDE	28.75	27.61	28.34	29.02	29.25	29.48

Mobile Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2024	2025
LIGHT DUTY PASSENGER (LDA)	13.28	6.78	5.02	4.16	3.96	3.81
LIGHT DUTY TRUCKS - 1 (LDT1)	4.18	2.09	1.46	1.12	1.03	0.96
LIGHT DUTY TRUCKS - 2 (LDT2)	5.29	3.49	2.87	2.55	2.47	2.41
MEDIUM DUTY TRUCKS (MDV)	4.49	3.61	3.09	2.59	2.47	2.36
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	1.63	1.13	0.94	0.77	0.72	0.67
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	0.15	0.10	0.07	0.05	0.05	0.04
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.63	0.19	0.12	0.09	0.08	0.08
HEAVY HEAVY DUTY GAS TRUCKS (HHGT)	0.22	0.05	0.02	0.01	0.01	0.01
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	0.33	0.26	0.21	0.17	0.16	0.14
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	0.08	0.06	0.05	0.04	0.04	0.04
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	0.72	0.33	0.19	0.07	0.08	0.08
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	1.78	0.39	0.32	0.22	0.22	0.23
MOTORCYCLES (MCY)	2.83	2.54	2.50	2.46	2.44	2.42
HEAVY DUTY DIESEL URBAN BUSES (UBD)	0.14	0.09	0.06	0.04	0.04	0.04
HEAVY DUTY GAS URBAN BUSES (UBG)	0.06	0.04	0.03	0.02	0.02	0.02
SCHOOL BUSES - GAS (SBG)	0.04	0.01	0.01	0.01	0.01	0.00
SCHOOL BUSES - DIESEL (SBD)	0.03	0.01	0.00	0.00	0.00	0.00
OTHER BUSES - GAS (OBG)	0.05	0.03	0.02	0.02	0.02	0.02
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.02	0.01	0.00	0.00	0.00	0.00
ALL OTHER BUSES - DIESEL (OBD)	0.03	0.01	0.00	0.00	0.00	0.00
MOTOR HOMES (MH)	0.07	0.03	0.02	0.01	0.01	0.01
TOTAL ON-ROAD MOTOR VEHICLES	36.07	21.23	17.01	14.42	13.83	13.34
AIRCRAFT	0.47	0.50	0.51	0.52	0.53	0.53
TRAINS	0.38	0.23	0.18	0.17	0.16	0.15
OCEAN GOING VESSELS	0.00	0.00	0.00	0.00	0.00	0.00
COMMERCIAL HARBOR CRAFT	0.11	0.10	0.10	0.09	0.09	0.09
RECREATIONAL BOATS	12.34	9.07	7.75	6.55	6.18	5.83
OFF-ROAD RECREATIONAL VEHICLES	1.74	1.54	1.49	1.41	1.39	1.37
OFF-ROAD EQUIPMENT	8.25	6.52	6.01	6.02	6.01	5.99
FARM EQUIPMENT	1.77	1.29	1.10	0.96	0.92	0.88
FUEL STORAGE AND HANDLING	1.80	1.41	1.30	1.22	1.20	1.19
TOTAL OTHER MOBILE SOURCES	26.86	20.65	18.44	16.94	16.48	16.04
TOTAL MOBILE	62.93	41.89	35.45	31.36	30.32	29.38
	2011	2017	2020	2023	2024	2025
Grand Total	111.58	91.66	86.33	83.46	82.86	82.37

**Sacramento Metro Ozone Nonattainment Area
Oxides of Nitrogen (Tons/Day)⁶⁵**

Data Source: CEPAM 2016 SIP Version 1.05

Stationary Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2024	2025
ELECTRIC UTILITIES	1.15	1.30	1.34	1.37	1.40	1.43
COGENERATION	0.01	0.01	0.01	0.01	0.01	0.01
OIL AND GAS PRODUCTION (COMBUSTION)	0.07	0.06	0.05	0.05	0.05	0.05
MANUFACTURING AND INDUSTRIAL	1.14	1.35	1.41	1.45	1.46	1.47
FOOD AND AGRICULTURAL PROCESSING	2.42	1.18	1.04	0.91	0.87	0.84
SERVICE AND COMMERCIAL	1.58	1.54	1.57	1.56	1.56	1.55
OTHER (FUEL COMBUSTION)	0.65	0.57	0.50	0.50	0.50	0.50
TOTAL FUEL COMBUSTION	7.02	6.02	5.92	5.85	5.84	5.84
SEWAGE TREATMENT	0.00	0.00	0.00	0.00	0.00	0.00
LANDFILLS	0.05	0.04	0.04	0.04	0.04	0.04
INCINERATORS	0.02	0.02	0.02	0.02	0.02	0.02
SOIL REMEDIATION	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (WASTE DISPOSAL)	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL WASTE DISPOSAL	0.07	0.06	0.06	0.07	0.07	0.07
LAUNDERING	0.00	0.00	0.00	0.00	0.00	0.00
DEGREASING	0.00	0.00	0.00	0.00	0.00	0.00
COATINGS AND RELATED PROCESS SOLVENTS	0.01	0.01	0.01	0.01	0.01	0.01
PRINTING	0.00	0.00	0.00	0.00	0.00	0.00
ADHESIVES AND SEALANTS	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (CLEANING AND SURFACE COATINGS)	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL CLEANING AND SURFACE COATINGS	0.01	0.02	0.02	0.02	0.02	0.02
OIL AND GAS PRODUCTION	0.00	0.00	0.00	0.00	0.00	0.00
PETROLEUM REFINING	0.00	0.00	0.00	0.00	0.00	0.00
PETROLEUM MARKETING	0.01	0.01	0.01	0.01	0.01	0.01
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL PETROLEUM PRODUCTION AND MARKETING	0.01	0.01	0.01	0.01	0.01	0.01
CHEMICAL	0.14	0.14	0.15	0.17	0.17	0.18
FOOD AND AGRICULTURE	0.02	0.02	0.02	0.02	0.02	0.02
MINERAL PROCESSES	0.35	0.43	0.46	0.48	0.49	0.50
METAL PROCESSES	0.01	0.01	0.01	0.01	0.01	0.01
WOOD AND PAPER	0.05	0.04	0.04	0.04	0.05	0.05
ELECTRONICS	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (INDUSTRIAL PROCESSES)	0.02	0.02	0.03	0.03	0.03	0.03
TOTAL INDUSTRIAL PROCESSES	0.59	0.66	0.71	0.75	0.77	0.79
TOTAL STATIONARY	7.71	6.76	6.72	6.70	6.71	6.72

⁶⁵ Emissions may appear as zero due to rounding.

Areawide Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2024	2025
CONSUMER PRODUCTS	0.00	0.00	0.00	0.00	0.00	0.00
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.00	0.00	0.00	0.00	0.00	0.00
PESTICIDES/FERTILIZERS	0.00	0.00	0.00	0.00	0.00	0.00
ASPHALT PAVING / ROOFING	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL SOLVENT EVAPORATION	0.00	0.00	0.00	0.00	0.00	0.00
RESIDENTIAL FUEL COMBUSTION	2.58	2.04	1.85	1.84	1.85	1.84
FARMING OPERATIONS	0.00	0.00	0.00	0.00	0.00	0.00
CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00	0.00	0.00
PAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00
UNPAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00
FUGITIVE WINDBLOWN DUST	0.00	0.00	0.00	0.00	0.00	0.00
FIRES	0.01	0.01	0.01	0.01	0.01	0.01
MANAGED BURNING AND DISPOSAL	0.32	0.29	0.29	0.29	0.29	0.29
COOKING	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (MISCELLANEOUS PROCESSES)	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL MISCELLANEOUS PROCESSES	2.91	2.34	2.15	2.15	2.15	2.14
TOTAL AREAWIDE	2.91	2.34	2.15	2.15	2.15	2.14

Mobile Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2024	2025
LIGHT DUTY PASSENGER (LDA)	7.21	3.72	2.67	2.06	1.90	1.76
LIGHT DUTY TRUCKS - 1 (LDT1)	1.87	0.81	0.51	0.35	0.31	0.28
LIGHT DUTY TRUCKS - 2 (LDT2)	4.61	2.44	1.74	1.32	1.21	1.12
MEDIUM DUTY TRUCKS (MDV)	5.10	2.98	2.11	1.45	1.29	1.16
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	2.01	1.27	1.00	0.77	0.70	0.64
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	0.21	0.14	0.11	0.08	0.07	0.06
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.60	0.32	0.22	0.15	0.13	0.12
HEAVY HEAVY DUTY GAS TRUCKS (HHGT)	0.21	0.09	0.06	0.06	0.05	0.05
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	7.99	5.00	3.68	2.61	2.31	2.04
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	1.79	1.04	0.70	0.45	0.38	0.32
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	8.67	5.36	4.09	2.90	2.97	3.03
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	22.64	11.89	10.30	6.44	6.33	6.22
MOTORCYCLES (MCY)	0.55	0.48	0.47	0.46	0.46	0.45
HEAVY DUTY DIESEL URBAN BUSES (UBD)	2.13	1.21	0.87	0.63	0.57	0.52
HEAVY DUTY GAS URBAN BUSES (UBG)	0.12	0.09	0.07	0.06	0.06	0.05
SCHOOL BUSES - GAS (SBG)	0.04	0.01	0.01	0.01	0.01	0.01
SCHOOL BUSES - DIESEL (SBD)	0.36	0.33	0.27	0.22	0.21	0.19
OTHER BUSES - GAS (OBG)	0.13	0.08	0.06	0.04	0.04	0.04
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.28	0.16	0.13	0.06	0.06	0.06
ALL OTHER BUSES - DIESEL (OBD)	0.35	0.15	0.13	0.06	0.06	0.06
MOTOR HOMES (MH)	0.29	0.19	0.14	0.10	0.09	0.08
TOTAL ON-ROAD MOTOR VEHICLES	67.15	37.76	29.35	20.27	19.21	18.27
AIRCRAFT	1.38	1.40	1.48	1.55	1.58	1.60
TRAINS	5.88	4.93	4.29	3.85	3.64	3.44
OCEAN GOING VESSELS	0.09	0.02	0.02	0.02	0.03	0.03
COMMERCIAL HARBOR CRAFT	1.48	0.99	0.95	0.89	0.88	0.87
RECREATIONAL BOATS	2.35	1.98	1.86	1.75	1.72	1.69
OFF-ROAD RECREATIONAL VEHICLES	0.05	0.05	0.06	0.07	0.07	0.07
OFF-ROAD EQUIPMENT	10.00	8.58	6.97	6.03	5.88	5.52
FARM EQUIPMENT	8.67	6.85	5.98	4.97	4.67	4.40
FUEL STORAGE AND HANDLING	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL OTHER MOBILE SOURCES	29.89	24.81	21.61	19.13	18.46	17.62
TOTAL MOBILE	97.05	62.57	50.97	39.40	37.68	35.89
	2011	2017	2020	2023	2024	2025
Grand Total	107.67	71.67	59.84	48.25	46.53	44.76

