2022 VENTURA COUNTY AIR QUALITY MANAGEMENT PLAN

Adopted by the
Ventura County Air Pollution Control Board

December 13, 2022

VENTURA COUNTY
AIR POLLUTION CONTROL DISTRICT

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Acronyms List

µg/m3	micrograms per cubic meter
AB	Assembly Bill
APCB	Air Pollution Control Board
APCD	Air Pollution Control District
APCO	Air Pollution Control Officer
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ATCM	Air Toxic Control Measure
BACT	Best Available Control Technology
BARCT	Best Available Retrofit Control Technology
BMP	Best Management Practices
BTU	British thermal units
CAA	Clean Air Act
CAAA	federal Clean Air Act Amendments
CAF	Clean Air Fund
Caltrans	California Department of Transportation
CAP	Community Air Protection
CARB	California Air Resources Board
CCAA	California Clean Air Act
CE	Control Efficiency
CEFS	California Emissions Forecasting System
CEIDARS	California Emission Inventory Development and Reporting System
CEPAM	California Emission Projection Analysis Model
CEQA	California Environmental Quality Act
CF	Control Factor
CFR	Code of Federal Regulations
CH&SC	California Health and Safety Code
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CTG	Control Technique Guidelines
CURB	City Urban Restriction Boundary
District	Ventura County Air Pollution Control District
DMV	California Department of Motor Vehicles
EIC	Emissions Inventory Code
EITAC	Emissions Inventory Technical Advisory Committee
EMFAC	EMission FACtors on-road vehicles model
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPP	Early Progress Plan
ERC	Emission Reduction Credit

FAA	Federal Aviation Administration
FARMER	Funding Agricultural Replacement Measures for Emissions Reductions
FAST Act	Fixing America's Surface Transportation Act
FHWA	Federal Highway Administration
FIP	Federal Implementation Plan
FR	Federal Register
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
GF	Growth Factor
GHG	Greenhouse Gas
IF	Implementation Factor
ITS	Intelligent Transportation Systems
LAER	Lowest Achievable Emission Rate
LAFCo	Local Agency Formation Commission
LCFS	Low Carbon Fuel Standard
LPG	Liquefied Propane Gas
m	meters
MM	million
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NBVC	Naval Base Ventura County
NEI	National Emissions Inventory
ng/j	nanograms per joule
NH3	Ammonia
NO2	Nitrogen Dioxide
NOx	Nitrogen Oxides
NSR	New Source Review
O3	Ozone
OCS	Outer Continental Shelf
OGV	Ocean-Going Vessel
PM	Particulate Matter
PM10	Particulate Matter less than 10 micrometers in diameter (coarse particulate matter)
PM2.5	Particulate Matter less than 2.5 micrometers in diameter (fine particulate matter)
ppb	parts per billion
ppm	parts per million
PSD	Prevention of Significant Deterioration
QA	Quality Assurance
QC	Quality Control
RACM	Reasonably Available Control Measures
RACT	Reasonably Available Control Technology

REMI	Regional Economic Models, Inc.
RFP	Reasonable Further Progress
ROC	Reactive Organic Compounds
ROG	Reactive Organic Gases
RTP	Regional Transportation Plan
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCAB	South Central Coast Air Basin
SCRAM	Support Center for Regulatory Air Models
SCS	Sustainable Communities Strategy
SIP	State Implementation Plan
SO2	Sulfur Dioxide
SOAR	Save Open Space and Agricultural Resources
State Strategy	CARB's 2022 State Implementation Plan
TCM	Transportation Control Measure
TDM	Transportation Demand Management
TOC	Total Organic Compounds
TOG	Total Organic Gases
tpd	tons per day
VC	Ventura County
VCTC	Ventura County Transportation Commission
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
VNRM	Voluntary NOx Remediation Measure
VSR	Vessel Speed Reduction
WOE	Weight of Evidence

EXECUTIVE SUMMARY

Purpose

The mission of the Ventura County Air Pollution Control District (APCD or District) is to protect public health and agriculture from the adverse effects of air pollution by identifying air pollution problems and developing a comprehensive program to achieve and maintain state and federal air quality standards. To that end, pursuant to the federal Clean Air Act Amendments (CAAA) of 1990, the 2022 Ventura County Air Quality Management Plan (AQMP) presents Ventura County's: 1) strategy to attain the 2015 federal 8-hour ozone standard; 2) attainment demonstration for the federal 8-hour ozone standard; and, 3) reasonable further progress demonstration for the federal 8-hour ozone standard. Ventura County's air quality has come a long way since the District was first created in 1968. However, the District recognizes there is more work to do to alleviate the detrimental health effects of air pollution. This AQMP will strive to pave a path forward to ensure clean air for all its residents.

Background

The CAAA established clean air plan requirements for areas that exceed the National Ambient Air Quality Standards (NAAQS). These areas, called nonattainment areas, must develop and implement clean air plans to attain the NAAQS by specified dates. Clean air plans, also called Air Quality Management Plans, Nonattainment Plans, or State Implementation Plans (SIP), describe how an area, such as Ventura County, will attain the NAAQS.

Each state is responsible for implementing the CAAA within its jurisdiction. California state law designates the California Air Resources Board (CARB) as California's lead agency for all purposes set forth in the CAAA, including preparation of the California SIP. State law further specifies that the CARB must adopt clean air plans approved by local air districts, unless the CARB finds, after a public hearing, that a local clean air plan will not meet the requirements of the CAAA. CARB must submit SIPs and SIP revisions to the U.S. Environmental Protection Agency (EPA) for approval. The provisions and commitments in SIPs are federally enforceable.

On October 1, 2015, EPA strengthened its NAAQS for ground-level ozone, the principal component of photochemical smog, to improve public health protection. EPA revised the 8-hour "primary" ozone standard, designed to protect public health, to a level of 70 parts per billion (ppb). The previous standard, set in 2008, was 75 ppb. EPA also strengthened the secondary 8-hour ozone standard to 70 ppb making it identical to the revised primary standard. Secondary standards provide public welfare protection, including protection against decreased atmospheric visibility and damage to animals, crops, vegetation, and buildings. Current ozone air quality concentrations in many areas of the country – including some areas that meet the 2008 ozone standards – are still high enough to harm sensitive vegetation, including agricultural crops and ecosystems.

Attainment Strategy

Building on previous Ventura County AQMPs, the 2022 AQMP presents a combined local and state clean air strategy based on concurrent reactive organic gases (ROG) and nitrogen oxides (NOx) emission reductions to bring Ventura County into attainment of the 2015 federal 8-hour ozone standard. ROG and NOx emitted by both anthropogenic and natural sources react in the atmosphere with sunlight to produce photochemical smog. Ventura County was the first area in the nation to institute such a dual-emissions strategy for meeting ozone standards.

The 2022 AQMP control strategy consists of a local component implemented by the APCD and a combined state and federal component implemented by the CARB and EPA. The local strategy includes emission control measures carried forward from previous Ventura County clean air plans plus new and further study emission control measures. It also includes a transportation conformity budget that sets the maximum amount of on-road motor vehicle emissions produced while continuing to demonstrate progress towards attainment.

The new control measures are proposed new rules and revisions to existing Ventura County APCD rules that District staff has found practicable for Ventura County. The further study measures are proposals that may help Ventura County achieve the federal and state ozone standards but need additional air quality, feasibility, and environmental scrutiny before District staff can recommend them for adoption as District rules. They will become District rules and be implemented only if the District's governing board finds them to be practicable and appropriate for Ventura County. Both the new control measures and those further study measures recommended for adoption by District staff will also serve to meet the "every feasible measure" requirement of the California Clean Air Act.

Several of the local control measures from the 2016 AQMP are not in the 2022 AQMP. In each case, District staff determined that the measure is either obsolete or infeasible for Ventura County based on technological or economic considerations. Additionally, no control measures from previous AQMPs were deleted from the 2022 AQMP if deletion would slow the county's progress towards attaining either the federal 8-hour ozone standard or the state ozone standards.

The 2022 AQMP includes a new transportation conformity budget for Ventura County. Transportation Conformity is a federal Clean Air Act (CAA) regulatory process that coordinates air quality planning and transportation planning to help ensure that highway and transit projects will not cause new air quality violations, worsen existing violations, or delay timely attainment of the NAAQS. Once the 2022 AQMP's conformity budget is found adequate by EPA, it will replace the Early Progress Plan conformity budget and serve as the transportation conformity budget for future transportation conformity decisions in Ventura County. The 2022 AQMP transportation conformity budget for ROG and NOx is shown in Table 3-5.

Ventura County's strategy for attaining the 2015 federal 70 ppb ozone standard also relies on CARB's 2022 State Implementation Plan (SIP), also known as the State SIP Strategy. The 2022

State SIP Strategy includes measures and commitments to reduce emissions from State-regulated sources (mobile sources, consumer products, and pesticides) to support attainment of the 70-ppb standard in all nonattainment areas across California. The 2022 SIP is a comprehensive and far-reaching set of emission reduction programs designed to support and complement local efforts to meet the latest federal clean air standards for ozone and fine particulate matter ($PM_{2.5}$). CARB has released its Draft 2022 State SIP Strategy for public review, ending on March 4, 2022. The 2022 State SIP Strategy was adopted by CARB September 22, 2022. The 2022 State Strategy and supporting documentation are available on CARB's website at https://ww2.arb.ca.gov/resources/documents/2022-state-strategy-state-implementation-plan-2022-state-sip-strategy.

Ventura County's overall control strategy to attain the 2015 federal 8-hour ozone standard is presented in Section 3 and Appendices B, C, D, E, F, and G.

Attainment Demonstration

Photochemical modeling, which includes the photochemical modeling protocol, the photochemical modeling performance analysis, the unmonitored area analysis, as well as supporting analyses completed as part of the supplemental Weight of Evidence (WOE) evaluation, indicates that Ventura County can expect to attain the 2015 federal 8-hour ozone standard by 2027, the attainment date for serious ozone nonattainment areas. The attainment demonstration for the 2022 AQMP is presented in Section 5, *Attainment Demonstration*, and Appendices H, I, J, and K.

Reasonable Further Progress Demonstration

In addition to showing attainment of the federal 8-hour ozone standard by 2027, the 2022 AQMP also must show steady progress towards attaining the 2015 federal 8-hour ozone standard by that date. Such steady progress towards attainment is called reasonable further progress (RFP). EPA defines RFP as "annual incremental reductions in air pollutant emissions as reflected in a State Implementation Plan that EPA deems sufficient to provide for the attainment of the applicable national ambient air quality standards by the statutory deadline."

The RFP demonstration shows that Ventura County will meet RFP requirements for the serious area milestone years 2023, and 2026 (all required RFP emission reductions must be in place by the beginning of the 2027 ozone season).

Air Quality Improvement

Ventura County continues to make great progress towards meeting federal clean air standards for ozone by a steady decades-long decrease in countywide ozone levels. In 1990, Ventura County had 18 days over the now revoked federal 1-hour (120 ppb) ozone standard. However, by 2003 there were only two days over that standard, and none in 2004 and 2005. Consequently, on May 27, 2009, the EPA formally found that Ventura County had attained the federal 1-hour ozone standard by its applicable attainment date of November 15, 2005. Likewise, all areas of the county have enjoyed similar reductions in 8-hour ozone levels.

There were 70 days countywide over the 1997 federal 8-hour (80 ppb) ozone standard in 1990 but only eight in 2009, four in 2010, and two in 2011. On September 14, 2012, the EPA found that Ventura County had attained the 1997 federal ozone standard by its applicable attainment date of June 15, 2013. The EPA revoked the 1997 federal ozone standard effective April 6, 2015. Likewise, There were 117 days countywide over the 2008 federal 8-hour (0.075 ppm) ozone standard in 1990 but only two in 2019, fourteen (12 if exceptional events are excluded) in 2020, and one in 2021. On October 7, 2022, the EPA found that Ventura County had attained the 2008 federal ozone standard by its applicable attainment date of July 20, 2021.

Ventura County's air quality continues to improve towards the more stringent 2015 federal 8-hour (70 ppb) ozone standard. In 1990, the county exceeded that standard 138 times but only 22 times in 2020 and 9 times in 2021. These improvements have occurred despite a 25 percent increase in county population from 1990 through 2021 and should continue as local, state, and federal clean air programs continue to reduce air emissions responsible for ozone formation.

Important Partners

The District has not worked alone to improve Ventura County's air quality. We have benefited greatly from efforts of CARB, EPA, the South Coast Air Quality Management District and other California air districts, the Southern California Association of Governments, the County of Ventura and local cities, the Ventura County Transportation Commission, Ventura County Regional Energy Alliance, the Protecting Blue Whales and Blue Skies partnership, county businesses, regional non-profit organizations, and the public. We greatly appreciate their efforts on behalf of clean air in Ventura County and we look forward to these efforts continuing as we continue to work towards achieving the federal and state ozone standards.

SECTION 1. PURPOSE AND BACKGROUND

1.1. Purpose

The mission of the Ventura County Air Pollution Control District (APCD or District) is to protect public health and agriculture from the adverse effects of air pollution by identifying air pollution problems and developing a comprehensive program to achieve and maintain state and federal air quality standards. To that end, pursuant to the federal Clean Air Act Amendments of 1990 (CAAA), the 2022 Ventura County Air Quality Management Plan (AQMP) presents Ventura County's: 1) strategy to attain the 2015 federal 8-hour ozone standard; 2) attainment demonstration for the federal 8-hour ozone standard; and, 3) reasonable further progress demonstration for the federal 8-hour ozone standards. Ventura County's air quality has come a long way since the District was first created in 1968. However, the District recognizes there is more work to do to alleviate the detrimental health effects of air pollution. This AQMP will strive to pave a path forward to ensure clean air for all its residents.

1.2. Background

1.2.1. Health Effects of Air Pollution

Air pollution is hazardous to human health. The World Health Organization (WHO) estimates 4.2 million deaths occur every year as a result of exposure to ambient outdoor air pollution. CARB's air monitoring data indicates that over 90 percent of Californians breathe unhealthy levels of one or more air pollutants during some part of the year. Air pollution also diminishes the yield and quality of agricultural crops, reduces atmospheric visibility, degrades soils and materials, and damages native vegetation. Damage to agricultural crops from air pollution is an economic concern in Ventura County. According to the California Air Resources Board (CARB), several agricultural crops grown in Ventura County suffer from exposure to air pollution. A 1991 study concluded that ozone exposure in Ventura County caused a reduction in orange crop yield of 19 percent. As a result, federal and state ambient air quality standards are set to protect public health and welfare and minimize the effects of air pollution. These standards pertain to pollutants in ambient air – the air that people breathe outdoors. This plan focuses on one of those pollutants – ozone. Ventura County is designated a serious ozone nonattainment area for the 2015 federal ambient ozone standard.

Although the federal Clean Air Act (CAA) has significantly improved our nation's air quality, many areas still have serious air quality problems. Ozone, the main constituent of smog, is the most serious and widespread air pollution problem in the country. Ozone forms in the atmosphere by a series of chemical reactions and transformations involving Reactive Organic Gases (ROG) and Nitrogen Oxides (NOx) in the presence of sunlight. These "ozone precursor" pollutants come from a wide variety of sources such as gasoline vapors, fuel combustion, chemical solvents, and household products such as cleaners and paints.

Ozone is a pungent, pale blue, toxic gas consisting of three atoms of oxygen that can chemically burn and cause narrowing of airways, forcing the lungs and heart to work harder to provide oxygen

to the body. A powerful oxidant, ozone is capable of destroying organic matter – including human lung and airway tissue. Ozone damages cells in the lungs, making the passages inflamed and swollen. Ozone also causes shortness of breath, nasal congestion, coughing, eye irritation, sore throat, headache, chest discomfort, breathing pain, throat dryness, wheezing, fatigue, and nausea. It can damage alveoli, the individual air sacs in the lungs where oxygen and carbon dioxide exchange occur. Ozone also has been associated with a decrease in resistance to infections.

People most affected by ozone include the young, elderly, and athletes. Ozone may pose the worst health threat to people who already suffer from respiratory diseases such as asthma, emphysema, and chronic bronchitis, and those with cardiovascular diseases. Ozone also damages agricultural crops, native vegetation, and various natural and manufactured materials.

1.2.2. Meteorology of Ventura County

California is divided into 15 air basins to regionally manage the state's air resources. An air basin generally has similar meteorological and geographic conditions throughout. Ventura County is in the South Central Coast Air Basin (SCCAB), along with Santa Barbara and San Luis Obispo Counties. Each county in the air basin has its own air pollution control agency. APCD is the air pollution control agency for Ventura County and, along with CARB, is charged by state law to protect the people and the environment of Ventura County from the harmful effects of air pollution.

The air above Ventura County often exhibits weak vertical and horizontal dispersion characteristics, which limit the dispersion of emissions and cause increased ambient air pollutant levels. Persistent temperature inversions prevent vertical dispersion. The inversions act as a "ceiling" that prevents pollutants from rising and dispersing. Mountain ranges act as "walls" that inhibit horizontal dispersion of air pollutants. The diurnal land/sea breeze pattern common in Ventura County recirculates air contaminants. Air pollutants are pushed toward the ocean during the early morning by the land breeze, and toward the east during the afternoon, by the sea breeze. This creates a "sloshing" effect, causing pollutants to remain in the area for several days. Residual emissions from previous days accumulate and chemically react with new emissions in the presence of sunlight, thereby increasing ambient air pollutant levels.

This pollutant "sloshing" effect happens most predominantly from May through October (smog season). Air temperatures are usually higher and sunlight more intense during the smog season. This explains why Ventura County experiences the most exceedances of the state and federal ozone standards during this six-month period. In order to record exceedances, APCD continuously monitors the air at stations in El Rio, Ojai, Piru, Simi Valley, and Thousand Oaks. Those stations are shown in Figure 1-1 as red stars. Most monitoring stations continuously sample the air for ozone and fine Particulate Matter ($PM_{2.5}$), with the station in El Rio additionally sampling for coarse Particulate Matter (PM_{10}). APCD also monitors and forecasts fire weather daily by issuing Agricultural Burn Status updates for local farmers needing to burn their agricultural waste (with approved permits from the Ventura County Fire Department). Forecasting for "Burn" or "No Burn Days" is separated into six meteorologically distinct geographical regions, called burn regions and

shown in Figure 1-2. More information on the District's ambient air monitoring can be found in the District's Monitoring Division website.