Western Mojave Desert Ozone Nonattainment Area

Reactive Organic Gases (Tons/Day)⁶⁶

Data Source: CEPAM 2016 SIP Version 1.05

Stationary Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2027
ELECTRIC UTILITIES	0.07	0.05	0.05	0.06	0.06	0.06
COGENERATION	0.00	0.00	0.00	0.00	0.00	0.00
MANUFACTURING AND INDUSTRIAL	0.20	0.35	0.40	0.42	0.43	0.44
FOOD AND AGRICULTURAL PROCESSING	0.08	0.01	0.01	0.01	0.01	0.01
SERVICE AND COMMERCIAL	0.16	0.28	0.35	0.41	0.45	0.46
OTHER (FUEL COMBUSTION)	0.05	0.07	0.07	0.07	0.08	0.08
TOTAL FUEL COMBUSTION	0.56	0.76	0.87	0.96	1.02	1.04
SEWAGE TREATMENT	0.07	0.14	0.15	0.16	0.17	0.18
LANDFILLS	0.14	0.17	0.17	0.18	0.19	0.20
INCINERATORS	0.00	0.01	0.01	0.01	0.01	0.01
SOIL REMEDIATION	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (WASTE DISPOSAL)	0.05	0.05	0.06	0.06	0.06	0.06
TOTAL WASTE DISPOSAL	0.27	0.36	0.38	0.41	0.43	0.44
LAUNDERING	0.00	0.00	0.00	0.00	0.00	0.00
DEGREASING	3.85	4.37	5.07	5.69	6.18	6.36
COATINGS AND RELATED PROCESS SOLVENTS	2.00	2.21	2.52	2.76	2.95	3.01
PRINTING	0.04	0.05	0.05	0.06	0.07	0.08
ADHESIVES AND SEALANTS	0.05	0.09	0.11	0.12	0.13	0.13
OTHER (CLEANING AND SURFACE COATINGS)	0.01	0.01	0.01	0.01	0.01	0.01
TOTAL CLEANING AND SURFACE COATINGS	5.95	6.74	7.76	8.65	9.35	9.59
OIL AND GAS PRODUCTION	0.00	0.00	0.00	0.00	0.00	0.00
PETROLEUM REFINING	0.00	0.00	0.00	0.00	0.00	0.00
PETROLEUM MARKETING	6.11	5.87	5.63	5.33	5.00	4.92
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL PETROLEUM PRODUCTION AND MARKETING	6.11	5.87	5.63	5.33	5.00	4.92
CHEMICAL	0.32	0.63	0.72	0.78	0.82	0.83
FOOD AND AGRICULTURE	0.01	0.01	0.02	0.02	0.02	0.02
MINERAL PROCESSES	0.29	0.42	0.47	0.50	0.52	0.53
METAL PROCESSES	0.00	0.00	0.00	0.00	0.00	0.00
WOOD AND PAPER	0.00	0.00	0.00	0.00	0.00	0.00
GLASS AND RELATED PRODUCTS	0.00	0.00	0.00	0.00	0.00	0.00
ELECTRONICS	0.04	0.01	0.01	0.02	0.02	0.02
OTHER (INDUSTRIAL PROCESSES)	0.21	0.16	0.15	0.16	0.17	0.18
TOTAL INDUSTRIAL PROCESSES	0.87	1.23	1.38	1.48	1.55	1.57
TOTAL STATIONARY	13.76	14.96	16.02	16.83	17.35	17.57

⁶⁶ Emissions may appear as zero due to rounding.

Areawide Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2027
CONSUMER PRODUCTS	4.50	4.34	4.47	4.68	4.89	4.95
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	2.80	2.32	2.45	2.57	2.70	2.74
PESTICIDES/FERTILIZERS	0.05	0.11	0.11	0.11	0.11	0.11
ASPHALT PAVING / ROOFING	0.31	0.45	0.53	0.58	0.64	0.66
TOTAL SOLVENT EVAPORATION	7.66	7.22	7.56	7.95	8.34	8.47
RESIDENTIAL FUEL COMBUSTION	0.12	0.12	0.12	0.12	0.12	0.12
FARMING OPERATIONS	2.06	2.06	2.06	2.06	2.06	2.06
CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00	0.00	0.00
PAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00
UNPAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00
FUGITIVE WINDBLOWN DUST	0.00	0.00	0.00	0.00	0.00	0.00
FIRES	0.02	0.02	0.02	0.02	0.02	0.02
MANAGED BURNING AND DISPOSAL	0.35	0.95	0.95	0.96	0.97	0.97
COOKING	0.44	0.52	0.57	0.61	0.65	0.66
OTHER (MISCELLANEOUS PROCESSES)	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL MISCELLANEOUS PROCESSES	2.99	3.67	3.72	3.76	3.81	3.83
TOTAL AREAWIDE	10.65	10.89	11.28	11.71	12.15	12.30

Mobile Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2027
LIGHT DUTY PASSENGER (LDA)	5.87	3.23	2.42	2.04	1.81	1.76
LIGHT DUTY TRUCKS - 1 (LDT1)	1.89	1.00	0.72	0.58	0.47	0.44
LIGHT DUTY TRUCKS - 2 (LDT2)	2.43	1.50	1.13	0.97	0.86	0.84
MEDIUM DUTY TRUCKS (MDV)	2.05	1.63	1.35	1.10	0.93	0.90
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	0.78	0.58	0.52	0.45	0.40	0.39
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	0.07	0.05	0.04	0.03	0.02	0.02
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.16	0.06	0.04	0.04	0.03	0.03
HEAVY HEAVY DUTY GAS TRUCKS (HHGT)	0.05	0.01	0.01	0.01	0.01	0.01
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	0.10	0.08	0.07	0.05	0.04	0.04
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	0.03	0.02	0.02	0.01	0.01	0.01
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	0.11	0.05	0.02	0.01	0.01	0.01
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	1.44	0.23	0.19	0.14	0.16	0.16
MOTORCYCLES (MCY)	1.54	1.32	1.25	1.21	1.16	1.15
HEAVY DUTY DIESEL URBAN BUSES (UBD)	0.07	0.05	0.03	0.02	0.02	0.02
HEAVY DUTY GAS URBAN BUSES (UBG)	0.05	0.03	0.03	0.02	0.01	0.01
SCHOOL BUSES - GAS (SBG)	0.02	0.00	0.00	0.00	0.00	0.00
SCHOOL BUSES - DIESEL (SBD)	0.02	0.01	0.00	0.00	0.00	0.00
OTHER BUSES - GAS (OBG)	0.02	0.01	0.01	0.01	0.01	0.01
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.00	0.00	0.00	0.00	0.00	0.00
ALL OTHER BUSES - DIESEL (OBD)	0.00	0.00	0.00	0.00	0.00	0.00
MOTOR HOMES (MH)	0.04	0.02	0.01	0.01	0.01	0.00
TOTAL ON-ROAD MOTOR VEHICLES	16.72	9.88	7.87	6.71	5.98	5.81
AIRCRAFT	1.65	1.46	1.47	1.51	1.56	1.57
TRAINS	1.95	1.03	0.70	0.61	0.49	0.45
RECREATIONAL BOATS	0.40	0.29	0.25	0.21	0.18	0.17
OFF-ROAD RECREATIONAL VEHICLES	1.06	0.84	0.78	0.72	0.68	0.67
OFF-ROAD EQUIPMENT	1.95	1.71	1.67	1.70	1.75	1.78
FARM EQUIPMENT	0.04	0.03	0.02	0.02	0.02	0.02
FUEL STORAGE AND HANDLING	0.57	0.41	0.37	0.34	0.31	0.31
TOTAL OTHER MOBILE SOURCES	7.61	5.78	5.27	5.11	4.99	4.97
TOTAL MOBILE	24.34	15.66	13.13	11.81	10.97	10.77
	2011	2017	2020	2023	2026	2027
Grand Total	48.75	41.51	40.43	40.36	40.47	40.64

**Western Mojave Desert Ozone Nonattainment Area
Oxides of Nitrogen (Tons/Day)⁶⁷**
Data Source: CEPAM 2016 SIP Version 1.05
Stationary Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2027
ELECTRIC UTILITIES	0.74	1.34	1.34	1.45	1.48	1.48
COGENERATION	0.10	0.00	0.00	0.00	0.00	0.00
MANUFACTURING AND INDUSTRIAL	3.74	4.70	5.04	5.08	5.09	5.10
FOOD AND AGRICULTURAL PROCESSING	0.07	0.08	0.08	0.08	0.08	0.09
SERVICE AND COMMERCIAL	1.37	1.97	2.42	2.80	3.06	3.16
OTHER (FUEL COMBUSTION)	0.50	0.74	0.76	0.80	0.84	0.85
TOTAL FUEL COMBUSTION	6.53	8.84	9.64	10.22	10.55	10.67
SEWAGE TREATMENT	0.00	0.00	0.00	0.00	0.00	0.00
LANDFILLS	0.00	0.02	0.03	0.03	0.03	0.03
INCINERATORS	0.06	0.07	0.08	0.09	0.09	0.10
SOIL REMEDIATION	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (WASTE DISPOSAL)	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL WASTE DISPOSAL	0.06	0.10	0.11	0.12	0.12	0.13
LAUNDERING	0.00	0.00	0.00	0.00	0.00	0.00
DEGREASING	0.00	0.00	0.00	0.00	0.00	0.00
COATINGS AND RELATED PROCESS SOLVENTS	0.00	0.00	0.00	0.00	0.00	0.00
PRINTING	0.00	0.00	0.00	0.00	0.00	0.00
ADHESIVES AND SEALANTS	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (CLEANING AND SURFACE COATINGS)	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL CLEANING AND SURFACE COATINGS	0.00	0.00	0.00	0.00	0.00	0.00
OIL AND GAS PRODUCTION	0.00	0.00	0.00	0.00	0.00	0.00
PETROLEUM REFINING	0.00	0.00	0.00	0.00	0.00	0.00
PETROLEUM MARKETING	0.02	0.00	0.00	0.00	0.00	0.00
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL PETROLEUM PRODUCTION AND MARKETING	0.02	0.00	0.00	0.00	0.00	0.00
CHEMICAL	0.01	0.01	0.01	0.01	0.01	0.01
FOOD AND AGRICULTURE	0.00	0.00	0.00	0.00	0.00	0.00
MINERAL PROCESSES	12.59	23.09	26.52	28.21	29.32	29.75
METAL PROCESSES	0.48	0.47	0.47	0.51	0.55	0.56
WOOD AND PAPER	0.00	0.00	0.00	0.00	0.00	0.00
GLASS AND RELATED PRODUCTS	0.00	0.00	0.00	0.00	0.00	0.00
ELECTRONICS	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (INDUSTRIAL PROCESSES)	1.38	1.42	1.32	1.41	1.53	1.56
TOTAL INDUSTRIAL PROCESSES	14.46	24.99	28.32	30.13	31.39	31.87
TOTAL STATIONARY	21.07	33.92	38.07	40.47	42.08	42.68

⁶⁷ Emissions may appear as zero due to rounding.

Areawide Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2027
CONSUMER PRODUCTS	0.00	0.00	0.00	0.00	0.00	0.00
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.00	0.00	0.00	0.00	0.00	0.00
PESTICIDES/FERTILIZERS	0.00	0.00	0.00	0.00	0.00	0.00
ASPHALT PAVING / ROOFING	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL SOLVENT EVAPORATION	0.00	0.00	0.00	0.00	0.00	0.00
RESIDENTIAL FUEL COMBUSTION	0.67	0.55	0.55	0.54	0.53	0.53
FARMING OPERATIONS	0.00	0.00	0.00	0.00	0.00	0.00
CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00	0.00	0.00
PAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00
UNPAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00
FUGITIVE WINDBLOWN DUST	0.00	0.00	0.00	0.00	0.00	0.00
FIRES	0.00	0.00	0.00	0.00	0.00	0.00
MANAGED BURNING AND DISPOSAL	0.11	0.38	0.38	0.38	0.38	0.39
COOKING	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (MISCELLANEOUS PROCESSES)	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL MISCELLANEOUS PROCESSES	0.78	0.93	0.93	0.92	0.92	0.92
TOTAL AREAWIDE	0.78	0.93	0.93	0.92	0.92	0.92

Mobile Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2027
LIGHT DUTY PASSENGER (LDA)	3.65	2.04	1.49	1.17	0.94	0.89
LIGHT DUTY TRUCKS - 1 (LDT1)	1.06	0.50	0.33	0.24	0.17	0.16
LIGHT DUTY TRUCKS - 2 (LDT2)	2.39	1.22	0.80	0.58	0.45	0.42
MEDIUM DUTY TRUCKS (MDV)	2.65	1.63	1.15	0.78	0.55	0.51
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	0.92	0.61	0.52	0.42	0.34	0.32
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	0.09	0.07	0.06	0.05	0.04	0.04
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.22	0.12	0.09	0.07	0.06	0.05
HEAVY HEAVY DUTY GAS TRUCKS (HHGT)	0.09	0.04	0.04	0.04	0.04	0.05
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	3.90	2.62	2.16	1.65	1.25	1.15
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	1.13	0.70	0.53	0.36	0.23	0.20
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	2.02	1.13	0.79	0.42	0.49	0.51
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	22.36	9.90	8.49	4.28	4.49	4.46
MOTORCYCLES (MCY)	0.39	0.33	0.31	0.30	0.29	0.29
HEAVY DUTY DIESEL URBAN BUSES (UBD)	1.05	0.65	0.45	0.33	0.23	0.21
HEAVY DUTY GAS URBAN BUSES (UBG)	0.10	0.07	0.06	0.05	0.04	0.03
SCHOOL BUSES - GAS (SBG)	0.02	0.01	0.00	0.00	0.00	0.00
SCHOOL BUSES - DIESEL (SBD)	0.25	0.24	0.20	0.16	0.13	0.12
OTHER BUSES - GAS (OBG)	0.06	0.04	0.03	0.02	0.02	0.02
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.06	0.03	0.03	0.01	0.01	0.01
ALL OTHER BUSES - DIESEL (OBD)	0.06	0.03	0.02	0.01	0.01	0.01
MOTOR HOMES (MH)	0.18	0.11	0.08	0.05	0.04	0.03
TOTAL ON-ROAD MOTOR VEHICLES	42.65	22.07	17.61	10.99	9.84	9.49
AIRCRAFT	1.60	1.36	1.37	1.41	1.46	1.47
TRAINS	29.59	23.55	19.41	16.36	12.54	11.35
RECREATIONAL BOATS	0.08	0.06	0.06	0.06	0.05	0.05
OFF-ROAD RECREATIONAL VEHICLES	0.04	0.04	0.04	0.05	0.05	0.05
OFF-ROAD EQUIPMENT	2.42	2.47	2.16	1.77	1.52	1.46
FARM EQUIPMENT	0.15	0.12	0.10	0.09	0.08	0.07
FUEL STORAGE AND HANDLING	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL OTHER MOBILE SOURCES	33.87	27.60	23.15	19.73	15.70	14.47
TOTAL MOBILE	76.52	49.67	40.75	30.72	25.53	23.95
	2011	2017	2020	2023	2026	2027
Grand Total	98.36	84.53	79.76	72.12	68.53	67.55

2018 SIP Update
Coachella Valley Ozone Nonattainment Area
Reactive Organic Gases (Tons/Day)⁶⁸
Data Source: CEPAM 2016 SIP Version 1.05
Stationary Sources

Released September 21, 2018

SUMMARY CATEGORY NAME	2011	2012	2017	2020	2023	2026	2027
ELECTRIC UTILITIES	0.00	0.00	0.00	0.00	0.00	0.00	0.00
COGENERATION	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MANUFACTURING AND INDUSTRIAL	0.10	0.10	0.15	0.18	0.20	0.22	0.23
FOOD AND AGRICULTURAL PROCESSING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SERVICE AND COMMERCIAL	0.16	0.14	0.13	0.14	0.14	0.14	0.14
OTHER (FUEL COMBUSTION)	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOTAL FUEL COMBUSTION	0.26	0.24	0.28	0.33	0.35	0.37	0.37
SEWAGE TREATMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LANDFILLS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INCINERATORS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SOIL REMEDIATION	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (WASTE DISPOSAL)	0.75	0.77	0.93	1.03	1.23	1.39	1.41
TOTAL WASTE DISPOSAL	0.75	0.77	0.93	1.04	1.23	1.39	1.42
LAUNDERING	0.00	0.00	0.00	0.01	0.01	0.01	0.01
DEGREASING	0.16	0.17	0.25	0.31	0.35	0.38	0.39
COATINGS AND RELATED PROCESS SOLVENTS	0.82	0.86	1.21	1.43	1.55	1.67	1.70
PRINTING	0.02	0.02	0.02	0.03	0.03	0.03	0.03
ADHESIVES AND SEALANTS	0.14	0.14	0.22	0.27	0.30	0.33	0.34
OTHER (CLEANING AND SURFACE COATINGS)	0.01	0.02	0.02	0.03	0.03	0.03	0.04
TOTAL CLEANING AND SURFACE COATINGS	1.15	1.21	1.73	2.07	2.27	2.46	2.52
OIL AND GAS PRODUCTION	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PETROLEUM MARKETING	0.52	0.65	0.45	0.43	0.42	0.41	0.40
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL PETROLEUM PRODUCTION AND MARKETING	0.52	0.65	0.45	0.43	0.42	0.41	0.40
CHEMICAL	0.05	0.06	0.08	0.10	0.11	0.12	0.12
FOOD AND AGRICULTURE	0.02	0.02	0.03	0.03	0.03	0.03	0.03
MINERAL PROCESSES	0.02	0.01	0.02	0.02	0.03	0.03	0.03
METAL PROCESSES	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WOOD AND PAPER	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ELECTRONICS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (INDUSTRIAL PROCESSES)	0.09	0.06	0.07	0.08	0.08	0.09	0.09
TOTAL INDUSTRIAL PROCESSES	0.18	0.16	0.20	0.23	0.25	0.27	0.28
TOTAL STATIONARY	2.85	3.03	3.59	4.10	4.52	4.89	4.98

⁶⁸ Emissions may appear as zero due to rounding.