Figure 1-1
APCD Monitoring Stations in Ventura County

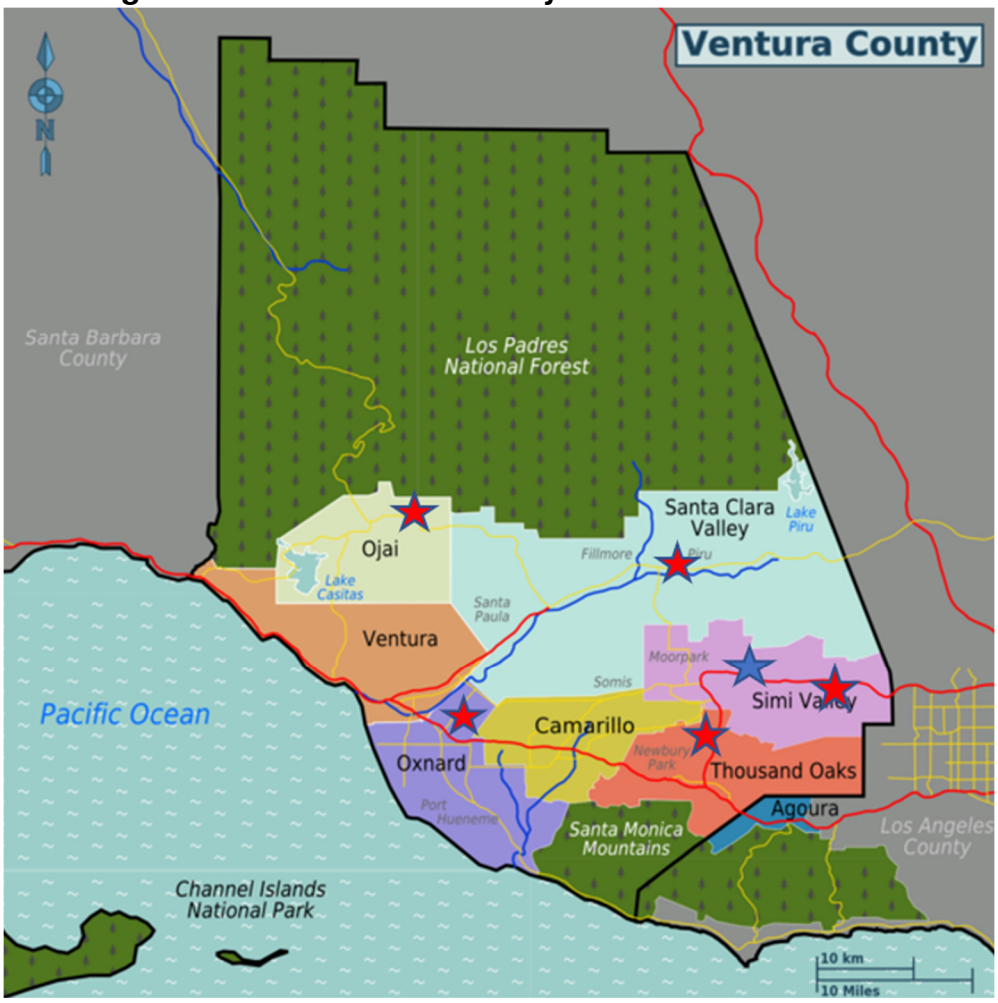
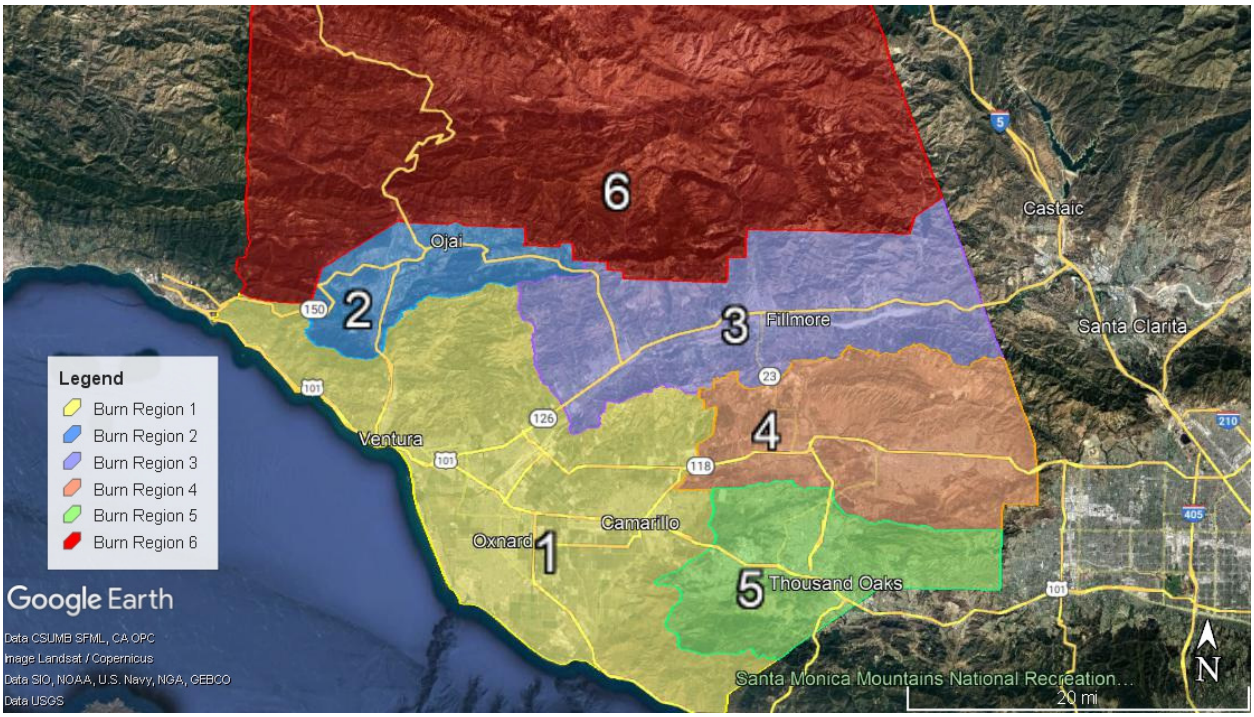


Figure 1-2
APCD Burn Regions

Geographic areas in California that exceed clean air standards are called nonattainment areas.



Ventura County is a nonattainment area for the 2015 federal 8-hour ozone standard. The Ventura County 8-hour ozone nonattainment area includes all of mainland Ventura County (including ocean areas out to three miles from the mainland shore) but excludes Anacapa and San Nicolas Islands. A map of the Ventura County 8-hour ozone nonattainment area is available in the U.S. Environmental Protection Agency (EPA) website. Ventura County is also in nonattainment for the California 1-hour and 8-hour ozone standards. In Ventura County, ozone generally reaches peak levels by mid-afternoon and, along with ozone precursors, is often blown inland by the prevailing winds. Thus, inland areas such as Simi Valley, Thousand Oaks, Ojai, Fillmore, and Piru often have higher ozone levels and more days over the federal and state ozone standards than the county's coastal areas. The smoggiest days tend to occur from May through October (smog season) when high temperatures and stable atmospheric conditions produce conditions conducive to ozone formation and buildup.

1.3. Federal Clean Air Act and Air Quality Standards

On November 15, 1990, President George H.W. Bush signed the CAAA into law. The purpose of the CAAA is to provide clean, healthful air for all people of the country. The CAAA specifies dates by which areas of the country must meet the National Ambient Air Quality Standards (NAAQS).

The EPA sets NAAQS as the maximum concentrations in the atmosphere for specific air contaminants in order to protect public health and welfare. The EPA has adopted NAAQS for Ozone (O_3), carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), fine particulate matter ($PM_{2.5}$), coarse particulate matter (PM_{10}), and sulfur dioxide (SO_2). Ventura County is designated nonattainment for the federal 2015 8-hour ozone standard and attainment of all other federal air quality standards.

The CAAA delegates primary responsibility for achieving the NAAQS to the states. The State Implementation Plan (SIP) is the principal mechanism for complying with the CAAA and meeting clean air standards. SIPs are "roadmaps" to clean air. A SIP outlines the actions, programs, and commitments each state will take to carry out its CAAA responsibilities to provide clean air for its citizens.

SIPs are not single documents; rather, they are compilations of new and previously submitted plans, programs (such as air quality monitoring and modeling, permitting, etc.), district rules, state regulations, and federal emission controls. Many California SIPs rely on the same core set of control strategies, including emission standards for motor vehicles, stationary internal combustion engines, fuel regulations, and limits on emissions from consumer products.

The provisions and commitments in SIPs are federally enforceable. Moreover, the CAAA require that EPA impose sanctions on areas that fail to submit a SIP, fail to submit an adequate SIP, or fail to implement a SIP unless the state corrects such failures. Sanctions include 2-to-1 emission offsets for new air pollution sources and a ban on most federal highway grants. An additional ban on air quality grants is discretionary. Ultimately, EPA may impose a federal clean air plan, called a federal implementation plan (FIP), if EPA finds that the state failed to submit or implement an adequate SIP.

CARB is the lead state agency for the California SIP. Local and regional air agencies, as well as other local and state agencies, such as the Southern California Association of Governments (SCAG) and the Bureau of Automotive Repair, prepare SIP elements and submit them to CARB for review and approval. CARB then forwards the SIP revisions to EPA for approval and publication in the Federal Register (FR). The Code of Federal Regulations (CFR) Title 40, Chapter I, Part 52, Subpart F, Section 52.220 lists all the items and elements included in the California SIP.

Since its formation in 1968, the District has prepared many air quality documents to satisfy federal and state clean air requirements. The most important of these are the AQMPs. These plans are not one-time documents but are periodically revised and updated in response to changes in governing law and air pollution control science and technology. The 2022 AQMP is the first Ventura County clean air plan for the 2015 federal 8-hour ozone standard.

1.3.1. 1979 Federal 1-hour Ozone Standard

In 1979, EPA established a NAAQS for ozone at 120 parts per billion (ppb) in any one-hour period. The CAAA classifies areas based on the severity of each area's respective ozone problem. These classifications are marginal, moderate, serious, severe, and extreme. Areas with more severe air quality problems have progressively greater requirements to meet under the CAAA. In addition, areas with higher nonattainment classifications also have later attainment dates. Marginal areas have the least amount of time to attain the standard; extreme areas have the most amount of time. On November 6, 1991, EPA designated Ventura County a severe nonattainment area for the 1-hour ozone standard with an attainment deadline of November 15, 2005.

Ventura County attained the 1979 federal 1-hour ozone standard in 2003 and subsequent air quality data shows that the county has remained in attainment since that time. Effective June 15, 2005, the EPA revoked the federal 1-hour ozone ambient air quality standard, including associated designations and classifications, in most areas of the country, including Ventura County. However, a court decision related to the revocation of the 1-hour ozone standard found that areas that were subject to certain planning requirements based on their 1-hour ozone nonattainment designation were still obligated to meet those requirements even though the standard had been revoked (anti-backsliding provision).

On April 15, 2009, CARB requested that EPA find that Ventura County had attained the revoked 1-hour standard. On May 27, 2009, EPA made that finding (effective July 27, 2009). In conjunction with that finding, EPA also found that Ventura County was no longer required to implement contingency measures nor required to impose CAAA Section 185 penalty fees on certain large air emission sources. However, the attainment finding was not a redesignation of Ventura County from a nonattainment area to an attainment area. Redesignation would have been a far more complex EPA action involving an ozone maintenance plan. The attainment finding only established that Ventura County had successfully fulfilled its statutory and regulatory obligations under the CAAA and corresponding federal regulations to attain the federal 1-hour ozone standard by its designated attainment deadline. Although an attainment finding under the CAA does not constitute a redesignation to attainment, under EPA's Clean Data Policy, an attainment finding allows suspension of certain SIP requirements, such as attainment and progress plans. Such a suspension applies as long as the area remains in attainment or until the area completes the requirements for redesignation to attainment.

1.3.2. 1997 Federal 8-hour Ozone Standard

Based on medical studies demonstrating that the 1-hour standard was inadequate for protecting public health, in 1997 the EPA adopted an 8-hour standard to replace the 1-hour standard. This change lowered the standard for ozone from 120 ppb, averaged over one hour, to 80 ppb, averaged over eight hours. That standard was more stringent than the 1-hour standard and better protected human health from the effects of smog.

The federal 1997 8-hour ozone rule set new planning requirements for nonattainment areas. These requirements address such topics as classification and attainment deadlines, 1-hour ozone standard to 8-hour ozone standard transition, anti-backsliding provisions, reasonably available control technology (RACT), reasonable further progress (RFP) plans for 2002 - 2008, post-2008 RFP plans, transportation control measures (TCM), including reasonably available control measures (RACM), attainment demonstrations, and transportation and general conformity.

As with the federal 1-hour ozone standard, 1997 8-hour ozone nonattainment areas have increasingly stringent requirements based on the severity of their respective 8-hour ozone attainment status. On April 30, 2004, the EPA determined that areas violated the federal 8-hour ozone standard based on their design values. These attainment status designations became effective June 15, 2004. Ventura County's 8-hour ozone design value was 95 ppb. Based on that value, EPA designated Ventura County a moderate nonattainment area for the federal 8-hour ozone standard. Moderate areas were to attain the federal 8-hour ozone standard by June 15, 2010. CAAA allows federal nonattainment areas to voluntarily reclassify ("bump-up") to higher nonattainment classifications (e.g., from moderate to serious). That provision gives areas additional time to attain if they are doing everything practicable to attain but are not able to do so by their statutory attainment dates. EPA is obligated to grant voluntary bump-ups but bumped-up areas must still attain as expeditiously as practicable and meet all CAAA requirements for their new, higher classifications.

On February 14, 2007, at the direction of the District, CARB formally requested that EPA bump-up Ventura County from its original moderate 8-hour ozone nonattainment classification to the higher serious 8-hour ozone nonattainment classification with an attainment deadline of June 15, 2013. EPA approved the request on May 20, 2008. The voluntary bump-up was necessary because the photochemical modeling conducted for the 2007 AQMP (prepared for the 1997 federal 8-hour ozone standard) indicated that Ventura County would not attain that standard until June 15, 2013, the attainment deadline for serious ozone nonattainment areas. A serious classification means that Ventura County had to meet the requirements for that classification in addition to the requirements for the lower marginal and moderate ozone nonattainment classifications.

On June 20, 2012, CARB requested that EPA find that Ventura County had attained the 1997 8-hour ozone standard. In addition, CARB also requested that EPA suspend the attainment plan and progress plan requirements as allowed by EPA's Clean Data Policy.

On September 14, 2012, EPA made that finding (effective November 13, 2012). Similar to the 1-hour attainment finding, the 8-hour attainment finding also suspended certain State Implementation Plan requirements for as long as Ventura County continues to meet the 1997-ozone standard or completes requirements for redesignation to attainment.

1.3.3. 2008 Federal 8-hour Ozone Standard

On March 12, 2008, EPA strengthened the federal 8-hour ozone standard to better protect public health and welfare. EPA revised the 8-hour primary ozone standard, designed to protect public health, to 75 ppb from 80 ppb. EPA also strengthened the secondary 8-hour ozone standard to 75 ppb making it identical to the revised primary standard.

EPA estimated that the revised ozone standards will yield health benefits valued between $2 billion and $17 billion. Those benefits include preventing bronchitis, aggravated asthma, hospital and emergency room visits, non-fatal heart attacks and premature death, among others.

On May 21, 2012, EPA finalized its first of two ozone implementation rules for the 2008 ozone NAAQS. The rule established the air quality thresholds (marginal, moderate, serious, severe, and extreme) that define the classifications assigned to all nonattainment areas for the 2008 75 ppb ozone NAAQS that were promulgated on March 12, 2008. The rule also granted reclassification for six California ozone nonattainment areas that voluntarily reclassified themselves to higher nonattainment classifications under the 1997 ozone standard. Ventura County was one of those areas. Hence, its 2008 75 ppb 8-hour ozone nonattainment classification is serious, the same as under the 1997 80 ppb 8-hour ozone standard. Lastly, the rule revoked the 1997 ozone NAAQS for transportation conformity purposes one year after the effective date of designations for the 2008 75 ppb ozone NAAQS.

On March 6, 2015, EPA published its second implementation rule for the 2008 ozone standards that were promulgated on March 12, 2008. This rule addresses additional nonattainment area state implementation plan requirements for the 2008 ozone NAAQS, including requirements pertaining to attainment demonstrations, RFP, RACT, RACM, major new source review (NSR), emission inventories, and the timing of SIP submissions and of compliance with emission control measures in the SIP. Other issues addressed in the rule include revocation of the 1997 ozone standard for all purposes, including transportation conformity, and anti-backsliding requirements that applied to the 1997 ozone standard. Anti-backsliding requirements help ensure that air quality in nonattainment areas does not get worse when a federal air quality standard is revoked.

As a serious nonattainment area for the 2008 ozone standard, Ventura County submitted its attainment plan through CARB to EPA on April 11, 2017. The plan shows how Ventura County would meet the 2008 ozone standard by the July 20, 2021 statutory deadline. However, a December 23, 2014 D.C. Circuit Court decision vacated the portion of the Classifications Rule that established December 31 of the applicable year as the maximum attainment date for each ozone nonattainment classification. Pursuant to the ruling, moderate and above area attainment demonstrations must ensure emissions controls are implemented no later than the beginning of the ozone season prior to the attainment date (e.g., beginning of the 2020 ozone season for serious areas). This effectively shortens the maximum allowable attainment date for all classifications by one ozone season.

1.3.4. 2015 Federal 8-hour Ozone Standard

On October 26, 2015, EPA again strengthened the federal 8-hour ozone standard to better protect public health and welfare (80 FR 65292). EPA revised the 8-hour primary ozone standard, designed to protect public health, to 70 ppb from 75 ppb. EPA also strengthened the secondary 8-hour ozone standard to 70 ppb making it identical to the revised primary standard.

EPA estimates that the revised ozone standards will yield health benefits valued between $2.9 billion and $5.9 billion. Those benefits include preventing bronchitis, aggravated asthma, hospital and emergency room visits, non-fatal heart attacks and premature death, among others.

On June 4, 2018, EPA published the final rule Additional Air Quality Designations for the 2015 Ozone National Ambient Air Quality Standards with an effective date August 3, 2018. Ventura County is classified as a serious nonattainment area for the 2015 70 ppb 8-hour ozone standard, which is the same classification under the 2008 and 1997 Ozone standards. As a serious nonattainment area for the 2015 ozone standard, Ventura County must submit an air quality plan (attainment plan) by August 3, 2022 (four years from the effective date of designation on August 3, 2018) that shows how Ventura County will meet the 2015 ozone standard by the August 3, 2027 (2026 ozone season).

The EPA final rule Implementation of the 2015 National Ambient Air Quality Standards for Ozone: Nonattainment Area State Implementation Plan Requirements (Implementation Rule) for the 2015 ozone NAAQS was published in the Federal Register on December 6, 2018 with an effective date of February 4, 2019. This rule addresses nonattainment area state implementation plan requirements for the 2015 ozone NAAQS, including requirements pertaining to attainment demonstrations, RFP, RACT, RACM, major new source review (NSR), emission inventories, and the timing of SIP submissions and of compliance with emission control measures in the SIP. The Implementation Rule retained many of the same requirements that were promulgated for the 2008 ozone NAAQS, updated with appropriate dates and ambient ozone concentrations.

Another primary requirement that Ventura County has to meet for the 2015 ozone standard is an RFP plan showing 15 percent ROG and/or NOx reductions over the initial six-year period (2017-2023) and three percent per year thereafter to 2026 (attainment year). The RFP plan is also due August 3, 2022 and has been incorporated into the 2022 attainment plan.

Effective December 31, 2020, EPA determined it would retain the 2015 ozone NAAQS without revision after completion of its review of the standard. However, on October 28, 2021 EPA announced it would reconsider the decision to retain 2015 standards, based on the existing scientific record. EPA is targeting the end of 2023 to complete this reconsideration.

1.4. Progress in Improving Ventura County Air Quality

1.4.1. Reduction in Ozone Levels

Since 1990, all areas of the county have enjoyed significant reductions in ozone levels. Figure 1-3 shows that, despite a population increase of 25 percent, there were 138 days countywide over the current federal 8-hour ozone standard of 70 ppb in 1990, but only 22 in 2020 and 9 in 2021. Over the same time period, the county's 8-hour ozone values (called "design values") used to determine compliance with the federal 8-hour ozone standard fell dramatically as well. More significantly, the 8-hour ozone design values at all of the county's APCD air quality monitoring stations are approaching or are now lower than the 2015 federal 8-hour ozone standard. An exceedance of a standard is not necessarily related to a violation of the standard. However, the federal 8-hour standard is violated when the average of the three annual fourth highest 8-hour averages over three years is greater than 70 ppb.

As shown in Figure 1-4, the countywide 8-hour ozone design value dropped from 130 ppb in 1990 to 75 ppb in 2021 Moreover, as shown in Figures 1-5 through 1-7, the design values at each of the County's monitoring stations are near (Simi) or below (Ojai Valleys, Piru, Thousand Oaks, Ventura, and El Rio) the current federal 8-hour ozone standard (70 ppb).