Areawide Sources

SUMMARY CATEGORY NAME	2011	2012	2017	2020	2023	2026	2027
CONSUMER PRODUCTS	2.43	2.39	2.54	2.66	2.80	2.93	2.98
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.41	0.39	0.36	0.38	0.40	0.42	0.43
PESTICIDES/FERTILIZERS	0.16	0.35	0.27	0.26	0.26	0.25	0.25
ASPHALT PAVING / ROOFING	0.03	0.03	0.06	0.08	0.08	0.09	0.09
TOTAL SOLVENT EVAPORATION	3.03	3.17	3.23	3.37	3.53	3.70	3.75
RESIDENTIAL FUEL COMBUSTION	0.09	0.09	0.09	0.09	0.09	0.09	0.09
FARMING OPERATIONS	0.07	0.07	0.07	0.07	0.07	0.07	0.07
CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UNPAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FUGITIVE WINDBLOWN DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FIRES	0.01	0.01	0.01	0.01	0.01	0.01	0.01
MANAGED BURNING AND DISPOSAL	0.02	0.01	0.01	0.01	0.01	0.01	0.01
COOKING	0.03	0.03	0.04	0.05	0.05	0.06	0.06
OTHER (MISCELLANEOUS PROCESSES)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL MISCELLANEOUS PROCESSES	0.22	0.21	0.22	0.22	0.23	0.23	0.23
TOTAL AREAWIDE	3.25	3.38	3.45	3.60	3.76	3.93	3.98

Mobile Sources

SUMMARY CATEGORY NAME	2011	2012	2017	2020	2023	2026	2027
LIGHT DUTY PASSENGER (LDA)	2.55	2.34	1.54	1.16	0.99	0.87	0.84
LIGHT DUTY TRUCKS - 1 (LDT1)	0.75	0.70	0.46	0.34	0.27	0.22	0.21
LIGHT DUTY TRUCKS - 2 (LDT2)	0.90	0.86	0.69	0.57	0.54	0.51	0.51
MEDIUM DUTY TRUCKS (MDV)	0.93	0.90	0.83	0.71	0.63	0.55	0.54
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	0.20	0.19	0.15	0.13	0.11	0.10	0.09
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	0.03	0.03	0.03	0.02	0.01	0.01	0.01
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.08	0.07	0.04	0.04	0.03	0.03	0.03
HEAVY HEAVY DUTY GAS TRUCKS (HHGT)	0.02	0.02	0.01	0.00	0.00	0.00	0.00
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	0.02	0.02	0.02	0.01	0.01	0.01	0.01
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	0.01	0.01	0.01	0.00	0.00	0.00	0.00
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	0.08	0.07	0.04	0.02	0.01	0.01	0.01
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	0.94	0.69	0.13	0.10	0.07	0.07	0.07
MOTORCYCLES (MCY)	0.40	0.40	0.45	0.47	0.51	0.53	0.53
HEAVY DUTY DIESEL URBAN BUSES (UBD)	0.02	0.02	0.01	0.01	0.00	0.00	0.00
HEAVY DUTY GAS URBAN BUSES (UBG)	0.02	0.02	0.01	0.01	0.00	0.00	0.00
SCHOOL BUSES - GAS (SBG)	0.01	0.01	0.00	0.00	0.00	0.00	0.00
SCHOOL BUSES - DIESEL (SBD)	0.01	0.00	0.00	0.00	0.00	0.00	0.00
OTHER BUSES - GAS (OBG)	0.01	0.00	0.00	0.00	0.00	0.00	0.00
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ALL OTHER BUSES - DIESEL (OBD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOTOR HOMES (MH)	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOTAL ON-ROAD MOTOR VEHICLES	6.98	6.37	4.41	3.62	3.20	2.93	2.87
AIRCRAFT	0.07	0.07	0.08	0.08	0.08	0.09	0.09
TRAINS	0.21	0.19	0.11	0.07	0.06	0.05	0.05
RECREATIONAL BOATS	0.86	0.82	0.64	0.54	0.46	0.39	0.37
OFF-ROAD RECREATIONAL VEHICLES	0.44	0.42	0.41	0.40	0.37	0.35	0.35
OFF-ROAD EQUIPMENT	1.79	1.79	1.78	1.82	1.95	2.16	2.25
FARM EQUIPMENT	0.12	0.11	0.08	0.07	0.06	0.05	0.05
FUEL STORAGE AND HANDLING	0.34	0.32	0.26	0.24	0.23	0.22	0.22
TOTAL OTHER MOBILE SOURCES	3.83	3.72	3.35	3.23	3.22	3.32	3.37
TOTAL MOBILE	10.81	10.09	7.77	6.85	6.43	6.25	6.24
	2011	2012	2017	2020	2023	2026	2027
Grand Total	16.91	16.5	14.8	14.55	14.71	15.06	15.2

**Coachella Valley Ozone Nonattainment Area
Oxides of Nitrogen (Tons/Day)⁶⁹**
Data Source: CEPAM 2016 SIP Version 1.05
Stationary Sources

SUMMARY CATEGORY NAME	2011	2012	2017	2020	2023	2026	2027
ELECTRIC UTILITIES	0.02	0.08	0.38	0.32	0.25	0.25	0.25
COGENERATION	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MANUFACTURING AND INDUSTRIAL	0.20	0.21	0.28	0.34	0.38	0.41	0.42
FOOD AND AGRICULTURAL PROCESSING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SERVICE AND COMMERCIAL	0.40	0.38	0.34	0.37	0.38	0.38	0.38
OTHER (FUEL COMBUSTION)	0.10	0.12	0.10	0.08	0.08	0.08	0.08
TOTAL FUEL COMBUSTION	0.73	0.79	1.09	1.11	1.08	1.12	1.13
SEWAGE TREATMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LANDFILLS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INCINERATORS	0.01	0.02	0.02	0.03	0.03	0.03	0.03
SOIL REMEDIATION	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (WASTE DISPOSAL)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL WASTE DISPOSAL	0.01	0.02	0.02	0.03	0.03	0.03	0.03
LAUNDERING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEGREASING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
COATINGS AND RELATED PROCESS SOLVENTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PRINTING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ADHESIVES AND SEALANTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (CLEANING AND SURFACE COATINGS)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL CLEANING AND SURFACE COATINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OIL AND GAS PRODUCTION	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PETROLEUM MARKETING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL PETROLEUM PRODUCTION AND MARKETING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CHEMICAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FOOD AND AGRICULTURE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MINERAL PROCESSES	0.00	0.00	0.00	0.00	0.00	0.00	0.00
METAL PROCESSES	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WOOD AND PAPER	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ELECTRONICS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (INDUSTRIAL PROCESSES)	0.00	0.01	0.01	0.01	0.01	0.01	0.01
TOTAL INDUSTRIAL PROCESSES	0.00	0.01	0.01	0.01	0.01	0.01	0.01
TOTAL STATIONARY	0.74	0.81	1.12	1.15	1.11	1.16	1.17

⁶⁹ Emissions may appear as zero due to rounding.

Areawide Sources

SUMMARY CATEGORY NAME	2011	2012	2017	2020	2023	2026	2027
CONSUMER PRODUCTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PESTICIDES/FERTILIZERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ASPHALT PAVING / ROOFING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL SOLVENT EVAPORATION	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RESIDENTIAL FUEL COMBUSTION	0.36	0.36	0.26	0.26	0.25	0.24	0.24
FARMING OPERATIONS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UNPAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FUGITIVE WINDBLOWN DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FIRES	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MANAGED BURNING AND DISPOSAL	0.02	0.00	0.00	0.00	0.00	0.00	0.00
COOKING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (MISCELLANEOUS PROCESSES)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL MISCELLANEOUS PROCESSES	0.38	0.37	0.27	0.26	0.25	0.24	0.24
TOTAL AREAWIDE	0.38	0.37	0.27	0.26	0.25	0.24	0.24

Mobile Sources

SUMMARY CATEGORY NAME	2011	2012	2017	2020	2023	2026	2027
LIGHT DUTY PASSENGER (LDA)	1.23	1.11	0.70	0.51	0.40	0.31	0.29
LIGHT DUTY TRUCKS - 1 (LDT1)	0.35	0.32	0.17	0.12	0.08	0.06	0.06
LIGHT DUTY TRUCKS - 2 (LDT2)	0.80	0.73	0.46	0.33	0.26	0.21	0.20
MEDIUM DUTY TRUCKS (MDV)	1.10	1.02	0.68	0.48	0.34	0.25	0.23
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	0.27	0.26	0.19	0.16	0.13	0.10	0.10
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	0.05	0.05	0.04	0.03	0.02	0.02	0.02
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.14	0.13	0.09	0.08	0.06	0.05	0.05
HEAVY HEAVY DUTY GAS TRUCKS (HHGT)	0.03	0.03	0.02	0.02	0.02	0.03	0.03
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	0.93	0.83	0.54	0.40	0.29	0.21	0.19
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	0.34	0.31	0.18	0.12	0.08	0.05	0.04
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	1.48	1.35	0.95	0.64	0.34	0.39	0.40
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	14.77	12.14	6.24	5.10	2.20	2.17	2.16
MOTORCYCLES (MCY)	0.08	0.09	0.10	0.10	0.11	0.11	0.12
HEAVY DUTY DIESEL URBAN BUSES (UBD)	0.38	0.33	0.22	0.12	0.06	0.05	0.04
HEAVY DUTY GAS URBAN BUSES (UBG)	0.04	0.03	0.02	0.02	0.01	0.01	0.01
SCHOOL BUSES - GAS (SBG)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCHOOL BUSES - DIESEL (SBD)	0.07	0.07	0.06	0.05	0.04	0.03	0.03
OTHER BUSES - GAS (OBG)	0.02	0.01	0.01	0.01	0.01	0.01	0.01
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.04	0.03	0.02	0.02	0.01	0.01	0.01
ALL OTHER BUSES - DIESEL (OBD)	0.04	0.03	0.03	0.03	0.02	0.02	0.02
MOTOR HOMES (MH)	0.05	0.05	0.03	0.02	0.02	0.01	0.01
TOTAL ON-ROAD MOTOR VEHICLES	22.21	18.93	10.77	8.35	4.52	4.12	4.02
AIRCRAFT	0.18	0.19	0.23	0.26	0.28	0.31	0.31
TRAINS	3.19	3.06	2.53	2.08	1.74	1.33	1.20
RECREATIONAL BOATS	0.15	0.15	0.13	0.12	0.12	0.11	0.11
OFF-ROAD RECREATIONAL VEHICLES	0.01	0.00	0.01	0.01	0.01	0.01	0.01
OFF-ROAD EQUIPMENT	2.50	2.60	2.64	2.31	1.88	1.62	1.56
FARM EQUIPMENT	0.48	0.46	0.38	0.33	0.28	0.24	0.22
FUEL STORAGE AND HANDLING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL OTHER MOBILE SOURCES	6.50	6.47	5.92	5.10	4.30	3.60	3.41
TOTAL MOBILE	28.72	25.39	16.68	13.45	8.82	7.73	7.42
	2011	2012	2017	2020	2023	2026	2027
Grand Total	29.84	26.58	18.07	14.86	10.19	9.13	8.84

San Joaquin Valley Ozone Nonattainment Area

Reactive Organic Gases (Tons/Day)⁷⁰

Data Source: CEPAM 2016 SIP Version 1.05

Stationary Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2029	2031	2032
ELECTRIC UTILITIES	0.17	0.20	0.19	0.20	0.20	0.20	0.21	0.21
COGENERATION	0.58	0.53	0.56	0.58	0.60	0.62	0.63	0.64
OIL AND GAS PRODUCTION (COMBUSTION)	1.64	1.06	0.99	0.92	0.86	0.81	0.77	0.76
PETROLEUM REFINING (COMBUSTION)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
MANUFACTURING AND INDUSTRIAL	0.19	0.18	0.18	0.18	0.18	0.19	0.19	0.19
FOOD AND AGRICULTURAL PROCESSING	1.33	0.78	0.71	0.64	0.59	0.55	0.52	0.52
SERVICE AND COMMERCIAL	0.50	0.49	0.52	0.52	0.52	0.53	0.54	0.55
OTHER (FUEL COMBUSTION)	0.05	0.04	0.03	0.03	0.03	0.03	0.03	0.03
TOTAL FUEL COMBUSTION	4.56	3.37	3.27	3.17	3.08	3.02	2.99	2.98
SEWAGE TREATMENT	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04
LANDFILLS	1.50	1.62	1.70	1.78	1.87	1.96	2.01	2.05
INCINERATORS	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
SOIL REMEDIATION	0.08	0.11	0.12	0.12	0.13	0.13	0.14	0.14
OTHER (WASTE DISPOSAL)	18.07	23.81	24.99	26.29	27.62	28.92	29.76	30.19
TOTAL WASTE DISPOSAL	19.68	25.59	26.85	28.24	29.66	31.06	31.97	32.43
LAUNDERING	0.07	0.10	0.10	0.10	0.11	0.11	0.12	0.12
DEGREASING	1.58	1.78	1.85	1.97	2.13	2.32	2.46	2.54
COATINGS AND RELATED PROCESS SOLVENTS	7.70	8.99	9.39	10.06	10.87	11.78	12.44	12.79
PRINTING	4.89	5.66	5.85	6.05	6.23	6.41	6.54	6.62
ADHESIVES AND SEALANTS	0.63	0.63	0.67	0.69	0.72	0.75	0.77	0.79
OTHER (CLEANING AND SURFACE COATINGS)	5.81	7.07	7.32	7.80	8.46	9.26	9.88	10.21
TOTAL CLEANING AND SURFACE COATINGS	20.68	24.23	25.18	26.68	28.51	30.63	32.21	33.07
OIL AND GAS PRODUCTION	15.01	11.48	10.74	10.05	9.40	8.79	8.41	8.23
PETROLEUM REFINING	0.71	0.79	0.79	0.79	0.79	0.79	0.79	0.79
PETROLEUM MARKETING	5.33	5.32	5.05	4.83	4.63	4.54	4.52	4.53
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01
TOTAL PETROLEUM PRODUCTION AND MARKETING	21.06	17.61	16.61	15.68	14.84	14.14	13.74	13.56
CHEMICAL	3.23	5.11	5.41	5.78	6.19	6.67	6.99	7.16
FOOD AND AGRICULTURE	10.44	12.28	12.94	13.49	13.99	14.40	14.61	14.69
MINERAL PROCESSES	0.27	0.29	0.31	0.33	0.35	0.37	0.38	0.39
METAL PROCESSES	0.12	0.17	0.17	0.18	0.18	0.19	0.20	0.21
WOOD AND PAPER	2.31	0.01	0.01	0.01	0.01	0.01	0.01	0.01
GLASS AND RELATED PRODUCTS	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02
ELECTRONICS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (INDUSTRIAL PROCESSES)	1.01	0.87	0.92	0.96	1.01	1.06	1.09	1.11
TOTAL INDUSTRIAL PROCESSES	17.37	18.75	19.79	20.77	21.76	22.73	23.31	23.59
TOTAL STATIONARY	83.36	89.55	91.70	94.54	97.86	101.58	104.22	105.62

⁷⁰ Emissions may appear as zero due to rounding.

Areawide Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2029	2031	2032
CONSUMER PRODUCTS	22.30	21.54	22.45	23.41	24.42	25.44	26.12	26.46
ARCHITECTURAL COATINGS AND RELATED PROCESS	10.19	10.72	11.21	11.73	12.28	12.82	13.19	13.38
PESTICIDES/FERTILIZERS	16.03	16.62	16.38	16.14	15.90	15.67	15.50	15.42
ASPHALT PAVING / ROOFING	0.81	1.09	1.19	1.26	1.33	1.41	1.49	1.53
TOTAL SOLVENT EVAPORATION	49.33	49.97	51.24	52.54	53.93	55.34	56.29	56.79
RESIDENTIAL FUEL COMBUSTION	0.46	0.41	0.42	0.43	0.43	0.44	0.44	0.44
FARMING OPERATIONS	126.69	95.92	95.92	95.92	95.92	95.92	95.92	95.92
CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UNPAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FUGITIVE WINDBLOWN DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FIRES	0.09	0.10	0.10	0.11	0.11	0.12	0.12	0.12
MANAGED BURNING AND DISPOSAL	3.63	1.48	1.47	1.46	1.46	1.45	1.44	1.44
COOKING	0.56	0.62	0.65	0.68	0.71	0.74	0.76	0.77
OTHER (MISCELLANEOUS PROCESSES)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL MISCELLANEOUS PROCESSES	131.43	98.53	98.56	98.60	98.63	98.67	98.69	98.70
TOTAL AREAWIDE	180.76	148.50	149.80	151.14	152.56	154.00	154.98	155.49