Figure 1-3
Days Over Federal Ozone Standard vs. County Population Growth

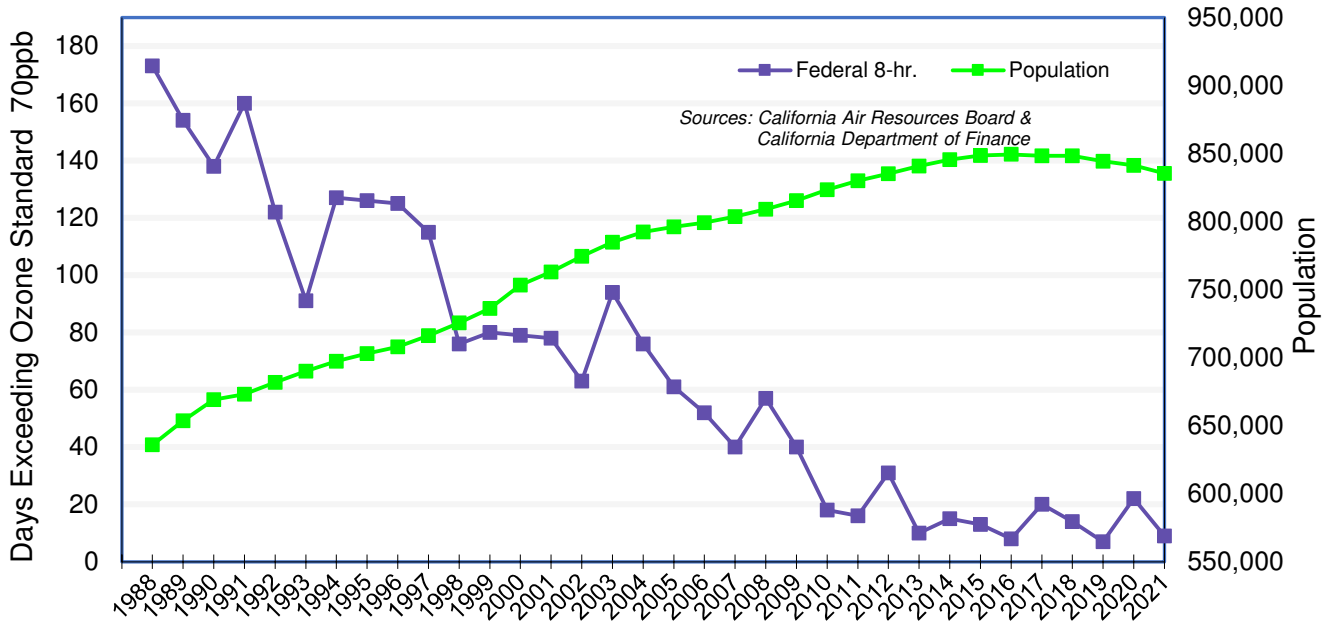


Figure 1-4
Countywide 8-Hour Ozone Design Values

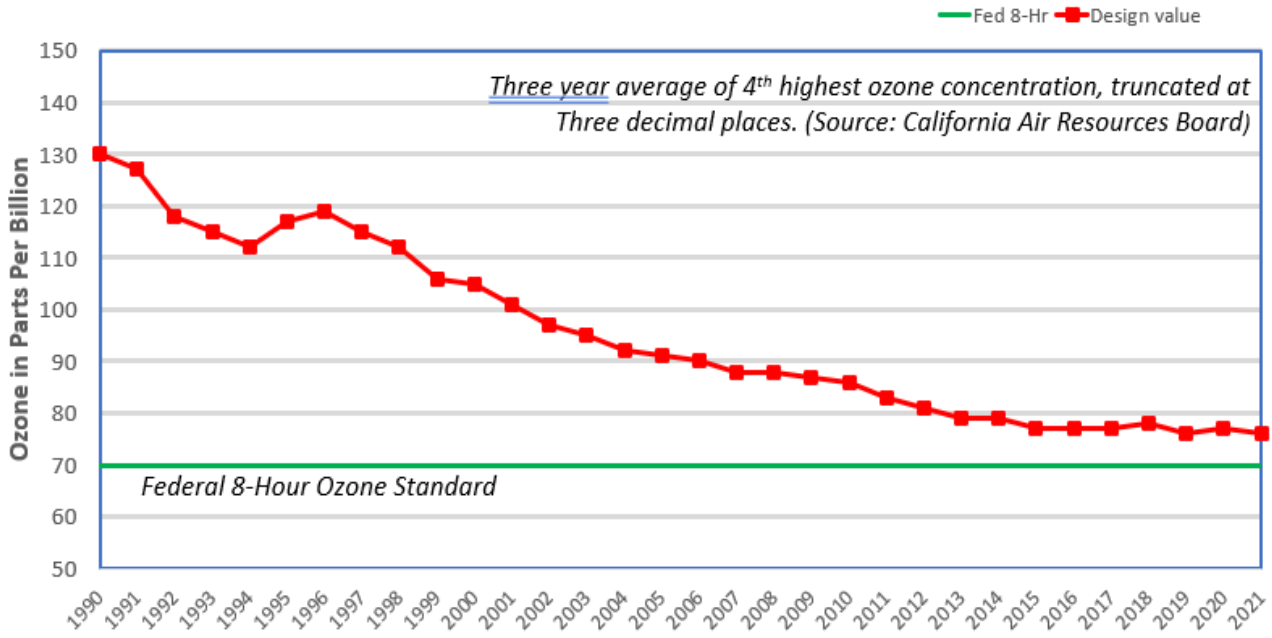


Figure 1-5
8-Hour Ozone Design Values for Simi Valley & Piru

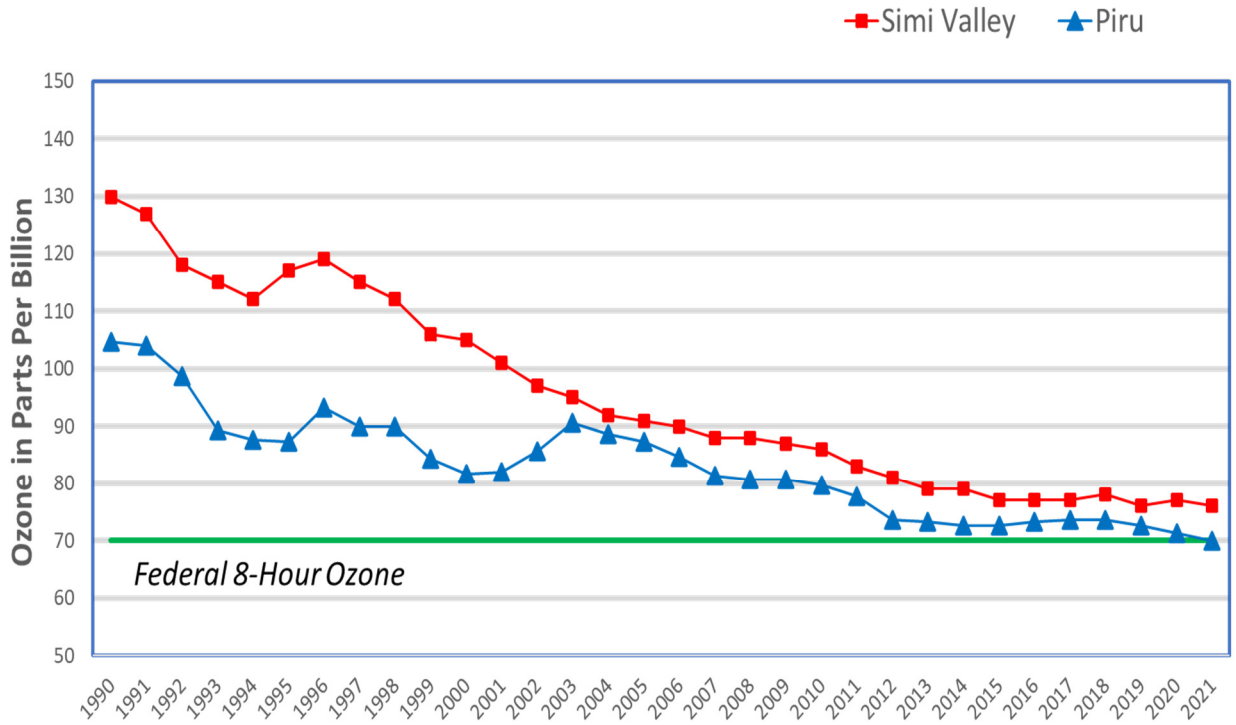


Figure 1-6
8-Hour Ozone Values for Thousand Oaks & Ojai Valley

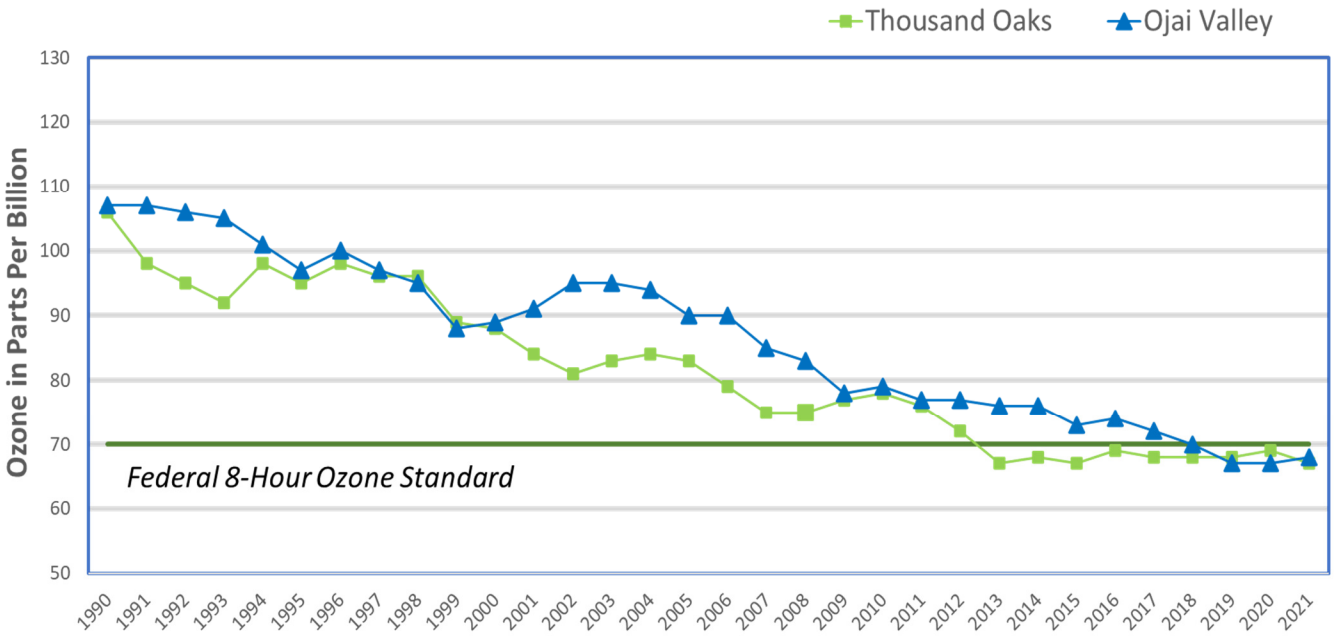
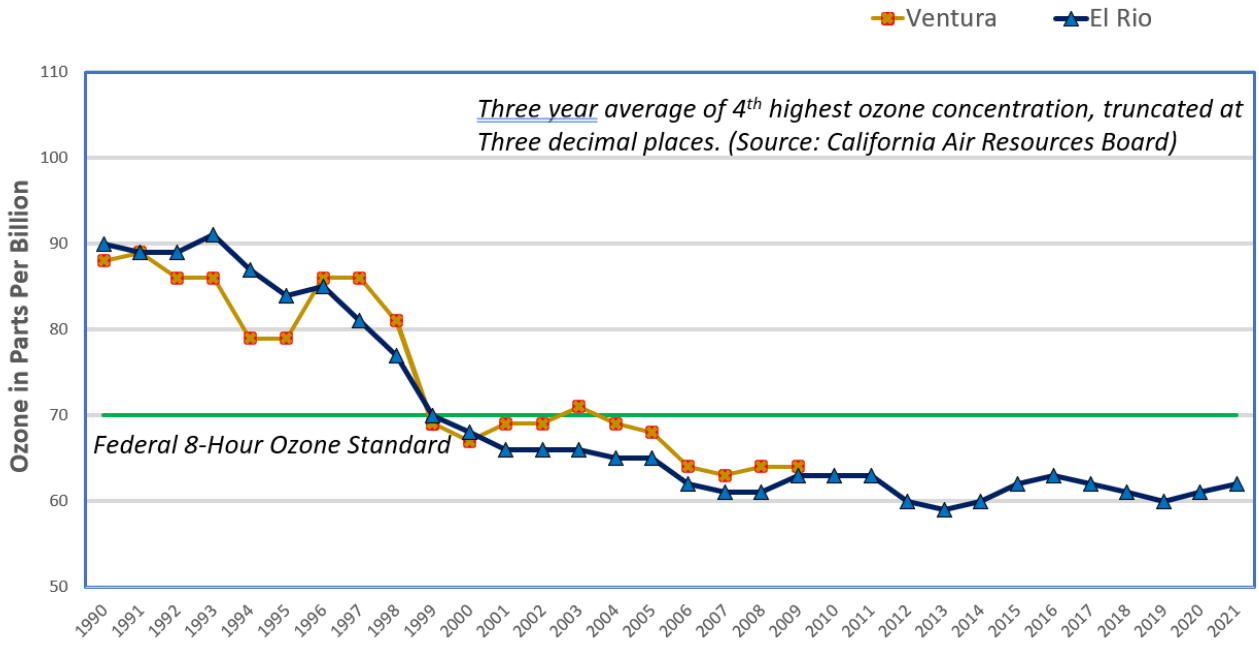


Figure 1-7
8-Hour Ozone Values for Ventura & El Rio



SECTION 2. 2018 BASELINE EMISSIONS INVENTORY

An emissions inventory is a large dataset that describes emission sources and quantifies pollutants released into the atmosphere from a large variety of sources. Ozone nonattainment areas, such as Ventura County, must develop and continually update their baseline emissions inventories to evaluate federal, state, and local control programs and report emission reduction progress.

A baseline year or base year is a specific year used to gauge and evaluate past and future emissions estimates. The 2018 emissions inventory is the current baseline year for forecasting future year emissions and from which the SIP inventories are derived. The District chose 2018 as the base year inventory for this 70 ppb 8-hour Ozone SIP because it was the most recent year for which comprehensive emission estimates were available and representative of typical meteorology and climate.

This section summarizes the 2018 baseline ROG and NOx 8-hour ozone SIP emissions inventory for Ventura County. Appendix A, *Ventura County Emissions Inventory Documentation*, provides further information and documentation of the emissions inventory for the 2022 AQMP.

ROG and NOx are the most important pollutants in the air chemistry of ozone formation because they chemically react in the presence of ultraviolet light from the sun to form ozone, the primary constituent of smog. ROG is the photochemically reactive fraction of Total Organic Compounds (TOC) involved in the creation of ozone. ROG excludes methane and other compounds with inconsequential effects on ozone photochemical reactivity. For a list of negligibly reactive or low reactive compounds with respect to ambient ozone formation, refer to Exempt Organic Compounds in District Rule 2, Definitions. Even though the technical definition of ROG defined by CARB differs from the EPA definition of volatile organic compounds (VOC) and the District's definition of ROC, for the purpose of this document, the definition of ROG is equivalent to "reactive organic compounds" (ROC) used in District rules and operating permits, and "VOC" used by EPA. Going forward, the term "ROG" will be used throughout this document.

ROG and NOx emissions are reported in the emissions inventory in tons per day (tpd), calculated for the summer season (May - October) when the potential for ozone formation potential is greatest. Hence, May through October is considered ozone season in Ventura County. Ozone season summer day emissions also are referred to as "planning day emissions" and represent anthropogenic (man-made) emission sources only.

The planning day emissions inventory excludes non-anthropogenic "Natural Sources" emissions such as biogenics, geogenics, and wildfires. Although Natural Sources emissions are not subject to regulatory authority or control by the District or CARB, they are pertinent to ozone formation and are included in the Attainment Demonstration photochemical modeling emission inventory described in Section 5.

Emissions data are compiled into major source categories developed by CARB. Ventura County emissions are also distinguished by onshore and offshore geographic areas. The onshore area includes all of Ventura County out to the 3-mile State Tidelands Boundary area. This onshore and tidal area is the nonattainment area for Ventura County for the 70 ppb 8-hour ozone standard. This area is also referred to in this document as the Ventura County portion of the South Central Coast Air Basin, or SCCAB. The SCCAB comprises of Ventura, Santa Barbara, and San Luis Obispo Counties.

The offshore area beyond the State Tidelands out to 100 miles from shore is known as the Outer Continental Shelf and is divided into the Outer Continental Shelf-24 Miles (OC1) Air Basin, which is the offshore area beyond the State Tidelands out to 24 miles from shore, and the Outer Continental Shelf-100 Miles (OC2) Air Basin, which is the offshore area from 24 miles to 100 miles from shore. The OC1 and OC2 emissions are significant and are included in the photochemical modeling used to demonstrate attainment of the 8-hour ozone standard. These geographic areas distinguish the emissions in both this section and Section 4, *Emissions Inventory Forecasts*. Historically, OC1 and OC2 were grouped together as a single air basin and were referred to as the Outer Continental Shelf (OCS) air basin, but CARB recently divided the OCS area into the current OC1 and OC2 areas for reporting purposes.

2.1. Emissions Inventory Reporting Requirements

This document complies with both state and federal emissions inventory reporting requirements for the 2018 base year actual emissions and future year emission inventory forecast methodology in Section 4. Guidance on how to develop emission inventories to meet 8-hour ozone SIP requirements is in EPA document, *Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations*. In addition, the California Health and Safety Code (CH&SC) Sections 40913(4)(5), 40914(c), 40918(a), 40924(b), and 40925 require emission inventory review, correction, and incorporation of the most current emission factors, growth and control data, and future year forecast estimates.

2.2. Clean Air Act Emissions Statement Requirements

Federal CAA section 182(a)(3)(B) Emissions statements defines Emissions Statement requirements for ozone nonattainment areas classified as marginal and above. CAA 182(a)(3)(B) subsection (i) requires states to have an Emissions Statement program (i.e., a rule) requiring stationary sources to report and certify the accuracy of NOx and ROG emissions, beginning in 1993 and annually thereafter.

Subsection (ii) has waiver provisions for subsection (i) for stationary sources emitting less than 25 tons/year NOx or ROG if the State provides an inventory of emissions from such class or category of sources, based on the use of the emission factors established by the EPA or other methods acceptable to the EPA, under CAA 182(a) subparagraph (1) (the nonattainment plan actual

emission inventory due for submittal to EPA in 1992) or subparagraph (3)(A) (the periodic triennial inventory CARB submits to EPA on behalf of all the nonattainment areas in California). The Emissions Statement requirements for the 2015 8-hour ozone standard are described in the Ozone SIP Requirements Rule, FR Volume 83, December 6, 2018, Implementation of the 2015 National Ambient Air Quality Standards for Ozone: Nonattainment Area State Implementation Plan Requirements; Final Rule (83 FR62998, December 6, 2018). If a nonattainment area has a previously approved emission statement rule in force for a previous ozone standard covering all portions of the nonattainment area for the 2015 8-hour ozone standard, the existing rule may be sufficient for the 2015 8-hour ozone standard. If the existing rule does not meet CAA 182(a)(3)(B) requirements, a revised or new rule would have to be submitted as part of the 2022 8-hour ozone SIP.

District Rule 24, *Source Recordkeeping, Reporting and Emission Statements*, Section C, *Emission Statements*, addresses CAA 182(a)(3)(B) Emissions Statement requirements. District Rule 24 was last revised in September 1992, submitted to EPA in November 1992 and adopted by EPA into the 2012 SIP on December 7, 2000 (65 FR 76567).