Mobile Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2029	2031	2032
LIGHT DUTY PASSENGER (LDA)	19.99	10.12	7.54	6.34	5.75	5.33	5.04	4.89
LIGHT DUTY TRUCKS - 1 (LDT1)	7.06	3.50	2.44	1.87	1.50	1.18	0.95	0.84
LIGHT DUTY TRUCKS - 2 (LDT2)	9.56	5.73	4.45	3.88	3.59	3.32	3.10	2.99
MEDIUM DUTY TRUCKS (MDV)	9.20	7.25	6.07	4.93	4.18	3.63	3.32	3.18
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	2.62	1.72	1.39	1.10	0.88	0.71	0.58	0.52
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	0.30	0.19	0.14	0.10	0.07	0.05	0.04	0.04
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.94	0.26	0.16	0.11	0.08	0.07	0.07	0.06
HEAVY HEAVY DUTY GAS TRUCKS (HHGT)	0.17	0.05	0.03	0.02	0.02	0.01	0.01	0.01
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	0.51	0.40	0.33	0.27	0.22	0.18	0.16	0.15
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	0.14	0.11	0.09	0.07	0.06	0.05	0.05	0.05
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	1.64	0.75	0.39	0.12	0.13	0.13	0.13	0.13
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	11.03	2.31	1.95	1.27	1.31	1.33	1.34	1.35
MOTORCYCLES (MCY)	4.06	3.47	3.43	3.41	3.37	3.34	3.36	3.38
HEAVY DUTY DIESEL URBAN BUSES (UBD)	0.25	0.15	0.11	0.08	0.05	0.04	0.03	0.03
HEAVY DUTY GAS URBAN BUSES (UBG)	0.10	0.07	0.05	0.04	0.03	0.02	0.02	0.02
SCHOOL BUSES - GAS (SBG)	0.10	0.02	0.01	0.01	0.01	0.01	0.01	0.01
SCHOOL BUSES - DIESEL (SBD)	0.09	0.02	0.01	0.01	0.01	0.01	0.01	0.01
OTHER BUSES - GAS (OBG)	0.08	0.05	0.04	0.03	0.03	0.02	0.02	0.02
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.05	0.01	0.01	0.00	0.00	0.00	0.00	0.00
ALL OTHER BUSES - DIESEL (OBD)	0.05	0.01	0.01	0.00	0.00	0.00	0.00	0.00
MOTOR HOMES (MH)	0.10	0.05	0.03	0.02	0.01	0.01	0.01	0.01
TOTAL ON-ROAD MOTOR VEHICLES	68.02	36.24	28.68	23.69	21.30	19.45	18.25	17.71
AIRCRAFT	2.99	3.01	3.90	3.90	3.91	3.91	3.92	3.92
TRAINS	0.82	0.50	0.39	0.36	0.31	0.28	0.26	0.26
OCEAN GOING VESSELS	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
COMMERCIAL HARBOR CRAFT	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04
RECREATIONAL BOATS	12.15	8.94	7.64	6.46	5.44	4.61	4.17	4.00
OFF-ROAD RECREATIONAL VEHICLES	3.69	3.09	2.89	2.66	2.48	2.34	2.29	2.27
OFF-ROAD EQUIPMENT	11.92	9.65	9.05	8.91	8.78	8.80	8.87	8.92
FARM EQUIPMENT	11.95	8.77	7.56	6.55	5.71	5.01	4.62	4.44
FUEL STORAGE AND HANDLING	2.96	2.28	2.10	1.98	1.89	1.85	1.29	1.29
TOTAL OTHER MOBILE SOURCES	46.54	36.29	33.59	30.86	28.58	26.86	25.47	25.16
TOTAL MOBILE	114.56	72.53	62.27	54.55	49.88	46.31	43.72	42.87
	2011	2017	2020	2023	2026	2029	2031	2032
Grand Total	378.68	310.58	303.77	300.22	300.3	301.89	302.93	303.98

San Joaquin Valley Ozone Nonattainment Area Oxides of Nitrogen (Tons/Day)⁷¹

Data Source: CEPAM 2016 SIP Version 1.05

Stationary Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2029	2031	2032
ELECTRIC UTILITIES	3.99	4.48	4.49	4.57	4.74	4.87	4.96	5.00
COGENERATION	2.21	1.97	2.13	2.22	2.31	2.36	2.40	2.42
OIL AND GAS PRODUCTION (COMBUSTION)	3.27	2.62	2.38	2.17	1.97	1.79	1.67	1.64
PETROLEUM REFINING (COMBUSTION)	0.21	0.17	0.16	0.16	0.15	0.15	0.14	0.14
MANUFACTURING AND INDUSTRIAL	5.84	5.05	5.14	5.20	5.21	5.34	5.40	5.46
FOOD AND AGRICULTURAL PROCESSING	15.95	7.22	6.37	5.57	4.86	4.20	3.86	3.76
SERVICE AND COMMERCIAL	4.27	4.18	4.24	4.16	4.08	4.06	4.06	4.07
OTHER (FUEL COMBUSTION)	0.77	0.56	0.47	0.47	0.47	0.47	0.47	0.47
TOTAL FUEL COMBUSTION	36.52	26.25	25.39	24.51	23.78	23.24	22.96	22.96
SEWAGE TREATMENT	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04
LANDFILLS	0.15	0.18	0.18	0.19	0.20	0.21	0.22	0.22
INCINERATORS	0.05	0.04	0.04	0.04	0.05	0.05	0.05	0.05
SOIL REMEDIATION	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
OTHER (WASTE DISPOSAL)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL WASTE DISPOSAL	0.23	0.26	0.27	0.28	0.29	0.31	0.32	0.32
LAUNDERING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEGREASING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
COATINGS AND RELATED PROCESS SOLVENTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PRINTING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ADHESIVES AND SEALANTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (CLEANING AND SURFACE COATINGS)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL CLEANING AND SURFACE COATINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OIL AND GAS PRODUCTION	0.74	0.33	0.31	0.29	0.27	0.25	0.24	0.24
PETROLEUM REFINING	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01
PETROLEUM MARKETING	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL PETROLEUM PRODUCTION AND MARKETING	0.83	0.38	0.36	0.34	0.32	0.30	0.29	0.28
CHEMICAL	0.32	0.32	0.34	0.37	0.39	0.42	0.44	0.45
FOOD AND AGRICULTURE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MINERAL PROCESSES	0.21	0.26	0.27	0.29	0.31	0.32	0.34	0.34
METAL PROCESSES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WOOD AND PAPER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GLASS AND RELATED PRODUCTS	4.93	3.25	3.32	3.50	3.50	3.50	3.50	3.50
ELECTRONICS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (INDUSTRIAL PROCESSES)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL INDUSTRIAL PROCESSES	5.47	3.83	3.94	4.16	4.20	4.25	4.28	4.30
TOTAL STATIONARY	43.05	30.72	29.95	29.29	28.59	28.10	27.85	27.86

⁷¹ Emissions may appear as zero due to rounding.

Areawide Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2029	2031	2032
CONSUMER PRODUCTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ARCHITECTURAL COATINGS AND RELATED PROCESS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PESTICIDES/FERTILIZERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ASPHALT PAVING / ROOFING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL SOLVENT EVAPORATION	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RESIDENTIAL FUEL COMBUSTION	4.19	3.84	3.76	3.60	3.47	3.39	3.33	3.29
FARMING OPERATIONS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UNPAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FUGITIVE WINDBLOWN DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FIRES	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04
MANAGED BURNING AND DISPOSAL	2.62	0.80	0.80	0.79	0.78	0.78	0.78	0.77
COOKING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (MISCELLANEOUS PROCESSES)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL MISCELLANEOUS PROCESSES	6.84	4.68	4.59	4.43	4.29	4.21	4.15	4.11
TOTAL AREAWIDE	6.84	4.68	4.59	4.43	4.29	4.21	4.15	4.11

Mobile Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2029	2031	2032
LIGHT DUTY PASSENGER (LDA)	11.07	5.70	4.19	3.31	2.74	2.33	2.13	2.04
LIGHT DUTY TRUCKS - 1 (LDT1)	3.37	1.42	0.90	0.62	0.44	0.32	0.25	0.22
LIGHT DUTY TRUCKS - 2 (LDT2)	8.02	3.98	2.71	2.03	1.62	1.35	1.21	1.15
MEDIUM DUTY TRUCKS (MDV)	11.03	6.30	4.36	2.86	1.99	1.46	1.23	1.14
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	3.11	1.94	1.53	1.17	0.88	0.66	0.54	0.49
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	0.41	0.26	0.20	0.14	0.11	0.08	0.07	0.06
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.88	0.40	0.27	0.18	0.13	0.10	0.09	0.09
HEAVY HEAVY DUTY GAS TRUCKS (HHDGT)	0.25	0.15	0.13	0.11	0.10	0.09	0.09	0.09
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	12.41	7.77	5.83	4.20	2.93	2.00	1.55	1.37
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	3.16	1.81	1.24	0.80	0.48	0.28	0.19	0.16
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	18.77	11.25	7.94	4.85	5.08	5.17	5.23	5.26
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	137.54	67.33	59.13	31.97	31.34	30.67	30.51	30.50
MOTORCYCLES (MCY)	0.87	0.75	0.73	0.72	0.72	0.73	0.74	0.74
HEAVY DUTY DIESEL URBAN BUSES (UBD)	3.83	2.20	1.56	1.12	0.81	0.55	0.44	0.41
HEAVY DUTY GAS URBAN BUSES (UBG)	0.24	0.17	0.13	0.11	0.09	0.08	0.07	0.07
SCHOOL BUSES - GAS (SBG)	0.10	0.04	0.03	0.02	0.01	0.01	0.01	0.01
SCHOOL BUSES - DIESEL (SBD)	1.01	0.93	0.77	0.63	0.50	0.38	0.32	0.29
OTHER BUSES - GAS (OBG)	0.21	0.12	0.09	0.07	0.05	0.05	0.04	0.04
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.53	0.31	0.25	0.11	0.13	0.13	0.12	0.12
ALL OTHER BUSES - DIESEL (OBD)	0.61	0.34	0.29	0.14	0.16	0.16	0.16	0.17
MOTOR HOMES (MH)	0.44	0.27	0.20	0.15	0.11	0.08	0.07	0.06
TOTAL ON-ROAD MOTOR VEHICLES	217.88	113.43	92.46	55.31	50.41	46.69	45.07	44.49
AIRCRAFT	2.70	2.53	4.62	4.61	4.60	4.60	4.60	4.60
TRAINS	13.26	11.21	9.81	8.79	7.47	6.27	5.56	5.55
OCEAN GOING VESSELS	0.35	0.15	0.16	0.17	0.18	0.20	0.20	0.20
COMMERCIAL HARBOR CRAFT	0.73	0.51	0.48	0.44	0.42	0.40	0.38	0.38
RECREATIONAL BOATS	2.32	1.95	1.83	1.72	1.64	1.56	1.52	1.51
OFF-ROAD RECREATIONAL VEHICLES	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.17
OFF-ROAD EQUIPMENT	24.52	22.72	19.91	17.02	14.80	13.43	12.82	12.57
FARM EQUIPMENT	63.82	50.39	44.01	36.53	30.45	25.49	22.71	21.46
FUEL STORAGE AND HANDLING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL OTHER MOBILE SOURCES	107.82	89.58	80.94	69.42	59.71	52.12	47.97	46.43
TOTAL MOBILE	325.70	203.01	173.40	124.73	110.12	98.81	93.04	90.92
	2011	2017	2020	2023	2026	2029	2031	2032
Grand Total	375.58	238.41	207.94	158.44	143.01	131.12	125.03	122.89