The first paragraph of Rule 24C deals with the reporting, certification, and reporting schedule requirements of CAA 182(a)(3)(B)(i). The owner or operator of any stationary source emitting NOx or ROG must provide the Air Pollution Control Officer (APCO) with a written statement showing actual NOx and ROG emissions from that source. Information in the emission statement shall be certified as accurate by a company or agency official. Emissions statements must be submitted annually thereafter.

The third paragraph of Rule 24C concerns the waiver requirements of CAA 182(a)(3)(B)(ii). The APCO may waive Rule 24 Section C requirements for any class or category of stationary sources which emit less than 25 tons/year of NOx and less than 25 tons/year of ROG if the District provides the CARB with an inventory of sources emitting more than 10 tons/year of either NOx or ROG based on the use of emission factors acceptable to the CARB.

The District updates emissions for stationary source facilities with 10 tons/year permitted NOx or ROG each year and reports the emissions to CARB's statewide emissions inventory. CARB in turn reports the process and emissions data to EPA in their triennial National Emissions Inventory (NEI) submittal. This satisfies the CAA 182(a)(3)(B)(ii) waiver provisions.

Since the Ventura County nonattainment area for the 2008 and 2015 8-hour ozone standards is the same as for the revoked Ventura County 1-hour ozone standard nonattainment area, it is the District's determination that the existing provisions of Rule 24C adequately meet the Emissions Statement program requirements of CAA 182(a)(3)(B) for the purposes of the 2015 8-hour ozone standard, as shown in Table 2-1, and no revision of the rule is required. The District submitted an Emission Statement Certification indicating that the existing rule met the requirements of the CAA in June 2020.

Table 2-1
CAA 182(a)(3)(B) Requirements and Provisions of District Rule 24 C

CAA 182(a)(3)(B) Requirements	District Rule 24 C
CAA 182(a)(3)(B)(i)	
State must submit revision to SIP within 2 years of November 15, 1990 requiring the owner/operator of stationary sources to report NOx or ROG emissions.	Rule 24 submitted to EPA in November 1992 and adopted by EPA into the SIP on December 7, 2000.
Require the owner/operator of stationary sources of NOx or ROG to provide the State with statements showing the actual NOx and ROG emissions.	The owner or operator of any stationary source that emits or may emit NOx or ROG shall provide the APCO with a written statement showing actual emissions of NOx and ROG from such stationary source.
First emissions statement shall be submitted within 3 years after November 15, 1990. Subsequent statements shall be submitted at least every year thereafter.	The first emission statement shall cover the calendar year of 1992 and shall be submitted to the APCO no later than November 1, 1993. Emissions statements shall be submitted annually thereafter.
Statement shall contain a certification that the information contained in the statement is accurate to the best knowledge of the individual certifying the statement.	The emission statement shall be certified by a company or agency official of such source and shall state that the information contained in the emission statement is accurate to the best knowledge of the individual certifying the statement.
CAA 182(a)(3)(B)(ii)	
State may waive the application of clause (i) to any class or category of stationary sources emitting less than 25 tons per year of ROG or NOx. State provides an inventory of emissions from such class or category of sources in its submissions under CAA 182(a) subparagraph 1 or CAA 182(a) subparagraph (3)(A).	The APCO may waive the requirements of this Section for any class or category of stationary sources which emit less than 25 tons per year of NOx and less than 25 tons per year of ROG if the District provides the CARB with an inventory of sources emitting 10 tons or more per year of either nitrogen oxides or reactive organic gases based on the use of emission factors acceptable to the CARB.

2.3. Emissions Inventory Major Categories

The 2018 base year emissions inventory is an aggregate of two general emission source types: 1) stationary and area-wide sources, and 2) mobile sources. Mobile sources include on-road motor vehicles and other mobile (off-road) sources. Stationary sources are those that have a fixed

geographic location, such as power plants, industrial engines, and oil storage tanks. Area-wide sources are emission sources occurring over a wide geographic area such as consumer products and architectural coatings. Mobile sources are mobile in nature, such as motor vehicles, boats, and aircraft.

CARB maintains the California Emission Inventory Development and Reporting System (CEIDARS), the comprehensive statewide emissions inventory database. The state's local air pollution control districts, including Ventura County, provide updates to CEIDARS every year using local data. Table 2-2 presents a summary of Ventura County's 2018 baseline summer planning day emissions for ROG and NOx for the combined SCCAB, OC1, and OC2 air basin. Figure 2-1 displays the pollutant distribution in the major categories.

Table 2-2
2018 Baseline Summer Planning Day Emissions

	(tons/summer day)	
Both SCC and OCS Air Basins	**ROG**	**NOx**
Total Stationary and Areawide Sources	17.66	2.62
Total On-road Vehicle Sources	4.28	7.03
Total Other Mobile Sources	9.39	22.16
Total Emissions	**31.32**	**31.82**

Notes:
Source: California Emission Projection Analysis Model (CEPAM) v1.01 (March 2022).
Includes OC1 and OC2 Air Basin emissions.
Data rounding may affect totals.

2.3.1. Stationary Sources

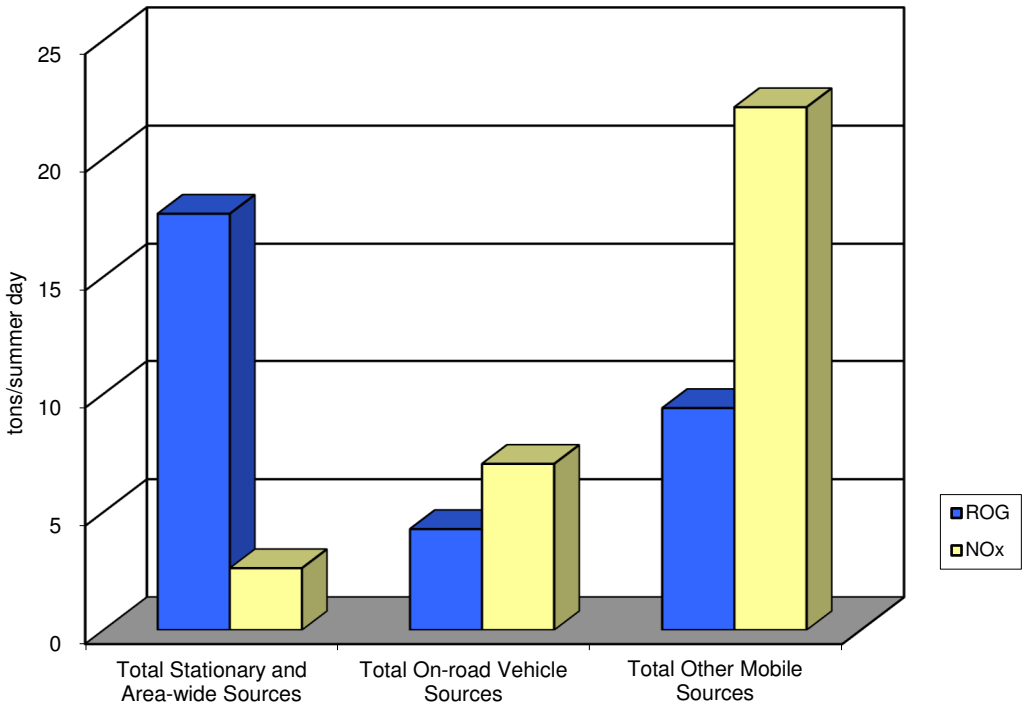
Stationary Sources are comprised of two major emission source types, point sources and area sources. Point sources are single, fixed sources of air pollution. Examples of point sources include electrical power generating plants, petroleum production facilities, and industrial engines. Initially, point sources are identified through the District's Permit to Operate evaluation or during the rule development process.

Permitted stationary sources are inspected by District staff annually and are subject to air pollution rules applicable to specific facility operations and equipment. In addition, the District surveys point source facilities annually to document changes to equipment and gather activity data used to calculate and update annual emissions.

Point sources that emit 25 tons or more per year of either ROG or NOx are considered major sources under CAAA Section 182(d). There were four ROG point sources emitting greater than 25 tons per year and four NOx point sources emitting greater than 25 tons per year in 2018. All of the major stationary sources are in the point source inventory along with 266 other permitted facilities for 2018.

Smaller permitted sources are accounted for in area source categories. Area source categories are groups of similar emission sources that do not individually emit large amounts of pollutants, but when aggregated on a countywide basis can contribute significant air emissions. Examples of permitted area sources include gasoline stations and dry cleaners. The District has approximately 1,800 permitted sources in its 2018 baseline emissions inventory, accounted for as either point or area sources.

Figure 2-1
2018 Baseline Summer Planning Day Emissions
Pollutant Distribution



Other area source categories also include sources not under district permit. Examples of unpermitted area sources include organic material composting, small combustion sources such as engines and boilers, and fugitive ROG losses from natural gas transmission.

Emissions from area sources are determined in a variety of ways. One accepted estimation method, generally referred to as the "bottom-up" method, surveys local emission sources, such as organic composting operations, to obtain specific countywide data. Another method is referred to as the

"top-down" approach. National or statewide data such as metal parts coating and architectural coating usage are gathered and apportioned down to the county level based on distribution factors representative of Ventura County.

Area source category emissions estimates are developed by both the District and the CARB. Area source methodologies are described in Appendix A and summaries of the area source methodologies are posted on the CARB's Index of Methodologies website.

Every year District staff evaluates the data and methods used in order to improve and update the emissions inventory. CARB and District staff coordinate the update process through the state's Emissions Inventory Technical Advisory Committee (EITAC). The refinement of the emissions categories is ongoing and necessary to better classify and quantify the emissions, and to evaluate feasibility of new control technologies and cost-effectiveness of controls when developing state or local rules.

2.3.2. Mobile Sources

There are two major source categories for mobile sources: On-Road Motor Vehicles and Other Mobile Sources. Mobile sources contribute the largest amount of criteria air pollutants into the air statewide. CARB calculates mobile source emissions with input from detailed mobile source emission models. Complete documentation for mobile source category emissions and models is available at CARB's website: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory. Appendix A of the 2022 AQMP includes a general description of the mobile source emissions for Ventura County.

2.3.2.1. On-Road Motor Vehicles

CARB developed the EMission FACtors (EMFAC) model to assess state-wide and regional emissions from On-Road Motor Vehicles, including passenger cars, heavy-duty trucks, and buses operating on highways, freeways, and local roads in California, and to support CARB's regulatory and air quality planning efforts to meet the Federal Highway Administration's transportation planning requirements.

EPA approves EMFAC for use in SIPs and transportation conformity analyses. EMFAC uses regional transportation model outputs and motor vehicle-related data from the California Department of Transportation (Caltrans) and the California Department of Motor Vehicles (DMV) to calculate on-road vehicle emissions.

EMFAC2017 is the latest version of the model and represents CARB's current understanding of motor vehicle travel activities and their associated emission levels. The 2018 base year and future year On-Road Motor Vehicles emissions for Ventura County are calculated using EMFAC2017. Current transportation and socioeconomic data in the SCAG 2020 Connect SoCal Regional Transportation Plan (RTP) were calculated using EMFAC2014, which was the current version of the model when SCAG began its analysis and was an acceptable model at the time the RTP was

adopted. The Final 2020 RTP was adopted by SCAG's governing board on September 3, 2020. On-road motor vehicle emissions for Ventura County are based on CARB's EMFAC2017 (v1.0.3) model runs.

2.3.2.2. Other Mobile Sources

Other Mobile Sources encompass a wide variety of off-road equipment. The major categories include aircraft; locomotives; commercial and recreational marine vessels; agricultural, construction and lawn and garden equipment; off-road recreation vehicles, and a wide variety of equipment from hedge trimmers to cranes.

CARB estimates the majority of off-road emissions using a suite of emission estimation models and methods. The OFFROAD model is an integrated statewide mobile source emissions model that estimates population, activity, and emissions for specific categories of equipment and fuel types at the county level. OFFROAD is used to generate base year emissions and to project changes in future inventories of Other Mobile Sources emissions.

For some off-road equipment, the OFFROAD model is being replaced by category-specific methods and inventory models developed by CARB for specific regulatory projects, such as Off-Road Equipment (Construction, Industrial, Ground Support and Oil Drilling), Cargo Handling Equipment, Transport Refrigeration Units, Commercial Harbor Craft, Ocean-going Vessels and Locomotives.

Additional information on CARB's Off-Road Emissions Inventory Program and the OFFROAD and other emission inventory models is available on CARB's website at: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory and in Appendix A of the 2022 AQMP.

In addition to the Other Mobile Sources categories estimated by CARB, the District estimates emissions from civil and commercial aircraft and military aircraft and vessels.

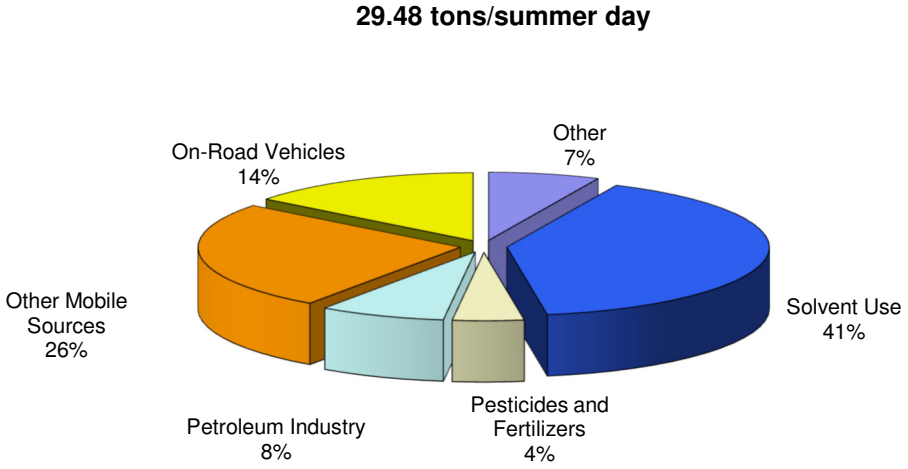
Table 2-3 presents 2018 baseline planning day emissions by major source category for the Ventura County portion of the SCCAB. A more detailed summary of ROG and NOx emissions can be found in Appendix A. Figure 2-2 and Figure 2-3 exhibit those emissions in percentages of ROG and NOx by major source category in the nonattainment area.

Table 2-3
2018 Baseline Planning Day Emissions
by Major Source Category

Ventura County South Central Coast Air Basin (SSCAB) Major Source Category Name	(tons/summer day) ROG	 NOx
Stationary Sources		
Fuel Combustion	**0.12**	**1.57**
Waste Disposal	**0.79**	**0.07**
Cleaning And Surface Coatings	**4.18**	**0.00**
Petroleum Production And Marketing	**2.28**	**0.10**
Industrial Processes	**0.54**	**0.06**
Total Stationary Sources	**7.91**	**1.79**
Area-wide Sources		
Solvent Evaporation	**9.10**	**0.00**
Miscellaneous Processes	**0.59**	**0.58**
Total Area-wide Sources	**9.69**	**0.58**
Mobile Sources		
On-Road Motor Vehicles	**4.28**	**7.03**
Other Mobile Sources	**7.60**	**8.66**
Total Mobile Sources	**11.88**	**15.69**
Total SCCAB	**29.48**	**18.07**

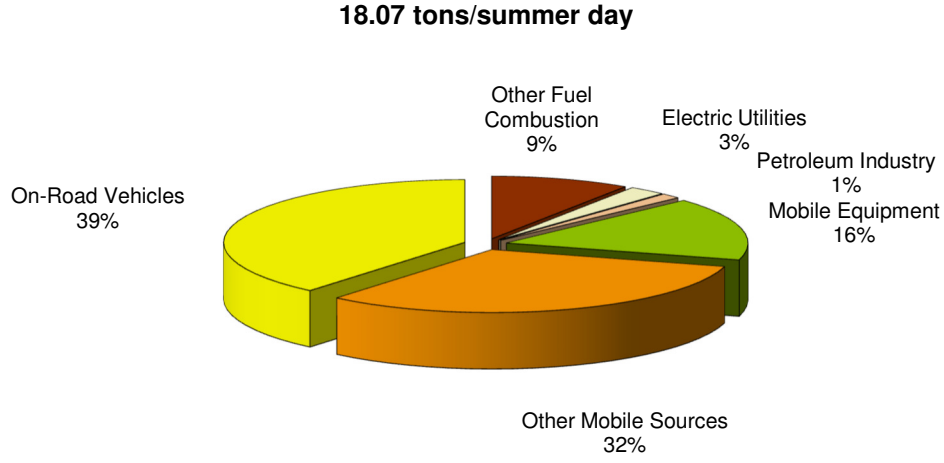
Notes:
Source: CEPAM v1.01 (March 2022).
Excludes OC1, OC2, and Natural Sources.
Data rounding may affect totals.

Figure 2-2
Ventura County 2018 Planning Day
ROG Emissions Inventory



Reference:
CARB CEPAM v1.01 (March 2022).
Natural sources, OC1, and OC2 excluded.

Figure 2-3
Ventura County 2018 Planning Day
NOx Emissions Inventory



Reference:
CARB CEPAM v1.01 (March 2022).
Natural sources, OC1, and OC2 excluded.

2.4. Ventura County Marine Emissions Inventory

Marine emission sources include those in both the State Tidelines region of Ventura County and those in the OC1 and OC2 Air Basins. Examples of marine-related activities include ocean-going vessels, commercial harbor craft, and recreational boats. Also included are military aircraft operating out of Naval Base Ventura County (NBVC) and onshore cargo handling equipment at the Port of Hueneme.

Emission sources related to marine activities are a significant part of the overall base year emissions inventory for Ventura County. CARB undertook an extensive process to develop a new statewide emissions inventory for several important categories of marine emission sources used for the 8-hour Ozone SIP and ozone attainment modeling. CARB staff, in cooperation with local air districts, developed a consistent statewide emissions estimation methodology for Ocean-going Vessels, Commercial Harbor Craft, and Cargo Handling Equipment operating in California coastal waters, ports and inland waterways. The methodologies reflect updated vessel population and operational data, engine characteristics and emission factors.

2.4.1. Ventura County Marine Emissions in the SCCAB

Coastal emission sources (i.e., within three miles of the shoreline) in the Ventura County portion of the SCCAB in Table 2-3 are represented in Other Mobile Sources emission categories, including Ocean-going Vessels, Commercial Harbor Craft, Recreational Boats, Aircraft and Cargo Handling Equipment in the Off-Road Equipment category. Coastal marine emissions are shown in Table 2-4. Cumulatively these categories accounted for 3.67 tons/day of ROG and 3.39 tons/day of NOx in 2018, 12 percent of the total ROG and 19 percent of total NOx in the SCCAB.

Table 2-4
2018 SCCAB
Marine Planning Day Emissions

Ventura County Emission Category	(tons/summer day) ROG	NOx
Ocean-going Vessels	0.05	1.31
Commercial Harbor Craft	0.10	1.14
Recreational Boats	3.04	0.52
Aircraft	0.48	0.39
Cargo Handling Equipment	0.00	0.03
Total SCCAB Marine Emissions	**3.67**	**3.39**

Notes:
CEPAM2022 v1.01 (March 2022).

Ocean-going vessels include large commercial vessels calling on Port Hueneme (auto carriers, bulk cargo carriers, container vessels, passenger vessels, roll-on/roll off vehicle carriers, refrigerated cargo vessels, and tankers) and military vessel operations occurring at the U.S. Naval

facilities at the Port of Hueneme, as well as some non-military vessels utilizing Ventura County Naval facilities. Ocean-going vessels generated 1.31 tons/day NOx in 2018 in coastal waters, 39 percent of total coastal NOx in 2018, with over 75 percent from commercial marine vessels. The majority of the commercial marine vessels are auto carriers, container vessels, and refrigerated produce vessels. Some container vessels may carry refrigerated cargo.

Commercial harbor craft include commercial and charter fishing vessels, excursion boats, tug and towboats, barges and dredges, crew and supply boats associated with the four offshore oil and gas production platforms, and military support and operations vessels, tugboats and other vessels utilizing U.S. Naval facilities at the Port of Hueneme. Commercial harbor craft (including military) contributed over 33 percent of coastal NOx in 2018, 1.14 tons/day. Non-military commercial harbor craft were responsible for 54 percent of commercial harbor craft NOx emissions in 2018. Most of the commercial boats in Ventura County are commercial fishing boats or charter fishing boats.

Recreational boats operate at the three ports, marinas, and lakes in Ventura County, and include vessels with outboard, inboard, and stern-drive engines, sailboat auxiliary engines, and personal watercraft. Recreational vessels accounted for 15 percent or 0.52 tons/day of the coastal NOx emissions in 2018 and 3.04 tons/day or 82 percent of the coastal ROG emissions.

Aircraft emissions are associated with military aircraft operations at the U.S. Naval facility at Point Mugu, including transports, jet aircraft, helicopters, and missile launches. Military aircraft activities were responsible for about 0.43 tons/day of coastal ROG emissions and 0.37 tons/day of NOx in 2018.

Cargo Handling Equipment in the coastal waters include port operations/cargo handling equipment operating in association with large commercial vessels calling at the Port of Hueneme, such as yard tractors, forklifts, cranes, loaders, and other material handling equipment. Although Cargo Handling Equipment contributed one quarter of coastal NOx in 2002, this emission source became subject to CARB's Cargo Handling Equipment Regulation in 2007 and contributed less than 1% of total coastal NOx emissions in 2018.

2.4.2. Outer Continental Shelf Air Basin Marine Emissions (OC1 and OC2)

Marine activities are the most significant emission sources in the OC1 and OC2 Air Basins (beyond three miles of the shoreline). Some stationary sources are present in the OC1 and OC2 basins due to the presence of four oil and gas platforms and the U.S. naval base on San Nicolas Island. As presented in Table 2-5, Figure 2-4, and Figure 2-5, emissions from other mobile sources emission categories, including ocean-going vessels and commercial harbor craft, comprised the vast majority of emissions in the OC1 and OC2 Air Basins, 13.5 tons/day or 98% of total NOx, and 97% of total ROG in 2018.

Ocean-going vessels encompass large commercial vessels operating in the Santa Barbara Channel shipping lanes offshore of Ventura County, including vessels calling on Port Hueneme or the ports of Los Angeles/Long Beach and transiting vessels passing through southern California waters but without calling at either port, and military vessels operating offshore and in the approach corridors to the Port of Hueneme and San Nicolas Island. Ocean-going vessels emitted 13.0 tons/day of NOx in 2018, 94% of total NOx in OC1 and OC2, as well as nearly 33% of total ROG. Virtually all emissions are from commercial vessels.

Commercial harbor craft include commercial fishing and charter vessels, excursion boats, tug and towboats, crew and supply boats affiliated with the offshore oil and gas production platforms, military support and operations vessels, and other vessels operating offshore and in the approach corridors to Port Hueneme and San Nicolas Island. Commercial harbor craft contributed 63% of offshore ROG and 3.8% of NOx in 2018. Commercial (non-military) vessels were responsible for 93% of NOx and 35% of ROG from commercial harbor craft and ocean-going vessels.

Aircraft emissions are associated with military aircraft operations at the U.S. Naval facility on San Nicolas Island, including transports, jet aircraft, and helicopters. Military aircraft activities were responsible for less than 1% of offshore ROG and NOx emissions in 2018.

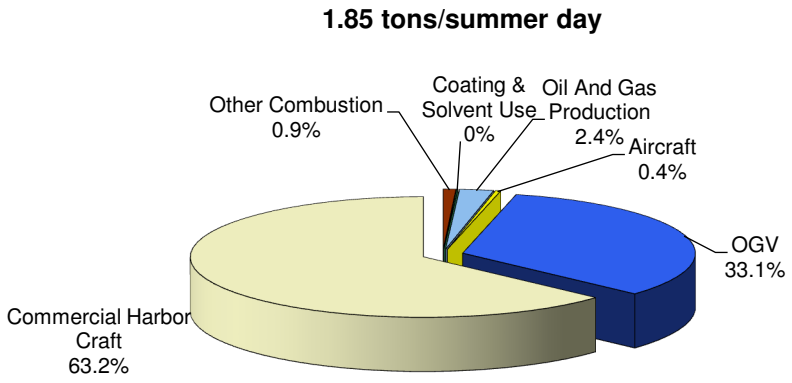
Stationary sources on the oil and gas platforms and the U.S naval base on San Nicolas Island were responsible for considerably less offshore emissions in 2018 than mobile sources, contributing 3% of total offshore ROG and 2% of NOx. Offshore emission sources contributing less than 3% of total offshore ROG or NOx include fuel combustion sources such as electric generating types of equipment, coatings and solvents ROG emissions from routine maintenance operations for the offshore oil and gas production platforms and the U.S. Naval facility on San Nicolas Island, and oil and gas production, all of which are associated with permitted point sources.

Table 2-5
2018 OC1 and 2 Baseline Planning Day Emissions by Emissions Summary Category

Ventura County Outer Continental Shelf Air Basins (OC1 and OC2) Summary Category Name	ROG (tpd)	NOx (tpd)
Stationary Sources		
Fuel Combustion		
Oil And Gas Production (Combustion)	0.00	0.01
Service And Commercial	0.02	0.23
Total Fuel Combustion	**0.02**	**0.24**
Cleaning And Surface Coatings		
Coatings And Related Process Solvents	0.00	0.00
Total Cleaning And Surface Coatings	**0.00**	**0.00**
Petroleum Production And Marketing		
Oil And Gas Production	0.04	0.00
Petroleum Marketing	0.00	0.00
Total Petroleum Production And Marketing	**0.04**	**0.00**
Total Stationary Sources	**0.06**	**0.25**
Mobile Sources		
Other Mobile Sources		
Aircraft	0.01	0.03
Ocean-going Vessels	0.61	12.95
Commercial Harbor Craft	1.17	0.52
Total Mobile Sources	**1.79**	**13.50**
Total OC1 and OC2 Air Basins	**1.85**	**13.75**

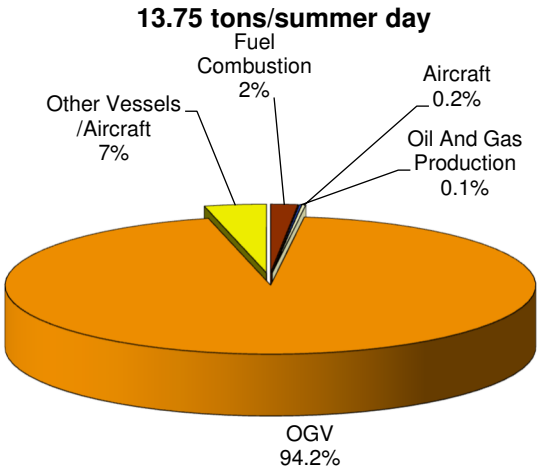
Notes:
Source: CEPAM2022 v1.01 (March 2022).
Excludes Natural Sources.
Data rounding may affect totals.

Figure 2-4
Ventura County 2018 Planning Day
ROG Emissions Inventory (OC1 and OC2 Air Basins)



Reference:
CARB CEPAM v1.01 (March 2022).
3 – 100 miles offshore. Includes both OC1 and OC2

Figure 2-5
Ventura County 2018 Planning Day
NOx Emissions Inventory (OC1 and OC2 Air Basins)



Reference:
CARB CEPAM v1.01 (March 2022).
3 – 100 miles offshore. Includes both OC1 and OC2

SECTION 3. CONTROL STRATEGY

This section presents the control strategy for the 2022 AQMP to achieve the 2015 federal 8-hour ozone standard. Since 1979, Ventura County's ozone strategy has been to use concurrent ROG and NOx emission reductions from stationary and mobile sources. Ventura County was the first area in the nation to institute a dual ROG/NOx strategy for meeting state and federal clean air standards for ozone.

The 2022 AQMP control strategy consists of a local component implemented by the District and a combined state and federal component implemented by CARB and EPA. The District has primary responsibility for regulating stationary sources, including some area sources, within Ventura County. CARB regulates on-road motor vehicles, some off-road mobile sources, and consumer products, and sets motor vehicle fuel specifications in California. EPA regulates emissions from locomotives, aircraft, heavy-duty trucks used in interstate commerce, and some off-road engines exempt from state authority or best regulated at the national level. State and federal laws prohibit local air districts from regulating mobile sources.

The District's component of the 2022 AQMP control strategy consists of cost-effective stationary source control measures, TCMs, and the District's voluntary mobile source incentive programs. Most of these local control program elements were in previous Ventura County clean air plans. California air agencies, including this air district, have aggressively pursued measures to meet state and federal clean air standards and have developed many of the most innovative and effective clean air strategies in the world.

Ventura County, along with other California air agencies, long ago implemented clean air measures that other parts of the country are just now considering. By 2002, the District fully implemented most of the local control measures in earlier Ventura County AQMPs, and most stationary sources in the county are now subject to stringent clean air regulations. Consequently, new local emission reductions are becoming ever smaller and often not economically or technologically feasible for sources in Ventura County.

CARB's component of the 2022 AQMP control strategy consists of its new 2022 State Strategy for the State Implementation Plan (State SIP Strategy), a comprehensive clean air strategy designed to achieve federal air quality standards through a combination of technologically feasible, cost-effective, and far-reaching measures. It describes the scope of California's ozone and fine particulate matter ($PM_{2.5}$) nonattainment problems and presents CARB staff's recommendations on how California can comply with federal clean air standards. The 2022 SIP Strategy was adopted by CARB September 22, 2022.

As elsewhere in California, Ventura County's ongoing progress towards clean air depends largely on current and proposed mobile source strategies under state and federal jurisdiction. District efforts will nonetheless remain crucial for Ventura County to attain and maintain state and federal clean air standards.

3.1. Stationary Source Control Measures

Stationary source control measures are comprised of equipment and techniques for reducing air pollutant emissions from stationary sources. Examples of stationary source control measures include vapor collection systems on gasoline and oil storage tanks, landfill gas recovery systems, low NOx burners on boilers, and replacing existing internal combustion engines with electric motors or cleaner engines, when feasible. Control measures provide the framework for District clean air rules that reduce ROG and NOx emissions. The Ventura County APCD List of Current Rules website lists all District rules referenced in this and other sections of the 2022 AQMP.

For the development of 2022 AQMP, APCD has used different years as baseline year inventory for the purpose of forecasting and regulatory decision making. Ventura County APCD and other federal 8-hour ozone nonattainment air quality agencies in southern California have used the 2018 as the base year for the emissions forecasting utilized in photochemical modeling. However, the 2017 is used as the base year for regulatory purposes such as Reasonable Further Progress (RFP) and Contingency Measure emission reduction requirements, as allowed by EPA.

Previous AQMPs include descriptions of control measures which have been incorporated into District rules. Those control measures which have been fully implemented before the 2018 base year are considered part of the baseline emissions for the 2022 AQMP. The District will continue to implement these measures as part of the EPA-approved SIP.

3.1.1. Control Measures with Emission Reductions Beyond the Base Year

This section presents ROG and NOx control measures already adopted as APCD rules but not fully implemented by the end of 2018, the base year for the 2022 AQMP. Table 3-1 presents these measures with expected emission reductions expressed in tons per day. The District will continue to implement these measures.

Table 3-1
Stationary Source Control Measures - Local Measures Only

Control Measure Number	Control Measure Name	District Rule	Year Adopted/ Amended	Year Fully Impl'd	Summer Planning Day Emissions Reductions (tons per summer day) 2018	2026	2040
ROG Control Measures							
R-433	Liquefied Petroleum Gas Transfer and Dispensing	74.33	2015	2020	0	0.0068	0.0066
R-314-2018	Adhesives and Sealants	74.20	2018	2023	0	0.0442	0.0438
R-303-2020	Architectural Coatings	74.2	2020	2021	0	0.0406	0.0428
R-330	Surface Cleaning and Degreasing	74.6	2020	2022	0	0.0152	0.0157
R-414-2021	Transfer of Reactive Organic Compound Liquids	71.3	2021	2022	0	0.0137	0.0206
Total ROG Control Measure Emissions Reductions						0.1205	0.1295
NOx Control Measures							
N-102-2012	Boilers, Steam Gen., Heaters <1MMBTU	74.11.1	2012	2023	0	0.0068	0.0062
N-105-2012	Boilers, Steam Generators, Heaters 1-2 MMBTU (2012)	74.15.1	2012	2022	0	0.0001	0.0001
N-105-2015	Boilers, Steam Generators and Process Heaters 2-5 MMBTU	74.15.1	2015	2025	0	0.0022	0.0023
N-113	Natural Gas-Fired Water Heaters <75,000 BTU/hr	74.11	2010	2020	0	0.0459	0.0491
N-114	NOx Reductions from Miscellaneous Sources	74.34	2016	2020	0	0.0491	0.0491
N-101-2019	Stationary Gas Turbines	74.23	2019	2024	0	0.1898	0.1250
N-115	Boilers, Steam Generators and Process Heaters	74.15	2020	2027	0	0.0172	0.0255
Total NOx Control Measure Emissions Reductions					0	0.3111	0.2573

Notes:
Data rounding may affect displayed values and totals.
This table does not list control measures fully implemented before 2018.
Emission reductions shown are relative to 2018 baseline inventory.

3.1.2. Further Study Control Measures

Further study measures are emission control methods that are not proposed for adoption as District rules at this time, due to inconclusive information about their technical feasibility, economic feasibility, or appropriateness for Ventura County. District staff will evaluate these measures and will adopt them as District rules using the normal rule adoption process if they prove feasible and appropriate for Ventura County.

CH&SC 40914 requires that the District's clean air plan for the California ambient ozone standards include expeditious implementation of "every feasible measure" to reduce ozone precursor emissions, ROG and NOx. Measures that help Ventura County attain the state ozone standard also help the county attain the federal 8-hour ozone standard.

District staff reviewed the District's rules for its periodic rule evaluation for the California Clean Air Act. This review determined that the existing rules listed in Table 3-2, Further Study Control Measures, have potential for enhancement, thereby realizing additional emission reductions for both the federal and state ozone standards. In addition, staff identified potential new rules to control emissions from vacuum truck operations and minimize the use of industrial flares. Consequently, the further study control measures listed in Table 3-2 will serve a dual purpose.

They will serve as potential measures for the District's federal 8-hour ozone plan and to meet the "every feasible measure" requirement for the state ozone standard. The emission reduction potential of these measures is unknown at this time but is potentially significant in total. The District commits to evaluate the feasibility of each of the measures listed in Table 3-2 for Ventura County. For measures found feasible, District staff will provide emission reduction estimates prior to rule adoption.

Table 3-2
Further Study Control Measures

District Rule	Control Measure Name or Rule Title	Control Measure Description
74.35	Flare Minimization	**N-608, R-608**: Reduce ROG and NOx emissions from flares at landfills, wastewater treatment plants, oil and gas facilities and facilities that handle ROG containing liquids
74.22	Fan-Type Central Furnaces	**N-110-2016:** This control measure would reduce NOx emissions from fan-type central furnaces rated at less than 175,000 BTU per hour heat input capacity

District Rule	Control Measure Name or Rule Title	Control Measure Description
74.32	Composting and Organic Material Conversion Operations	**R-607:** Minimize ROG emissions through inadvertent decomposition during chipping and grinding activities and during greenwaste composting operations
74.36	Oil Well Degassing	**R-432:** Minimize ROG emissions from rod pump oil well degassing
70	Storage and Transfer of Gasoline	**R-431**: Consider semi-annual testing for high volume stations, operation and maintenance manuals, and 98% control efficiency for Phase I (ROG)
70	Storage and Transfer of Gasoline	As suggested in Technical Support Document for the 2014 RACT SIP, consider reducing emission limit for gasoline transfer from bulk tank to delivery trucks similar to Bay Area AQMD Rule 8-33, *Gasoline Bulk Terminals and Gasoline Cargo Tanks* (ROG)
71	Crude Oil and Reactive Organic Compound Liquids	Revise rule to set lower leak definition thresholds similar to SCAQMD Rule 463, *Storage of Organic Liquids* (ROG)
71.1	Crude Oil Production and Separation	Revise rule to meet requirements in 2016 Control Techniques Guidelines (CTG) for the Oil and Natural Gas Industry ("2016 Oil and Gas CTG") (EPA-453/B-16-001) if determined to be required
71.2	Organic Liquid Storage and Transfer	Revise rule to meet requirements in 2016 Oil and Gas CTG (EPA-453/B-16-001) if determined to be required
74.6.1	Batch Loaded Vapor Degreasers	**R-331**: Revise rule to limit vapor degreaser solvent to 25 grams ROG per gallon (ROG)
74.9	Stationary Internal Combustion Engines	**N-108-2024**: Revise rule to set new NOx emission limits consistent with SJVUAPCD Rule 4702, *Internal Combustion Engines* (NOx)
74.13	Aerospace Assembly and Component Manufacturing Operations	Revise rule to reduce ROG emissions from coatings used on aerospace components by establishing ROG limits for certain new coating categories and reducing the allowable ROG content for several existing coating categories similar to SCAQMD Rule 1124, *Aerospace Assembly and Component Manufacturing Operations*, and SJVAPCD Rule 4605, *Aerospace Assembly and Component Manufacturing Operations* (ROG)

District	Control Measure Name or Rule Title	Control Measure Description
74.14	Polyester Resin Operations	Revise rule to include a small source exemption limit of 50 gallons per year, consistent with Santa Barbara County APCD Rule 349, *Polyester Resin Operations* (ROG)
74.19.1	Screen Printing Operations	Revise rule to limit screen printing cleaners to 100 grams per liter consistent with SCAQMD Rule 1171, *Solvent Cleaning Operations* (ROG)
74.20	Adhesives and Sealants	Revise rule to align ROG content limits with proposed revisions to SCAQMD Rule 1168, *Adhesive and Sealant Operations* (ROG)
74.21	Semiconductor Manufacturing	Revise rule to reduce allowable ROG content of solvents used in regulated operations so the limits are similar to SCAQMD Rule 1164, *Semiconductor Manufacturing* (ROG)
74.25	Restaurant Cooking Operations	Revise rule to limit NOx from commercial food preparation ovens similar to SCAQMD Rule 1153.1, *Emissions of Oxides of Nitrogen From Commercial Food Ovens* (NOx)
74.26 & 74.27	Storage Tank Degassing Operations	Revise both rules to establish new limits and expand applicability to smaller tanks, pipelines and cleaning equipment consistent with SCAQMD Rule 1149, S*torage Tank and Pipeline Cleaning and Degassing* (ROG)
TBD [a]	Wastewater Treatment Plants	**R-605**: New rule to reduce ROG emissions from wastewater aeration by requiring steam stripping at the point of generation or capturing and controlling ROG emissions at wastewater treatment plants (ROG)
TBD[a]	Vacuum Truck Operations	Adopt a new rule to limit ROG emissions from vacuum truck operations similar to Bay Area AQMD Rule 8-53, *Vacuum Truck Operations* (ROG)

Note: [a] To be determined.

The District has completed the preliminary evaluation of four of these further study measures (N-608/R-608, N-110-2016, R-607, and R-432) and is in the process of either a more comprehensive evaluation or rulemaking. The new measures are either a revision to an existing District rule or a new rule applicable to a previously unregulated source category. The emission forecasts do not reflect emission reductions from these measures.