South Coast Ozone Nonattainment Area**Reactive Organic Gases (Tons/Day)^{72 73}****Data Source: CEPAM 2016 SIP Version 1.05****Stationary Sources**

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2029	2031
ELECTRIC UTILITIES	0.75	0.87	0.87	0.94	0.96	0.96	0.96
COGENERATION	0.16	0.10	0.10	0.11	0.11	0.11	0.11
OIL AND GAS PRODUCTION (COMBUSTION)	0.11	0.12	0.12	0.12	0.12	0.12	0.12
PETROLEUM REFINING (COMBUSTION)	1.14	1.02	1.02	1.02	1.02	1.02	1.02
MANUFACTURING AND INDUSTRIAL	4.26	4.27	4.30	4.34	4.35	4.37	4.40
FOOD AND AGRICULTURAL PROCESSING	0.04	0.04	0.04	0.04	0.04	0.04	0.04
SERVICE AND COMMERCIAL	4.86	4.55	4.54	4.52	4.50	4.53	4.57
OTHER (FUEL COMBUSTION)	0.31	0.27	0.25	0.25	0.26	0.26	0.26
TOTAL FUEL COMBUSTION	11.63	11.23	11.24	11.34	11.35	11.40	11.48
SEWAGE TREATMENT	0.19	0.39	0.41	0.43	0.45	0.46	0.47
LANDFILLS	8.31	8.59	8.77	8.96	9.14	9.31	9.43
INCINERATORS	0.06	0.08	0.09	0.09	0.10	0.10	0.10
SOIL REMEDIATION	0.01	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (WASTE DISPOSAL)	6.42	6.01	6.48	7.42	8.14	8.35	8.48
TOTAL WASTE DISPOSAL	14.99	15.07	15.76	16.91	17.83	18.22	18.48
LAUNDERING	0.15	0.17	0.18	0.18	0.18	0.19	0.19
DEGREASING	10.04	12.19	13.46	14.54	15.13	15.75	16.16
COATINGS AND RELATED PROCESS SOLVENTS	18.15	22.02	23.71	24.86	25.61	26.33	26.82
PRINTING	1.52	1.85	1.99	2.08	2.13	2.18	2.21
ADHESIVES AND SEALANTS	3.37	4.09	4.51	4.87	5.08	5.28	5.42
OTHER (CLEANING AND SURFACE COATINGS)	1.91	0.82	0.90	0.96	1.00	1.04	1.06
TOTAL CLEANING AND SURFACE COATINGS	35.14	41.14	44.74	47.50	49.13	50.77	51.87
OIL AND GAS PRODUCTION	2.26	2.40	2.45	2.51	2.50	2.52	2.53
PETROLEUM REFINING	5.14	4.54	4.55	4.57	4.58	4.59	4.59
PETROLEUM MARKETING	23.22	14.40	13.52	12.83	12.14	11.48	11.06
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.06	0.10	0.11	0.11	0.12	0.12	0.13
TOTAL PETROLEUM PRODUCTION AND MARKETING	30.67	21.44	20.63	20.02	19.34	18.72	18.31
CHEMICAL	4.18	6.26	6.82	7.24	7.45	7.66	7.79
FOOD AND AGRICULTURE	1.11	1.29	1.36	1.40	1.43	1.45	1.47
MINERAL PROCESSES	0.27	0.83	0.89	0.93	0.95	0.98	1.00
METAL PROCESSES	0.03	0.16	0.17	0.18	0.19	0.19	0.20
WOOD AND PAPER	0.22	0.27	0.28	0.30	0.30	0.31	0.32
GLASS AND RELATED PRODUCTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ELECTRONICS	0.00	0.02	0.03	0.03	0.03	0.03	0.04
OTHER (INDUSTRIAL PROCESSES)	2.97	3.25	3.36	3.46	3.53	3.59	3.64
TOTAL INDUSTRIAL PROCESSES	8.78	12.09	12.90	13.54	13.89	14.23	14.46
TOTAL STATIONARY	101.20	100.97	105.27	109.31	111.55	113.34	114.61

⁷² Emissions may appear as zero due to rounding.⁷³ Marine emissions beyond three nautical miles are not included.

Areawide Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2029	2031
CONSUMER PRODUCTS	89.18	87.08	88.51	90.07	91.61	93.07	94.05
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	13.94	11.42	11.76	12.03	12.28	12.53	12.69
PESTICIDES/FERTILIZERS	1.42	1.43	1.45	1.46	1.48	1.50	1.51
ASPHALT PAVING / ROOFING	0.86	1.15	1.31	1.37	1.44	1.50	1.54
TOTAL SOLVENT EVAPORATION	105.40	101.08	103.03	104.93	106.81	108.59	109.79
RESIDENTIAL FUEL COMBUSTION	2.32	2.14	2.12	2.11	2.10	2.09	2.09
FARMING OPERATIONS	2.03	2.35	2.09	1.88	1.88	1.88	1.88
CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UNPAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FUGITIVE WINDBLOWN DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FIRES	0.23	0.23	0.23	0.23	0.23	0.23	0.23
MANAGED BURNING AND DISPOSAL	0.46	0.44	0.44	0.44	0.44	0.44	0.44
COOKING	1.71	1.88	1.97	2.01	2.06	2.11	2.14
OTHER (MISCELLANEOUS PROCESSES)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL MISCELLANEOUS PROCESSES	6.74	7.04	6.85	6.67	6.71	6.75	6.78
TOTAL AREAWIDE	112.15	108.12	109.89	111.60	113.52	115.35	116.57

Mobile Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2029	2031
LIGHT DUTY PASSENGER (LDA)	76.04	38.16	27.72	23.05	19.63	17.39	15.98
LIGHT DUTY TRUCKS - 1 (LDT1)	20.09	10.37	7.60	6.17	5.03	4.09	3.31
LIGHT DUTY TRUCKS - 2 (LDT2)	27.76	16.91	12.80	11.22	10.03	9.05	8.33
MEDIUM DUTY TRUCKS (MDV)	22.60	17.15	13.85	11.35	9.58	8.44	7.77
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	5.68	4.07	3.40	2.79	2.33	1.97	1.66
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	0.77	0.55	0.41	0.29	0.23	0.19	0.17
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	1.71	0.72	0.55	0.43	0.38	0.35	0.34
HEAVY HEAVY DUTY GAS TRUCKS (HHDGT)	0.41	0.09	0.06	0.05	0.05	0.05	0.06
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	0.41	0.35	0.30	0.26	0.22	0.19	0.18
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	0.14	0.12	0.10	0.09	0.07	0.07	0.07
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	2.38	1.06	0.58	0.21	0.22	0.24	0.24
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	7.86	1.81	1.54	0.98	1.05	1.12	1.15
MOTORCYCLES (MCY)	9.90	9.70	9.68	9.93	9.77	9.77	9.80
HEAVY DUTY DIESEL URBAN BUSES (UBD)	1.27	0.77	0.54	0.39	0.26	0.17	0.14
HEAVY DUTY GAS URBAN BUSES (UBG)	0.44	0.32	0.25	0.22	0.10	0.08	0.07
SCHOOL BUSES - GAS (SBG)	0.12	0.04	0.04	0.04	0.04	0.05	0.05
SCHOOL BUSES - DIESEL (SBD)	0.19	0.04	0.03	0.03	0.02	0.02	0.02
OTHER BUSES - GAS (OBG)	0.22	0.15	0.14	0.13	0.12	0.12	0.12
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.12	0.03	0.03	0.01	0.02	0.02	0.02
ALL OTHER BUSES - DIESEL (OBD)	0.11	0.03	0.02	0.01	0.01	0.01	0.02
MOTOR HOMES (MH)	0.28	0.13	0.08	0.05	0.03	0.02	0.02
TOTAL ON-ROAD MOTOR VEHICLES	178.54	102.60	79.71	67.69	59.20	53.41	49.49
AIRCRAFT	3.20	3.46	3.70	3.93	4.14	4.35	4.44
TRAINS	1.33	0.92	0.75	0.70	0.63	0.58	0.56
OCEAN GOING VESSELS	0.77	0.77	0.83	0.92	1.01	1.11	1.17
COMMERCIAL HARBOR CRAFT	0.45	0.40	0.40	0.40	0.40	0.39	0.38
RECREATIONAL BOATS	44.84	33.06	28.29	23.96	20.21	17.18	15.57
OFF-ROAD RECREATIONAL VEHICLES	4.14	3.92	3.86	3.67	3.48	3.33	3.27
OFF-ROAD EQUIPMENT	62.27	49.98	47.46	46.23	46.28	46.85	47.58
FARM EQUIPMENT	0.92	0.65	0.54	0.47	0.42	0.37	0.35
FUEL STORAGE AND HANDLING	12.21	8.79	7.86	7.14	6.61	6.25	4.27
TOTAL OTHER MOBILE SOURCES	130.12	101.96	93.69	87.42	83.20	80.42	77.59
TOTAL MOBILE	308.66	204.56	173.40	155.11	142.40	133.83	127.09
	2011	2017	2020	2023	2026	2029	2031
Grand Total	522	413.65	388.55	376.03	367.47	362.52	358.27