N-608 and R-608, Flare Minimization: This control measure is a new rule to reduce ROG and NOx emissions from flares at landfills, wastewater treatment plants, oil and gas facilities and facilities that handle ROG containing liquids. The emission standards are similar to South Coast Air Quality Management District (SCAQMD) Rule 1118.1, *Control of Emissions from Non-Refinery Flares* and San Joaquin Valley APCD (SJVAPCD) Rule 4311, *Flares*. The applicability is based on the equipment's annual fuel throughput meeting specific thresholds. Restricting the applicability of the emission limits to sources with greater utilization improves the cost-effectiveness of the proposed rule.

Rule 1118.1 was adopted January 4, 2019 and restricted the NOx and ROG emissions from flaring equipment. Out of the 288 flares located at 146 facilities in SCAQMD jurisdiction, the adoption of Rule 1118.1 required 28 flares to be upgraded, reducing NOx emissions by 0.28 tpd. Cost effectiveness for this rule was estimated between $30,179 and $50,338 per ton of NOx reduced.

In Ventura County there are 63 permitted flares of which 4 would be exempt due to their small size and 49 would not be required to reduce emission concentrations due to either meeting proposed standards or the annual throughput would not exceed cost-effectiveness thresholds. Preliminary calculations for this source category in APCD jurisdiction indicate a possible NOx emission reduction of 0.020 tons per day, and a possible ROG emission reduction of 0.018 tons per day.

The District is required to review this rule as part of an expedited BARCT process due to requirements in California state Assembly Bill 617 (AB617).

Proposed District Rule: 74.35
Proposed Rule Adoption Date: 2022
Proposed Rule Implementation Date: 2024
Required Board Action: Adoption of a new rule
Cost-effectiveness: $30,000 per ton NOx reduced
Estimated Control Efficiency: 5%
Estimated Emission Reductions: 0.02 tons NOx per day, 0.018 tons ROG per day

N-110-2016, Fan-Type Central Furnaces: This control measure would reduce NOx emissions from fan-type central furnaces rated at less than 175,000 BTU per hour heat input rate through revisions to District Rule 74.22, *Natural Gas Fan-Type Central Furnaces.* SCAQMD revised its Rule 1111, *NOx Emissions from Natural Gas-Fired, Fan-Type Central Furnaces,* applicable to similar source equipment, on November 6, 2009, reducing the NOx limit from 40 nanograms per joule (ng/j) to 14 ng/j.

This control measure was included in the APCD 2016 AQMP, but adoption was delayed while determining whether the technology forcing amendments to SCAQMD Rule 1111 were achievable. Due to uncertainties in technical feasibility, APCD will not adopt the rule until all

limits in revised SCAQMD Rule 1111 are achieved in practice. Implementation of the new SCAQMD limits began on April 1, 2015 and ends on October 1, 2023.

This control measure affects new or replacement units through a sales prohibition and certification requirements. Due to the lifespan of regulated equipment of 20-25 years, the low-emission units will not achieve saturation of the in-use sources until 2045 or later.

District Rule: 74.22
Rule Adoption Date: 2022
Rule Implementation Date: 2023
Required Board Action: Adoption of a rule revision
Cost-effectiveness: Between $10,000 and $16,000 per ton of NOx reduced
Estimated Control Efficiency: 65% (overall)
Estimated Emission Reductions: 0.41 tons per day (overall, full saturation), NOx

R-607, Composting and Organic Material Conversion Operations: This control measure was included in the 2016 AQMP to implement new District Rule 74.32, *Composting and Organic Material Conversion Operations*, to incorporate requirements similar to SCAQMD) Rules 1133.1, *Chipping and Grinding Activities*, and 1133.3, *Emission Reductions from Greenwaste Composting Operations*. Since it has been last included in the previous 2016 AQMP, concerns about meeting state organic waste diversion targets in addition to an evolving landscape of data have delayed implementation of this control measure. The purpose of this control measure is to minimize ROG emissions through inadvertent decomposition during chipping and grinding activities (as Rule 1133.1) and during greenwaste composting operations (as Rule 1133.3).

Rule 1133.1 was revised July 8, 2011 to establish Best Management Practices (BMP) for chipping and grinding of greenwaste to produce materials other than compost material, and to better manage stockpile operations associated with chipping and grinding activities, consistent with greenwaste processing requirements established in the state regulation Title 14 of the California Code of Regulations. Rule 1133.1 covers 70 facilities in the SCAQMD. Emission reductions were not quantified for the rule revisions.

Rule 1133.3 was adopted as a new rule on July 8, 2011, to establish operational BMP for greenwaste composting operations that produce compost material and applies to greenwaste composting operations involving greenwaste, wood waste, manure, or food waste. Rule 1133.3 affects 17 facilities in that region and is estimated to reduce 0.9 tons of ROG per day from greenwaste composting operations. Cost-effectiveness was estimated to be $1,340 per ton of ROG reduced.

Greenwaste composting is an increasing source of ROG emissions in California. Ventura County has several greenwaste composting facilities to which this new rule could apply. However, the

District does not currently require air permits for such facilities and none of the existing facilities are in the District's emission inventory system. If this new rule were adopted, District permit rules would have to be amended to require that composting facilities obtain District air permits. Air emissions associated with the facilities are included District's emission inventory.

Concerns remain about meeting state organic material diversion targets, organic material decomposition emissions calculations and offsets which may be required by the permitting of subjected facilities. This new rule will be adopted only if subsequent analysis demonstrates it to be appropriate and cost-effective in Ventura County.

Proposed District Rule: 74.32
Proposed Rule Adoption Date: 2023
Proposed Rule Implementation Date: 2024
Required Board Action: Adoption of a new rule
Cost-effectiveness: $1,340 per ton of ROG reduced (overall)
Estimated Control Efficiency: 41%
Estimated Emission Reductions: 0.28 tons per day, ROG

R-432 Oil Well Degassing: This control measure is a new rule to minimize ROG emissions from rod pump oil well degassing. The emission standards are based on SCAQMD Rule 1148.1, *Oil and Gas Production Wells*.

Rule 1148.1 was originally adopted on March 5, 2004, and it requires the control of emissions from petroleum well degassing with at least 95% control efficiency. Conversations with SCAQMD staff confirm this is achieved through the routing of well gas to portable combustion equipment or through carbon adsorption systems.

There are approximately 1,692 active rod pump oil wells in Ventura County, each of which can be expected to degas once every 3 years for routine maintenance. Due to the frequency and the large volumes vented to the atmosphere, the preliminary estimates for this rule are estimated to reduce emissions by up to 47.3 tons of ROG per year. Due to regionally specific considerations for this source category, this regulation would only be adopted if considered technologically feasible and cost effective.

New District Rule: 74.36
New Rule Adoption Date: 2025
New Rule Implementation Date: 2027
Board Action: Adoption of a new rule
Cost-effectiveness: $22,000 per ton of ROG reduced
Estimated Control Efficiency: 95%
Estimated Emission Reductions: 0.13 tons per day (ROG)

3.1.3. Reasonably Available Control Technology

CAAA sections 182(b)(2) and 182(f) (42 U.S.C. §7511a) require ozone nonattainment areas to implement Reasonably Available Control Technology (RACT) for sources that are subject to CTGs and for "major sources" of ROG and NOx, which are ozone precursors. RACT is the lowest emissions limitation that a particular source is capable of meeting by application of control technology that is reasonably available considering technological and economic feasibility (44 FR 53762; September 17, 1979).

RACT requirements are included in the CAAA to ensure that significant source categories at major sources of ozone precursor emissions are controlled to a "reasonable" extent, but not necessarily to the more stringent best available control technology (BACT), best available retrofit control technology (BARCT), or lowest achievable emission rate (LAER) levels, expected for new or modified existing major stationary sources. CTGs are EPA documents that define RACT for existing sources of air pollution. Emission sources covered by CTGs are termed CTG sources.

3.1.4. 2020 RACT SIP

According to the EPA's *Final Rule to Implement the 8-Hour Ozone NAAQS* (83 FR 62998; December 6, 2018), areas classified as moderate nonattainment or higher must submit a demonstration that their current rules fulfill 8-hour ozone RACT for all CTG categories and all major, non-CTG sources as a revision to their SIPs. RACT SIP submittals are in addition to the 8-hour ozone attainment plans. The RACT SIPs were due to EPA by August 3, 2020.

The District approved its RACT SIP on July 14, 2020 and sent it to CARB for submittal to EPA. CARB submitted the District's RACT SIP to EPA on July 28, 2020 and EPA has yet to take action to approve it. The RACT SIP found that all District rules subject to RACT review fulfill RACT requirements for the 8-hour ozone NAAQS.

The rules meet RACT, or more commonly, exceed RACT because they comply with more current and stringent control requirements of the California Clean Air Act. The 2020 RACT SIP also found that all CTG sources and major non-CTG sources within District boundaries meet or exceed RACT. These findings are not surprising since Ventura County has had a very aggressive clean air program for many years.

3.1.5. Updated CTGs

The CAAA requires the EPA to revise RACT, update existing CTG documents, or develop new documents on a frequent basis to provide states and local clean air agencies with the most current technical information and assist them in determining RACT.

District staff evaluated the CTGs updated since the last RACT analysis was performed in 2014, during the 2020 RACT SIP development process. During this evaluation District staff determined the only CTG updated in 2016, which applies to sources in the District, is the CTG for the Oil and

Natural Gas Industry in October 2016. In order to avoid the need for individual air districts to submit individual RACT SIP revisions, CARB submitted the state Oil and Gas Methane Regulation as a statewide SIP revision. The statewide SIP revision, in combination with District rules and a Memorandum of Agreement between CARB and the District to implement and enforce GHG emission standards within Ventura County, were determined to satisfy the RACT requirement for this source category for Ventura County during development of the 2020 RACT SIP.

On September 30, 2022, EPA published a final rule in the Federal Register, 87 FR 59314, enacting a limited approval and limited disapproval of California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10 Climate Change, Article 4, Subarticle 13: Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities (Oil and Gas Methane Rule) into the California State Implementation Plan (SIP). These revisions concern emissions of volatile organic compounds (VOCs) from crude oil and natural gas facilities. Under the authority of the Clean Air Act (CAA or the Act), this action simultaneously approves a state rule that regulates these emission sources and identifies deficiencies with the rule that must be corrected for the EPA to grant full approval of the rule.

EPA also finalized disapprovals of the RACT demonstrations for the 2008 and 2015 ozone NAAQS for sources covered by the EPA's 2016 Control Techniques Guidelines for the Oil and Natural Gas Industry for the Sacramento Metropolitan Air Quality Management District (SMAQMD), San Joaquin Valley Air Pollution Control District (SJVAPCD), South Coast Air Quality Management District (SCAQMD), Ventura County Air Pollution Control District (VCAPCD), and the Yolo-Solano Air Quality Management District (YSAQMD). The EPA rule was effective October 31, 2022.

District staff are working with CARB to determine if any changes are needed to District Rule 71.1 and Rule 71.2 to meet RACT requirements. Any needed amendments will be adopted expeditiously to ensure District rules meet RACT.

3.1.6. New Source Review

NSR is a permitting program required by the CAAA to help ensure that new or modified equipment and facilities (e.g., boilers, turbines, crude oil storage tanks, power plants, and factories) do not significantly degrade air quality or slow progress towards clean air. NSR permits are legally binding documents that specify what can be constructed, what emission limits must be met, and how emission sources must be operated. The primary components of NSR are BACT and emission offsets. The District's Engineering Division administers the District's NSR program. Further information regarding NSR is available on EPA's NSR website. Further information about the District's air permitting program is available on the District's Engineering Division website.

BACT is an emission limitation based on the maximum degree of reduction for each regulated air pollutant emitted from, or resulting from, any new or modified stationary source. It is generally

determined on a case-by-case basis, taking into account energy, environmental and economic impacts, and other costs. Emission reduction credits (ERC) are banked emission reductions available to offset emission growth from new, replacement, modified or relocated emissions units.

The District implements NSR through District Rule 26, *New Source Review*. Rule 26, which includes Rule 26 through 26.13, applies to new sources of air pollution and to modifications, replacements, and relocations of existing sources. The provisions of Rule 26 are applicable on a pollutant-by-pollutant and an emissions-unit-by-emissions-unit basis. Rule 26 requires that source owners and operators apply BACT to minimize air emissions from these sources. BACT is determined on a case-by-case basis by District staff during the permit approval process. Rule 26 also requires that certain emission increases be offset with emission decreases. However, it allows banking of certain emission decreases as ERCs for later use as offsets.

3.1.7. Control Measures Not Retained in the 2022 AQMP

Previous AQMPs contained stationary source control measures to help attain the federal and state 1-hour and 8-hour ozone standards. This section presents stationary source control measures identified in previous AQMPs but not retained in the 2022 AQMP. Table 3-3 lists these measures. In each case, the District has not adopted the measure as a District rule because the measure became obsolete or infeasible for Ventura County based on technological or economic considerations. Additionally, for the reasons given with each measure, no emission reductions would be lost by not retaining it in the 2022 AQMP. The following discussion includes a brief description of each measure and the reason for not retaining it in the 2022 AQMP.

N-27 Boilers, Steam Generators, and Process Heaters: This control measure was originally included as Control Measure N-27 (Boilers, Steam Generators and Process Heaters) in the District's 1987 AQMP. The adoption of Rule 74.15 exceeded N-27 requirements by implementing portions of two additional further-study control measures, N-2 (Thermally Enhanced Oil Recovery Steam Generators), and N-23 (External Combustion NOx Control) and established a NOx emissions limit of 40 ppm for affected equipment. A potential Boiler, steam generator, and process heater rule was included as a "further study" measure in the District's 2016 AQMP

The District adopted control measure N-115 as an amendment to Rule 74.15, *Boilers, Steam Generators and Process Heaters*, on November 10, 2020. During the rulemaking process it was determined retrofit of the regulated equipment was cost effective if implementation was required at the time of next burner replacement. The adopted rule revisions limit NOx from affected modified natural gas equipment to 12 ppm or less. Analysis indicates all emission reductions will be achieved by 2027 so no emission reductions will be lost by not retaining control measure N-27.

Table 3-3
Control Measures Not Retained in the 2016 AQMP

Control Measure Number	Control Measure Name	Reason
N-27	Boilers, Steam Generators, and Process Heaters	Accomplished by implementation of control measure N-105

3.2. Transportation Control Measures

Transportation Control Measures (TCMs) are strategies that reduce motor vehicle emissions by reducing vehicle trips, vehicle use, vehicle miles traveled (VMT), vehicle idling, and traffic congestion. The Clean Air Act (CAA) requires TCMs to meet milestones and help demonstrate attainment of the National Ambient Air Quality Standards (NAAQS). TCMs are based on the Southern California Association of Government's (SCAG) adopted Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and Federal Transportation Improvement Program (FTIP).

The following strategies include some of the most common TCMs that can reduce emissions from transportation sources. These strategies were also included in the 2007 and 2016 AQMPs.

Trip Elimination: This strategy reduces vehicle emissions by eliminating vehicle trips. The primary emissions eliminated are the cold-start emissions that occur when vehicle engines have been at rest for a period and then restarted. Cold-start emissions occur after engine startup but before the engines are warm enough for the emission control systems to work effectively. Cold-start emissions are a large percentage of total vehicle emissions and thus a major source of ozone precursors. Telecommuting, carpooling, combining trips, flexible work schedules, and land use policies that provide housing near jobs and shopping centers are measures that eliminate vehicle trips.

Vehicle Substitution: This strategy reduces emissions associated with motor vehicle use by using non-motorized transportation modes that do not produce air emissions. Walking, biking, and telecommuting measures are all examples of vehicle substitution. Adopting trip reduction ordinances to encourage installation of walking and biking facilities and discourage motor vehicle use in highly congested areas are measures to reduce air pollutants.

Vehicle Miles Traveled Reduction: This strategy reduces motor vehicle emissions because vehicles traveling fewer miles produce fewer emissions. This strategy does not reduce cold-start emissions. However, park-and-ride lots, carpooling, and land-use measures are all ways to reduce trip distances and, therefore, vehicle miles traveled and vehicle emissions.

Vehicle Occupancy: Increasing the number of passengers per vehicle can reduce all emissions associated with motor vehicle use. Transit, carpools, and vanpools are all measures to implement this strategy. Other measures include providing ride-match services to establish carpools and

vanpools, restricting roads for high occupancy vehicles and passenger buses, establishing employer-based transportation management programs that encourage carpooling, vanpooling and transit use among employees.

Technological Improvements: This strategy reduces emissions through technological improvements to the operation of motor vehicles and the technologies used to improve the performance of transportation systems. Technological improvements such as clean-fuel/electric vehicles, vehicle emission controls, and global positioning system tracking devices used in vehicles that reduce trips and VMT multiply the emission reduction benefits. In addition, Intelligent Transportation Systems (ITS), signal synchronization and freeway management systems, and programs to control the extended idling of vehicles are technological measures to improve the performance of transportation systems and reduce emissions as well.

3.2.1. Transportation Control Measures Project Categories

This section presents the TCMs in the 2022 AQMP. The TCMs are grouped by project categories under the District's "umbrella" control measure R-700/N-700, Transportation Control Measures, retained from the 1994, 2007, 2016 AQMPs. To be included in the AQMP, potential TCM projects must be in SCAG's Regional Transportation Plan/Sustainable Communities Strategies (RTP/SCS) and Federal Transportation Improvement Program (FTIP).

Candidate projects are first screened by the District, Ventura County Transportation Commission (VCTC), and SCAG staff to determine if they are TCMs as defined by the project categories listed in Table 3-4 and SCAG's FTIP Guidelines. SCAG's Transportation Conformity Working Group, the local agency group responsible for interagency consultation confirms the projects as TCMs and the TCMs are subsequently programmed into the FTIP.

The interagency consultation process is part of the federal transportation conformity regulation that requires procedures for federal, state, and local air districts and transportation agencies to consult with each other on transportation plans, programs, and projects. Transportation conformity is a regulatory process to help ensure that transportation plans, programs, and projects are consistent with air quality goals of the AQMP. District Rule 221, *Transportation Conformity*, contains a memorandum of understanding that outlines the interagency consultation process. Further information regarding transportation conformity is presented later under the Conformity section.

Table 3-4
TCM Project Categories Included in R-700/N-700

Project Category
A. Ridesharing Measures Carpooling, Vanpooling, Park and Ride Lots, Ride Matching Services, Incentive Programs, Guaranteed Ride Home Programs, Station Cars, Onsite Services
B. Non-Motorized Measures Bicycle Paths/Facilities, Pedestrian Paths/Facilities, Telecommuting, Flexible Work Schedules, Bicycle and Pedestrian Programs, Satellite Work Centers
C. Traffic Flow Improvement Measures Signal Synchronization, Intersection Improvements, Incentive/Disincentive Programs, High Occupancy Vehicle Lanes, Intelligent Transportation Systems, Ramp Metering
D. Land Use Measures Transportation Demand Management (TDM) Ordinances, Smart Growth/Sustainable Community Projects, Mixed Use Development, Parking Management and Standards, Congestion Management Plan, TDM Strategies
E. Transit Measures Bus Fleet Expansion, Shuttles and Paratransit Vehicles Expansion, Transit Stations and Facilities, Express Busways, Passenger Rail Service, Rail Stations and Facilities, Real-Time Transit Information Systems, Transit Subsidies

3.2.2. The RTP/SCS and FTIP

The Regional Transportation Plan (RTP) is a long-range (2020-2045) transportation plan, covering a period of 25 years that provides a blueprint for future transportation improvements and investments based on specific transportation goals, objectives, policies, and strategies. The RTP, which is based on federal transportation law, identifies the strategies needed to meet mobility, financial, and air quality requirements in the SCAG region.

The Sustainable Communities Strategy (SCS) was introduced as part of the 2012 RTP. The SCS supports the State's required greenhouse gas (GHG) emission reduction targets for the region that is set by CARB. SCAG develops the transportation and land-use planning patterns and goals through the RTP and SCS and coordinates among various committees and local governments to allow the region to meet its GHG reduction targets. Once the SCS is adopted by SCAG, as part of the RTP/SCS approval process, CARB reviews the adopted SCS and determines whether its implementation will meet the regional GHG emission reduction targets.

The recently adopted 2020 RTP/SCS (also known as Connect SoCal) is the prevailing multi-modal plan outlining a better regional transportation system, integrated with the best possible growth pattern for the region out to year 2045. The plan provides the basic policy and program framework for long-term investment in the region's vast transportation system in a coordinated, cooperative, and continuous manner.

Transportation investments in the SCAG region that receive state or federal transportation funds must be consistent with the RTP/SCS and must be included in the SCAG FTIP when ready for funding. SCAG's 2020 RTP/SCS provides the basis for the transportation control strategy of the 2022 AQMP and includes the total regional emissions forecasts from transportation projects in Ventura County. SCAG is the Metropolitan Planning Organization responsible for updating the RTP/SCS every four years.

The FTIP is the short-term transportation program, with a six-year planning horizon, that identifies specific transportation projects that will implement the overall goals of the RTP/SCS. All transportation projects that receive approval and funding must be listed and programmed in the FTIP. TCMs are also listed and programmed in the SCAG FTIP.

3.2.3. TCM Commitments

The AQMP enforceable commitments for TCMs (called TCM Commitments) are the TCM projects scheduled in the first two years of the current six-year FTIP.

EPA's conformity regulation requires that all TCM commitments undergo a timely implementation analysis at each FTIP update. The timely implementation requirement assures that TCMs are implemented on schedule. The timely implementation report tracks each committed TCM and demonstrates their timely implementation and completion.

Appendix B, *Ventura County TCM Commitments*, presents the projects identified by SCAG and the District as the current TCM Commitments for Ventura County and thus, subject to the timely implementation requirement of Transportation Conformity (discussed below).

3.2.4. TCM Rollover and Substitution

SCAG is responsible for updating the FTIP every two years. At each FTIP update, a new list of TCM commitments comprising of new TCMs (only TCMs in the first two years of the update), plus ongoing TCM commitments from the previous FTIP, are rolled over to automatically update the State Implementation Plan (SIP) upon approval by CARB and EPA. This "rollover" list, consisting of new and ongoing TCM projects, becomes the committed TCMs for tracking timely implementation.

TCM commitments are monitored for compliance according to the scheduled completion date established in the new FTIP. Once a TCM project is completed, it is reported in the next FTIP update as completed and removed from future FTIPs. FTIP updates can occur more frequently than the required biennial update in the form of amendments. However, the rollover process applies when the FTIP update requires a conformity analysis and finding, typically every two years.

A TCM substitution is required when a committed TCM project cannot be completed or will be significantly delayed. The VCTC and/or the project sponsor must notify SCAG of the problem and

propose a substitute TCM project or group of projects. The TCM substitution must follow the process set forth in the CAA section 176(c) and the Federal Conformity Regulation. The substitute project(s) may not come from the current list of committed TCMs because a committed TCM cannot substitute another committed TCM.

Usually, SCAG, VCTC, and the project sponsor will identify a replacement TCM project(s) and formally present the changes to the interagency consultation group, the Transportation Conformity Working Group (SCAG group). If there are no air quality concerns identified during the replacement process, and the substitute TCM provides equivalent or greater emissions reductions, the new TCM is adopted without requiring a new conformity finding or formal SIP revision. Both the TCM rollover and substitution process are detailed in SCAG's FTIP guidelines.

3.3. Conformity

Conformity is a federal regulatory process required in nonattainment areas by the CAA Section 176(c) to ensure that federal funding and approvals will not cause new air quality violations, worsen existing violations, or delay timely attainment of the NAAQS. Section 176(c) prohibits federal agencies, departments, or instrumentalities from engaging in, supporting, providing financial assistance for, licensing, permitting, or approving any action which does not conform to an approved state or federal clean air implementation plan. It is called conformity because federal agencies, such as the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), and Federal Aviation Administration (FAA), must show that their actions "conform with" (i.e., do not undermine or hinder) approved, applicable SIPs.

A conformity determination is a formal demonstration that the subject federal action is consistent with the applicable SIP. Federal agencies make such demonstrations by performing a conformity analysis of their proposed federal actions. The conformity analysis evaluates and documents project-related air pollutant emissions, local air quality impacts, and the potential need for emissions mitigation.

In 1993, EPA promulgated two sets of conformity regulations to implement Section 176(c): 1) transportation conformity and 2) general conformity. Transportation conformity is applicable to highway and mass transit projects and to transportation plans, programs, and projects funded under the Federal Highway and Transit Act. General conformity is applicable to other non on-road federal actions and approvals such as, airport expansion projects or new water treatment facilities. The District currently has two conformity rules, Rule 221, *Transportation Conformity*; and, Rule 220, *General Conformity*.

3.3.1. Transportation Conformity

Transportation conformity is a CAA and Infrastructure Investment Jobs Act (IIJA) regulatory process that coordinates air quality planning and transportation planning to help ensure that highway and transit projects will not cause new air quality violations, worsen existing violations, or delay timely attainment of the NAAQS. Conformity applies to transportation plans,

transportation improvement programs, and highway and transit projects funded or approved by the FHWA and FTA. Both the RTP/SCS and FTIP must demonstrate conformity with the clean air plans covering the SCAG region, including Ventura County.

Metropolitan planning organizations, such as SCAG, make initial conformity determinations in metropolitan areas, while state departments of transportation (i.e., Caltrans) usually do so in areas outside the metropolitan areas. The major requirements of transportation conformity are:

- Comparison of the SCAG regional emission forecasts to the SIP conformity budget, and use of the latest planning assumptions and emissions models.
- Implementation of TCMs on a timely basis and conduct interagency consultations on regional transportation issues.
- Final conformity determinations are made by the FWHA and FTA.
- Availability of information covering transportation conformity on FHWA and FTA websites.

3.3.2. Motor Vehicle Emissions Budget

The 2022 AQMP includes a motor vehicle emissions budget (MVEB) for the Ventura County portion of the SCCAB. The MVEB has been developed in consultation with CARB, SCAG, and EPA. The emissions budget presented in Table 3-5, *Motor Vehicle Emissions Budget*, used EMFAC with SCAG's modeled VMT and speed distributions (activity data) from the 2020 RTP/SCS (Connect SoCal) adopted by SCAG on September 12, 2020. The Air Resources Board released EMFAC2017 that updated the emission rates and planning assumptions used in calculating motor vehicle emissions budgets. EMFAC2017 was approved by U.S. EPA on August 15, 2019. In addition, the emissions output from the EMFAC2017 model was adjusted to account for the impacts of recently adopted regulations and regulations currently under development that are not reflected in the EMFAC2017 model using off-model adjustments.

The difference between the MVEB values shown in Table 3-5 and the emissions shown in the emission inventory is primarily due to differences in the heavy-duty inspection and maintenance adjustment factors between CEPAM and the MVEB, based on the final regulation. SCAG has validated the values shown in Table 3-5 for purposes of the MVEB.

The federal conformity rule allows a SIP to create a safety margin in an emissions budget (40 CFR 93.101, 93.118(e)(4)(vi)). A "safety margin" is the amount by which the total projected emissions from all sources of a given pollutant are less than the total emissions that would satisfy the applicable requirement for reasonable further progress, attainment, or maintenance. CARB has decided not to include a safety margin in the emissions budget for this AQMP.

Table 3-5
Motor Vehicle Emissions Budget
(tons per day)

	2023		2026	
	ROG	NOx	ROG	NOx
Baseline Emissions	3.01	3.88	2.55	3.36
Reductions from recently adopted regulations with off-model adjustments	0	0.02	0	0.55
Reductions from developing regulations using off-model adjustments	-	-	0	0.03
Total	3.01	3.86	2.55	2.78
MVEB	**3.1**	**3.9**	**2.6**	**2.8**

Note: Based on EMFAC2017 (v1.03).
MVEB totals are rounded up for ROG & NOx to the nearest tenth ton.

3.3.3. Transportation Conformity Budget

Central to transportation conformity is the conformity budget. When the AQMP is submitted to EPA as part of the SIP, EPA will review the MVEB. An approval, disapproval, or adequacy finding of the MVEB will be determined by EPA. An approval or adequacy finding of the MVEB by EPA will establish the conformity budget that sets the maximum amount of on-road mobile source emissions that a nonattainment area can produce while continuing to demonstrate progress toward attainment of the required NAAQS.

All future RTPs and FTIPs in the SCAG region must conform to the conformity budget. In other words, the vehicle emissions forecasts of the RTP/SCS (Connect SoCal) and FTIP must be equal to or less than the conformity budget approved or found adequate by EPA for SIP and conformity purposes. A conformity budget therefore acts as a "ceiling" for future total on-road mobile source emissions. Exceedances of a conformity budget indicate an inconsistency with the applicable AQMP/SIP. The continued federal funding for transportation projects in the Ventura County portion of the SCCAB depends on a positive conformity determination of the RTP/SCS and FTIP.

3.3.4. General Conformity

General conformity is a CAA regulatory process that applies to most federal actions other than transportation actions (see transportation conformity). Examples of federal actions subject to general conformity include issuance of Army Corps of Engineers permits, water and wastewater projects funded by EPA, and other federal projects impacting harbors, airports, and reservoirs. Certain federal projects are exempt from general conformity. Those include projects whose air pollutant emissions would be below specified de minimis emission levels (based on the area's nonattainment classifications) and certain projects presumed to conform, such routine maintenance activities, activities at Superfund sites, and activities conducted in response to national emergencies.

Activities in an attainment area are generally not subject to general conformity, unless the area was formally a nonattainment area and is now under a federal clean air maintenance plan. The federal agency that approves or funds a project or activity, that may be subject to the general conformity, is responsible for the making a conformity determination. Environmental documents required under the National Policy Act (NEPA) and California Environmental Quality Act (CEQA) may provide a statement about a project's general conformity status. General conformity requirements are covered under the District's Rule 220, *General Conformity*. EPA's General Conformity website contains additional information about the federal regulation.

3.4. State Mobile Source Strategy

Appendix C, *Key Mobile Source Regulations and Programs Providing Emission Reductions*, presents an overview of key California mobile source regulations and programs.

3.5. Reasonably Available Control Measures Analyses

Federal Clean Air Act Sections 172(c)(1) and (c)(2) require the District to demonstrate that it has adopted all control measures necessary to attain the 2015 federal 8-hour ozone standard as expeditiously as practicable and to meet Reasonable Further Progress (RFP) requirements. Reasonably Available Control Measures (RACM) applies to stationary source control measures, Transportation Control Measures, and mobile source control measures.

A potential control measure is considered "reasonably available" and must be implemented if it would advance attainment by at least one year, either alone or in combination with other reasonably available control measures. This means the combined emission reductions from RACM must be sufficient to reduce the emissions inventory projected for 2025 (or earlier) to that currently projected for 2026, the attainment year. If such emission reductions can be demonstrated, the combined RACM must be implemented.

The projected NOx, and ROG emissions are 27.4 and 30.1 tons per day, respectively, in the attainment year 2026. The projected 2025 NOx and ROG emissions are 27.6 and 30.3 tons per day respectively. Therefore, in order to be considered RACM, the combined control measures must reduce NOx emissions by 0.2 tons per day.

Since the ROG inventory relatively remains stable for the several years prior to the District's modeled attainment, it is unclear how much ROG emissions reductions would be required to advance the attainment date. However, District staff believes reducing ROG emissions less than 2% of the county's anthropogenic emissions inventory is insufficient to advance the attainment date.

3.5.1. Stationary Source RACM

District stationary source ROG and/or NOx prohibitory rules that were not fully addressed in the District's 2020 RACT SIP were evaluated for potential RACM emission reductions for the 2022 AQMP. Staff compared District rules to rules adopted by other air districts with higher or "worse" nonattainment classifications, namely the SCAQMD and the San Joaquin Valley Air Pollution Control District (SJVAPCD). Staff also reviewed rules from other air districts such as the Bay Area Air Quality Management District (BAAQMD).

District staff also identified a few rules from other air districts that apply to unregulated source categories in Ventura County. District staff conducted preliminary evaluations of the potential emission reductions, including the cost effectiveness and timing of the potential reductions.

A very conservative estimate of the total emission reductions achievable through potential RACM new and amended rules are as follows:

NOx: 0.013 tons per day
ROG: 0.436 tons per day

As noted above, in order to advance attainment by one year, emission reductions of at least 0.2 tons of NOx per day must be achieved. The potential RACM identified by the District are a tiny fraction of the required NOx reductions.

Appendix D, *Stationary Source Reasonably Available Control Measure Assessment*, provides the details of the stationary source RACM evaluations.

3.5.2. Transportation Control Measure RACM

The Clean Air Act requires a review of RACM for TCMs during AQMP development. Review of RACM provides an analysis of all potential TCMs that can be included as part of the control strategy in the AQMP. TCMs must be both technologically and economically feasible and must advance the projected attainment date of the air quality standard by at least one year to be considered RACM.

Appendix E, *Ventura County Transportation Control Measure Reasonably Available Control Measure Assessment*, lists the TCM RACM assessments conducted for the 2022 AQMP.

3.5.3. State Source RACM

Appendix F, *Ozone Reasonable Available Control Measures Assessment – State Sources*, presents California's emission standards, fuel specifications, and incentive programs for heavy-duty vehicles that are technologically and economically feasible in California, including Ventura County. It also includes the RACM evolutions for non-mobile sources regulated primarily at the state level, including consumer products, and pesticides.

3.5.4. Ocean Going Vessel Speed Reduction

A vessel speed reduction (VSR) regulation requiring all ocean-going vessels (OGV) to travel at less than 10 knots in California-regulated waters or federally-regulated waters off California would provide NOx emission in Ventura County. However, the District does not have authority to implement such regulations because OGV are primarily regulated at state and federal levels. The District has implemented and encouraged participation in a voluntary VSR incentive program, but not all shipping companies participate in the program, and the companies that do participate in the program do not have complete compliance. CARB is scheduled to pursue evaluating future regulatory measures for OGVs, including VSR, as stated in the 2022 State Strategy for the State Implementation Plan. The District urges CARB take this action sooner than scheduled to evaluate a potential VSR regulation. None of the potential additional local control measures are reasonably available, and therefore, none are required for adoption for the 2022 AQMP.

3.5.5. RACM Conclusion

The combination of feasible state and local RACM measures (stationary source, mobile source, transportation control measures, consumer products, and pesticides) not already implemented in Ventura County would provide only about one tenth of the 0.2 tons NOx per day reductions needed to advance the county's attainment date by at least one year.

3.6. Incentive Programs

The District participates in several clean air incentive programs to help Ventura County meet state and federal clean air standards: the Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program), the Lower Emissions School Bus Program, Clean Air Fund, the Voluntary NOx Remediation Measure (VNRM), the Funding Agricultural Replacement Measures for Emissions Reductions (FARMER) Program, the Community Air Protection (CAP) Incentive Program, and the Protecting Blue Whales and Blue Skies vessel speed reduction incentive program (VSR Program). Below are summaries of these programs. Further information regarding the District's clean air incentive programs is available on the District's Grants/Incentive Programs website.

3.6.1. Carl Moyer Memorial Air Quality Standards Attainment Program

The California State Legislature created the Carl Moyer Program in 1998, named after the late Dr. Carl Moyer to recognize his work in the air quality field and his efforts to develop this important program. The Carl Moyer Program provides grants to owners of heavy-duty diesel vehicles, vessels, locomotives, and/or stationary agricultural pumps to replace, repower, or retrofit heavy-duty diesel engines to reduce NOx, ROG, and PM. The Carl Moyer Program complements California's regulatory clean air program by obtaining extra emission reductions to help meet state and federal clean air standards. Carl Moyer Program grants are available to both private companies and public agencies.

The Carl Moyer Program is a cooperative effort of CARB and local air pollution agencies. Each year, CARB awards grants to local air agencies that apply for funds for local Carl Moyer Programs. In turn, air districts, following guidelines adopted by CARB, provide grants to public and private entities for cleaner-than-required engines and equipment. CARB's Carl Moyer Program requires, in part, that funded projects in Ventura County operate for at least three years and 75 percent of their use be within the county. In addition, to qualify for funding, projects must meet cost-effectiveness requirements.

The District has operated its Carl Moyer Program since 1999. To date, over $52 million in Carl Moyer Program funding has been awarded to help replace 1,285 high-polluting diesel engines with new, much cleaner engines in Ventura County. The District's Carl Moyer Program has funded new, cleaner mobile agricultural equipment, marine vessel engines, construction equipment engines, alternative fuel heavy-duty trucks, agricultural irrigation pump engines, and publicly-accessible electric vehicle charging stations. The total emission reductions from those engine replacements were 113.8 tons per year of ROG, 886.3 tons per year of NOx, and 51.4 tons per year of PM.

3.6.2. Lower-Emission School Bus Program

The CARB adopted the Lower-Emission School Bus Program in December 2000. This program provides grants to school districts for new, lower emission school buses to reduce schoolchildren's exposure to both toxic particulate emissions and smog-forming NOx emissions. The program has two components: the Lower-Emission School Bus Replacement Program, and the School Bus Retrofit Program.

The Lower-Emission School Bus Replacement Program originally replaced older, in-use, high-polluting diesel school buses with new lower-emission buses. The School Bus Retrofit Program reduced diesel particulate matter emissions from diesel school buses by retrofitting the bus engines with particulate filters. The District participated in both programs. These programs offered the District a unique opportunity to work with the school districts in the county to reduce children's exposure to diesel exhaust, which is a toxic air contaminant and a human carcinogen.

The Lower-Emission School Bus Replacement Program enabled local school districts to replace pre-1987 model year school buses with either new cleaner compressed natural gas (CNG) buses or new lower-emission diesel buses. Eligible school districts contributed $25,000 (reduced to $10,000 in 2008) to replace in-use, 1977 through 1986 model year school buses. The program paid the remainder. Co-funding was not required of school districts for pre-1977 school bus replacements, school bus retrofits, or alternative-fueled school buses meeting 2010 emission standards. Moreover, school districts that purchased CNG buses could obtain an additional 10 percent of their grant for CNG refueling facilities. Replaced buses were destroyed so that they could no longer operate in the county or elsewhere.

Recent amendments to the state guidelines now allow air districts to fund the replacement of 1987 or newer model year school buses having two-stroke diesel engines. Funding for these replacements may be available from AB 923 $2 DMV fees. Besides CNG and clean diesel-powered buses, propane-powered school buses and electric school buses are both potential replacements for existing eligible school buses. AB 923 funds may also be used to replace CNG fuel tanks on existing eligible CNG-powered school buses. To date, 20 CNG school buses and nine lower-emission diesel school buses have replaced 29 pre-1987 school buses in Ventura County.

3.6.3. Clean Air Fund

The Clean Air Fund provides grants for air quality improvement projects in Ventura County. The 3M Company created the Clean Air Fund in 1991 with a $1.5 million donation. Three hundred thousand dollars of that amount was set aside as a permanent endowment, which is now more than $689,768 (as of December 15, 2021). The nonprofit Ventura County Community Foundation holds the funds in a trust. The Ventura County Air Pollution Control Board oversees the Clean Air Fund and authorizes project funding. The Clean Air Fund Advisory Committee (Committee) reviews all grant proposals and makes recommendations for funding to the Air Pollution Control Board. The Committee is comprised of representatives from transportation, environmental, business, and citizen interest groups.

Since its inception, the Clean Air Fund has allocated over $2 million for 60 clean air projects of various types. Examples of funded projects include clean air educational programs, solar pool heaters for local schools, cleaner boat engines, a lawn mower exchange program, electric bikes for law enforcement, a gasoline-powered leaf blower exchange program, a pesticide emissions reduction research program, publicly accessible level 2 and DCFC electric vehicle charging stations, electrification of a multiple agencies landscaping equipment, fuel-efficient tire voucher program, plug-in electric vehicle voucher program, and compressed natural gas transit buses and trash trucks.