South Coast Ozone Nonattainment Area***Oxides of Nitrogen (Tons/Day)^{74 75}****Data Source: CEPAM 2016 SIP Version 1.05****Stationary Sources**

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2029	2031
ELECTRIC UTILITIES	1.84	5.42	4.56	3.29	3.29	3.29	3.29
COGENERATION	0.55	0.44	0.37	0.27	0.27	0.27	0.27
OIL AND GAS PRODUCTION (COMBUSTION)	1.57	1.78	1.22	1.08	1.08	1.09	1.09
PETROLEUM REFINING (COMBUSTION)	8.23	8.60	7.20	5.09	5.09	5.09	5.09
MANUFACTURING AND INDUSTRIAL	15.09	14.53	13.96	12.74	12.68	12.66	12.70
FOOD AND AGRICULTURAL PROCESSING	0.41	0.24	0.22	0.19	0.19	0.19	0.19
SERVICE AND COMMERCIAL	13.40	10.65	10.25	9.76	9.76	9.83	9.91
OTHER (FUEL COMBUSTION)	4.02	3.52	2.97	2.83	2.83	2.84	2.84
TOTAL FUEL COMBUSTION	45.10	45.19	40.76	35.25	35.21	35.25	35.39
SEWAGE TREATMENT	0.01	0.01	0.01	0.01	0.01	0.01	0.01
LANDFILLS	0.59	0.72	0.76	0.77	0.79	0.81	0.82
INCINERATORS	1.53	1.92	1.99	1.98	2.02	2.07	2.11
SOIL REMEDIATION	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (WASTE DISPOSAL)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL WASTE DISPOSAL	2.14	2.65	2.75	2.76	2.83	2.89	2.94
LAUNDERING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEGREASING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
COATINGS AND RELATED PROCESS SOLVENTS	0.01	0.02	0.02	0.02	0.02	0.02	0.02
PRINTING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ADHESIVES AND SEALANTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (CLEANING AND SURFACE COATINGS)	0.13	0.03	0.03	0.03	0.03	0.03	0.03
TOTAL CLEANING AND SURFACE COATINGS	0.14	0.04	0.04	0.04	0.05	0.05	0.05
OIL AND GAS PRODUCTION	0.00	0.04	0.04	0.04	0.04	0.04	0.05
PETROLEUM REFINING	1.42	1.35	1.17	0.90	0.90	0.90	0.90
PETROLEUM MARKETING	0.01	0.01	0.01	0.01	0.01	0.01	0.01
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.01	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL PETROLEUM PRODUCTION AND MARKETING	1.44	1.39	1.21	0.94	0.95	0.95	0.95
CHEMICAL	0.01	0.01	0.01	0.01	0.01	0.01	0.01
FOOD AND AGRICULTURE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MINERAL PROCESSES	0.31	0.42	0.35	0.26	0.26	0.26	0.26
METAL PROCESSES	0.03	0.06	0.06	0.06	0.06	0.06	0.06
WOOD AND PAPER	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GLASS AND RELATED PRODUCTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ELECTRONICS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (INDUSTRIAL PROCESSES)	0.02	0.02	0.02	0.03	0.03	0.03	0.03
TOTAL INDUSTRIAL PROCESSES	0.37	0.50	0.45	0.35	0.36	0.36	0.36
TOTAL STATIONARY	49.18	49.79	45.21	39.35	39.38	39.50	39.69

⁷⁴ Emissions may appear as zero due to rounding.⁷⁵ Marine emissions beyond three nautical miles are not included.

Areawide Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2029	2031
CONSUMER PRODUCTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PESTICIDES/FERTILIZERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ASPHALT PAVING / ROOFING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL SOLVENT EVAPORATION	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RESIDENTIAL FUEL COMBUSTION	14.43	10.25	9.80	9.39	9.04	8.76	8.61
FARMING OPERATIONS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UNPAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FUGITIVE WINDBLOWN DUST	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FIRES	0.08	0.08	0.08	0.08	0.08	0.08	0.08
MANAGED BURNING AND DISPOSAL	0.19	0.19	0.19	0.19	0.19	0.19	0.19
COOKING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER (MISCELLANEOUS PROCESSES)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL MISCELLANEOUS PROCESSES	14.70	10.52	10.07	9.65	9.30	9.03	8.88
TOTAL AREAWIDE	14.70	10.52	10.07	9.65	9.30	9.03	8.88

Mobile Sources

SUMMARY CATEGORY NAME	2011	2017	2020	2023	2026	2029	2031
LIGHT DUTY PASSENGER (LDA)	47.46	23.50	16.19	12.24	9.37	7.57	6.67
LIGHT DUTY TRUCKS - 1 (LDT1)	11.73	5.30	3.54	2.58	1.89	1.41	1.09
LIGHT DUTY TRUCKS - 2 (LDT2)	29.35	14.17	9.16	6.83	5.25	4.29	3.80
MEDIUM DUTY TRUCKS (MDV)	29.61	16.79	11.48	7.72	5.41	4.11	3.51
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	7.65	5.00	4.01	3.11	2.43	1.93	1.63
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	1.14	0.80	0.64	0.50	0.40	0.33	0.29
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	2.57	1.44	1.04	0.75	0.60	0.51	0.47
HEAVY HEAVY DUTY GAS TRUCKS (HHDGT)	0.59	0.34	0.31	0.31	0.33	0.35	0.37
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	16.49	11.02	8.41	6.14	4.43	3.17	2.51
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	5.58	3.38	2.38	1.57	0.99	0.60	0.44
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	39.07	22.72	15.39	8.35	8.89	9.37	9.62
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	109.57	61.39	54.37	27.55	28.12	28.60	28.82
MOTORCYCLES (MCY)	2.00	2.19	2.24	2.33	2.32	2.32	2.33
HEAVY DUTY DIESEL URBAN BUSES (UBD)	19.76	11.28	7.60	5.65	3.59	2.21	1.83
HEAVY DUTY GAS URBAN BUSES (UBG)	0.70	0.52	0.42	0.36	0.27	0.25	0.23
SCHOOL BUSES - GAS (SBG)	0.11	0.07	0.06	0.05	0.04	0.03	0.03
SCHOOL BUSES - DIESEL (SBD)	2.17	2.07	1.73	1.44	1.15	0.89	0.75
OTHER BUSES - GAS (OBG)	0.58	0.37	0.30	0.25	0.22	0.20	0.20
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	1.77	1.06	0.84	0.32	0.37	0.39	0.37
ALL OTHER BUSES - DIESEL (OBD)	1.71	1.05	0.92	0.42	0.48	0.50	0.50
MOTOR HOMES (MH)	1.15	0.72	0.55	0.42	0.33	0.27	0.24
TOTAL ON-ROAD MOTOR VEHICLES	330.74	185.17	141.57	88.89	76.87	69.32	65.73
AIRCRAFT*	13.48	14.99	15.99	17.14	18.40	19.67	20.24
TRAINS	20.24	18.42	16.52	15.27	13.30	11.57	10.66
OCEAN GOING VESSELS*	13.18	13.02	13.48	14.45	15.57	16.69	17.06
COMMERCIAL HARBOR CRAFT*	6.16	3.87	3.59	3.48	3.39	3.28	3.19
RECREATIONAL BOATS	8.29	6.98	6.55	6.18	5.87	5.61	5.46
OFF-ROAD RECREATIONAL VEHICLES	0.05	0.06	0.07	0.08	0.08	0.08	0.09
OFF-ROAD EQUIPMENT	75.02	60.79	51.10	42.59	37.10	33.74	32.59
FARM EQUIPMENT	3.27	2.61	2.30	1.94	1.66	1.42	1.29
FUEL STORAGE AND HANDLING	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL OTHER MOBILE SOURCES	139.70	120.74	109.60	101.12	95.36	92.06	90.59
TOTAL MOBILE	470.44	305.91	251.17	190.01	172.23	161.38	156.32
	2011	2017	2020	2023	2026	2029	2031
Grand Total	534.32	366.21	306.45	239.02	220.91	209.92	204.88

South Coast Outer Continental Shelf**Oxides of Nitrogen (Tons/Day)⁷⁶****Data Source: CEPAM 2016 SIP Version 1.05**

Reductions in NO_x emissions from beyond the South Coast Air Basin boundary of three nautical miles used for the RFP demonstration were included in the California commitment for the South Coast Air Basin ozone attainment in 2023 and 2031. These State commitments will reduce emissions from mobile sources out to 100 nautical miles. This inventory contains updated information on these sources compared to the 2016 AQMP.

Mobile Sources

OUTER CONTINENTAL SHELF					
SUMMARY CATEGORY NAME		2011	2012	2023	2031
AIRCRAFT		0.15	0.15	0.20	0.24
OCEAN GOING VESSELS		17.94	17.48	22.66	26.32
COMMERCIAL HARBOR CRAFT		10.55	10.30	7.15	6.41
NO_x emissions from 3 to 100 nautical miles		28.63	27.92	30.01	32.97

⁷⁶ Emissions may appear as zero due to rounding.



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