3.6.4. VNRM Program

In 2007, CARB approved the Low Carbon Fuel Standard (LCFS) as a Discrete Early Action Measure to reduce greenhouse gas emissions from transportation fuels in California. The Fresno County Superior Court issued a modified writ of mandate in *POET, LLC* v. *California Air Resources Board* on October 18, 2017 related to CARB's CEQA analysis for the LCFS. In response to this modified writ of mandate, CARB is taking specified actions relating to the issue of potential NOx emissions from biodiesel.

On March 6, 2018 CARB publicly released a Draft Supplemental Disclosure Discussion of Oxides of Nitrogen Potentially Caused by the Low Carbon Fuel Standard Regulation (Draft Disclosure Discussion) identifying potential NOx emissions that may have been caused in the past and could be caused in the future by the LCFS regulation. The Draft Disclosure Discussion outlined a CARB commitment, "consistent with CARB's mission to promote and protect public health and welfare through the effective and efficient reduction of air pollutants," to remediate potential historical

LCFS NOx emissions by seeking additional reductions of NOx emissions. CARB adopted Resolution 18-22 *Voluntary NOx Remediation Measure (VNRM) Funding* on April 27, 2018 to fulfill this commitment.

The VNRM program is implemented through a partnership between CARB and local air districts. CARB distributes funds and develops and revises the Guidelines for District Grants to Remediate Potential Historic Biodiesel NOx Emissions Conservatively Attributable to the LCFS (Guidelines for Remediation). Local air districts conduct outreach, solicit, evaluate, select, fund, and monitor specific remediation projects in their jurisdictions. To facilitate the most timely and efficient achievement of the targeted remedial NOx emissions reductions, the funding grants issued to the districts pursuant to this plan were administered and tracked analogously to incentive funds distributed through the Carl Moyer Program, pursuant to the 2017 CMP Guidelines.

CARB awarded the District with a single grant through the VNRM. The District awarded two grants to replace agricultural tractors with total grant funding of $158,529. The total emission reductions from the equipment replacements funded by the VNRM were 0.3 tons per year of ROG, 2.1 tons per year of NOx, and 0.2 tons per year of PM.

3.6.5. FARMER Program

Initiated in 2018, the Funding Agricultural Replacement Measures for Emission Reductions (FARMER) Program is a grant program developed by CARB to implement legislative direction to reduce criteria, toxic, and GHG emissions from the agricultural sector. The Legislature directed CARB to "reduce agricultural sector emissions by providing grants, rebates, and other financial incentives for agricultural harvesting equipment, heavy-duty trucks, agricultural pump engines, tractors, and other equipment used in agricultural operations." In addition, the FARMER Program targets funding for priority populations by including minimum percentages of funding for projects benefiting disadvantaged and low-income communities.

The FARMER Program is implemented through a partnership between CARB and local air districts. CARB manages program funds and develops and revises the FARMER Program Guidelines, protocols, and criteria for covered vehicle and equipment projects and determines the methodologies used for evaluating project cost-effectiveness. Local air districts conduct outreach, solicit, evaluate, select, fund, and monitor specific FARMER Program projects in their jurisdictions.

The FARMER Program is similar to the Carl Moyer Program and although it is limited to agricultural equipment, the guidelines allow for funding additional types of equipment not eligible for funding from the Carl Moyer Program. To date, over $4.6 million in FARMER Program funding has been awarded to help replace 93 high-polluting diesel engines with new, much cleaner engines in Ventura County. The total emission reductions from those engine replacements were 54.9 tons per year of ozone precursors, and 3.7 tons per year of PM.

3.6.6. CAP Program

Initiated in 2018, the Community Air Protection (CAP) Program is a grant program developed by CARB to implement legislative direction to reduce criteria, toxic, and GHG emissions from the agricultural sector. The Legislature directed CARB to reduce pollution exposure in communities most impacted by air pollution. To achieve that goal, the CAP Program targets funding for priority populations by including minimum percentages of funding for projects benefiting disadvantaged and low-income communities.

The CAP Program is implemented through a partnership between CARB and local air districts. CARB manages program funds and develops and revises the CAP Program Guidelines, protocols, and criteria for projects and determines the methodologies used for evaluating project cost-effectiveness. Local air districts conduct outreach, solicit, evaluate, select, fund, and monitor specific CAP Program projects in their jurisdictions.

The CAP Program is very similar to the Carl Moyer Program but the guidelines allow for funding additional types of equipment not eligible for funding from the Carl Moyer Program. In addition, maximum funding percentages are increased for some projects benefiting priority populations. To date, over $4.0 million in CAP Program funding has been awarded to help replace 37 high-polluting diesel engines with new, much cleaner engines and install electric school bus chargers in Ventura County. The total emission reductions from those engine replacements were 15.25 tons per year of ozone precursors, and 1.01 tons per year of PM.

3.6.7. VSR Program

The District is a founding partner in the Protecting Blue Whales and Blue Skies Program, a voluntary Vessel Speed Reduction (VSR) Program along the coast of California. The VSR Program has become a highly successful program both in the Santa Barbara Channel region and the San Francisco Bay Area since its launch in 2014. The VSR Program incentivizes large marine cargo ships to reduce their speeds, typically ranging between 12 and 18 knots, to less than 10 knots in order to reduce the risk of lethal whale strikes, reduce ocean noise pollution, and reduce air pollution from these vessels. These ships are a significant source of air pollution. Air emissions from ocean-going vessels traversing the Channel Islands region constitute approximately 40 percent of the NOx emissions in Ventura County's jurisdiction. In addition to NOx emissions, ships are a significant source of other air pollutants such as sulfur dioxide, GHG, and diesel particulate matter.

The VSR Program has evolved since its launch in 2014 as a pilot program targeting individual ships. It now provides incentives based on the percentage of fleet miles transiting VSR zones at 10 knots or less, with some companies achieving over 90% cooperation rate. In 2020, the VSR Program achieved 748 tons of NOx reductions during the period from May 15, 2020 through November 15, 2020. Since 2014 the VSR program has reduced NOx emissions from ocean-going vessels by over 1,600 tons. However, these reductions are not permanent since this is a program based on behavioral changes, not replacing high-emissions equipment with cleaner equipment.

The Protecting Blue Whales and Blue Skies partners have secured funding to manage the program through the 2022 ozone season. The partners are seeking additional funds to sustain the program for future years.

3.7. Ventura County Smart Growth Policies and Programs

Ventura County has been a leader in controlling urban growth and sprawl for decades. As a result, Ventura County cities are geographically distinct from each other, with greenbelt buffers and agricultural land separating the urbanized areas of the county. Moreover, nearly 90 percent of the county's population live within the county's ten cities. Ventura County has successfully accommodated growth while remaining a leading agricultural area in California. Some of the notable urban growth guidelines, policies, and programs in Ventura County are summarized below for informational purposes.

3.7.1. Guidelines for Orderly Development

Adopted by the County Board of Supervisors, all City Councils, and the Local Agency Formation Commission (LAFCo), the *Guidelines for Orderly Development* help facilitate orderly development in Ventura County by directing urban development to the cities rather than to the county's unincorporated areas. The *Guidelines for Orderly Development's* primary policy states: "Urban development should occur, whenever and wherever practical, within incorporated cities which exist to provide a full range of municipal services and are responsible for urban land use planning." The LAFCo administers the *Guidelines for Orderly Development*. LAFCo is a regulatory commission that coordinates changes in the county's city boundaries; conduct special studies which review ways to streamline government structure; and prepare Spheres of Influence for each city and special district.

The County of Ventura, all ten cities in the county, and the LAFCo have adopted the Guidelines for Orderly Development as policy. The *Guidelines for Orderly Development* were first adopted in 1969 and later amended in 1996. The *Guidelines for Orderly Development*:

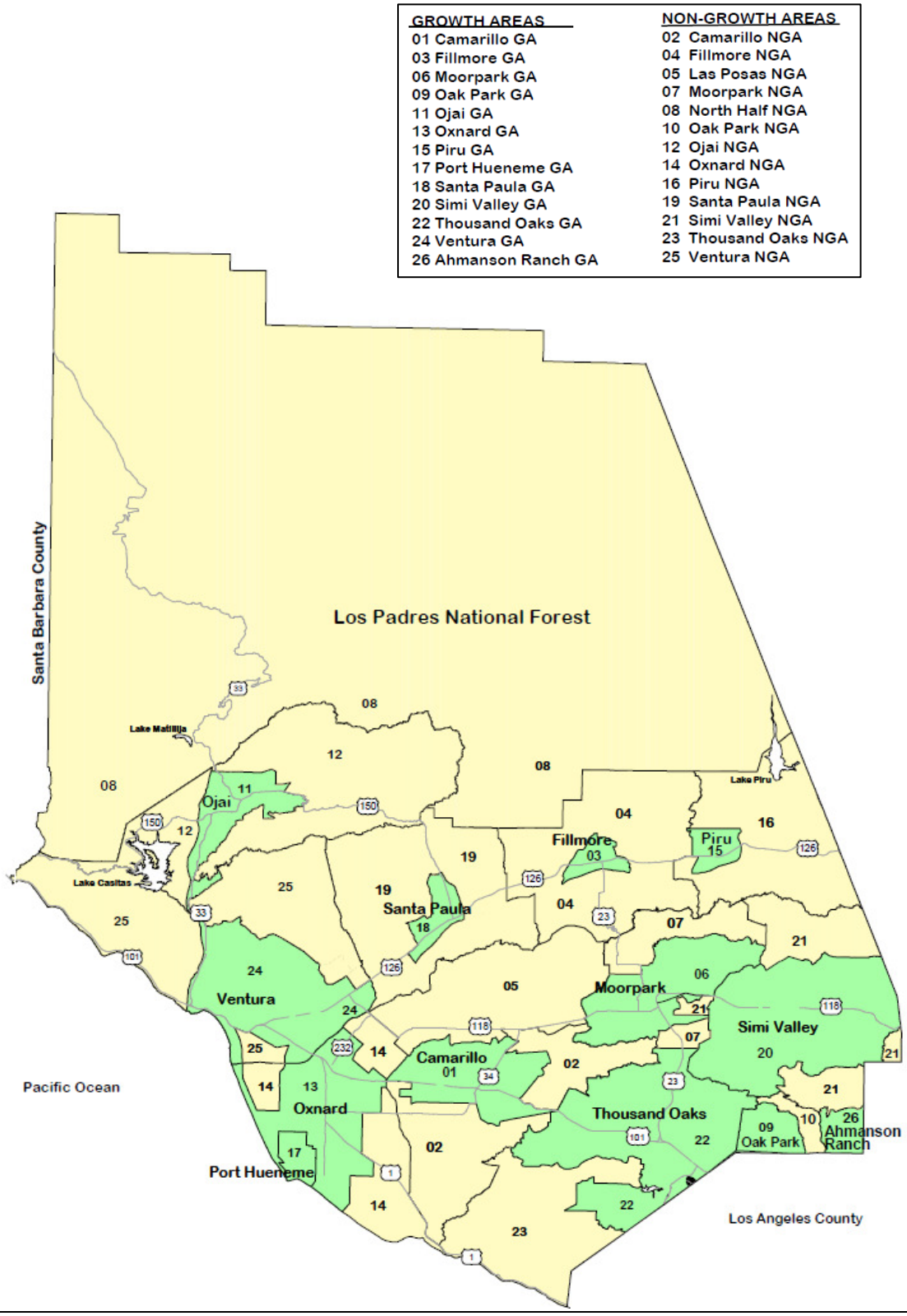
- Provide a framework for cooperative intergovernmental relations.
- Allow for urbanization in a manner that will accommodate the development goals of the individual communities while conserving the resources of the County.
- Promote efficient and effective delivery of community services for existing and future residents.
- Identify in a manner understandable to the public the planning and service responsibilities of local governments providing urban services.

3.7.2. Growth and Non-Growth Areas

Growth and Non-Growth Areas, otherwise known as GAs and NGAs, are based on a network of analysis zones created by the State Department of Transportation and the Ventura County Public Works Agency. The Growth and Non-Growth Areas are comprised of aggregated analysis zones.

Figure 3-1 shows the growth and non-growth areas in the county. The entire present and projected boundary area of each of the ten cities in the county is within a respective growth area. In addition to the ten growth areas, there are three unincorporated growth areas. The unincorporated growth areas include urbanized development that has already occurred or is expected to occur under the Ventura County General Plan. An example is the Piru Growth Area. These areas are not expected to receive significant urban development. All of the GA and NGAs are used in the environmental review process for assessing a project's consistency with the AQMP using SCAG's RTP population forecasts for that respective geographical subarea.

Figure 3-1
Growth and Non-Growth Areas in Ventura County



3.7.3. Greenbelt Agreements

Greenbelt Agreements (Agreements) are voluntary policy statements adopted by resolution or ordinance between the County of Ventura and one or more of the county's ten cities. Greenbelts in Ventura County are areas where cities have agreed not to annex areas and the County of Ventura has pledged to permit only open space or agricultural uses. The Agreements protect property owners, open space, and agricultural lands from urbanization by preventing premature conversion to agriculturally incompatible uses. The Agreements also help ensure that the cities do not sprawl into each other. However, greenbelt boundaries may be amended, and proposals may be brought forth by the cities or county which must undergo a review process prior to being considered by the city or county decision-making bodies.

Although not a party to the Agreements, the Ventura County LAFCo will not approve a development that conflicts with any greenbelt agreement unless exceptional circumstances exist. City and County elected officials in Ventura County were pioneers in designing and adopting greenbelts.

There are seven greenbelt agreements in Ventura County:

- Ventura-Santa Paula Greenbelt
- Santa Paula-Fillmore Greenbelt
- Camarillo-Oxnard Greenbelt
- Santa Rosa Valley Greenbelt
- Tierra Rejada Greenbelt
- Ventura-Oxnard Greenbelt
- Fillmore-Piru Greenbelt

3.7.4. SOAR and CURB

The Save Open Space and Agricultural Resources (SOAR) and City Urban Restriction Boundary (CURB) resulted from voter-approved ballot initiatives in the unincorporated areas of Ventura County and eight of the county's ten cities. The SOAR initiatives require voter approval in the affected jurisdictions before specified General Plan land use designations, such as agriculture and open space, can be rezoned for development. The CURB initiatives define a boundary around the affected jurisdictions and require voter approval before urban development can occur outside the CURB lines.

The SOAR and CURB measures work together to direct urban growth to within existing city boundaries, thereby restricting urban sprawl, encouraging infill and higher density development, and protecting agricultural, open space, and natural lands in Ventura County. The city SOARs established CURBs around each city. With limited exceptions, development beyond a city's CURB cannot occur unless the city voters approve an extension of the CURB. The city CURBs complement the County SOAR by preventing annexations of adjacent unincorporated areas into the cities for development unless the voters approve such annexations. The following are the Ventura County jurisdictions covered by SOAR initiatives:

- County of Ventura
- City of Ventura
- City of Camarillo
- City of Thousand Oaks
- City of Simi Valley
- City of Oxnard
- City of Moorpark
- City of Santa Paula
- City of Fillmore

A map of the SOAR and CURB boundaries is available on the County of Ventura's Resource Management Agency's website at: https://venturacountydatadownloads-vcitsgis.hub.arcgis.com/ . The SOAR initiative was extended by voter approval in November 2016 with a sunset date of December 31, 2050.

3.7.5. Ventura County Air Quality Assessment Guidelines

The Ventura County Air Quality Assessment Guidelines (AQAG) is a District document that provides District staff, lead agencies, consultants, and project applicants with uniform procedures for preparing the air quality sections of environmental documents pursuant to the California Environmental Quality Act (CEQA). CEQA applies to all discretionary development projects, unless an exemption applies, and requires that any significant environmental effects of such projects be mitigated to the extent feasible. CEQA thereby provides a mechanism to help minimize air emissions associated with urban growth.

The AQAG recommend specific criteria and threshold levels for determining whether a proposed project may have a significant adverse impact on air quality. The criteria follow the State CEQA Guidelines criteria for evaluating air quality impacts, such as whether a project will interfere with the applicable air quality plan, expose sensitive receptors to toxic or substantial air pollutants, contribute an odor impact, and result in a cumulatively considerable net increase of a criteria pollutant that is in nonattainment by comparing a project's emissions to adopted numerical thresholds. The AQAG also provides for mitigation measures to lessen or eliminate air quality impacts of development projects found to be significant and includes methodologies for each air quality criteria to be evaluated.

The District does not require that lead agencies use the AQAG; however, most lead agencies in the county, including the ten cities and the County of Ventura, do so and have adopted the AQAG as part of their environmental review process for air quality. Additionally, District staff routinely review and comment on the air quality sections of environmental documents prepared by local, state, and federal lead agencies for projects occurring in Ventura County.

SECTION 4. EMISSIONS INVENTORY FORECASTS

This section summarizes the ROG and NOx planning emissions inventory for future years. Although the forecast contains other air pollutants, only ROG and NOx are pertinent to ozone formation and emission forecast reporting requirements. Appendix A, *Ventura County Emissions Inventory Documentation*, provides further information and documentation of the emissions forecasts for the 2022 AQMP.

The 2022 AQMP incorporates all anthropogenic emission categories using the latest emissions estimates and control implementation schedule. Emissions forecasts are calculated using the actual 2018 base year emissions inventory presented in Section 2, *2018 Baseline Emissions Inventory*, and control measure data in Section 3, *Control Strategy*.

4.1. Forecast Methodology

The 8-hour Ozone SIP base year emissions inventory and future year emissions forecast are a joint effort by the District and the CARB. The CARB's California Emission Projection Analysis Model (CEPAM) is a computer model that uses pollutant-specific algorithms to calculate future year emissions for all areas throughout the state. The District relies on this model to produce future-year and historical-year emissions in accordance with EPA's 8-hour Ozone SIP and the CCAA of 1988 emissions inventory reporting requirements.

Forecasted emissions are a product of two principal components: growth factors and control factors. The forecast methodology involves applying growth and control factors to 2018 base year emissions by pollutant-emitting process category. Growth and control factors are calculated by analyzing the 2018 actual emissions, future socioeconomic assumptions, and the future impact of district, state, and federal control strategies.

The CEPAM forecast model generated the summer planning day ROG and NOx emissions specific to Ventura County for 2018, 2024, 2026, 2030, 2035, and 2040 (CEPAM emission projection v1.01, March 2022). 2018 is the baseline emission year, 2024 is a Rate-of-Progress milestone year and 2026 is Ventura County's 8-hour ozone standard attainment year.

Forecasted emissions after the 2026 attainment year are included out to 2040 for emission trend analysis and are not intended for the regulatory purposes of the 8-hour Ozone SIP and should be considered for informational purposes only.

The algorithm used in CARB's CEPAM emission forecasting model is:

$$FY_t = BY * GF_t * CF_t$$

Where:

FY_t = controlled planning day emissions for the forecast year (t)

BY = base year (2018) planning day emissions per process

GF_t = growth factor for forecast year (t)

CF_t = control factor for forecast year (t).

Growth factors (GF) account for changes in future year socioeconomic conditions relative to the 2018 base year using a variety of activity indicators. Activity indicators are collected from a number of sources to track the economic status or social trends of the surrounding area. Examples include economic output and employment by industry, population, housing, natural gas usage, agricultural-related activity, military aircraft and vessel activity, and activity for specialized types of facilities such as landfills and civilian airports.

District and CARB staff assign activity indicators to emissions categories that best characterize the source activity. The District updates the socioeconomic data used in the CEPAM model for every SIP planning cycle and as an ongoing process for rule development analyses. CARB's CEPAM calculates the growth factors, which reflect the change in future year ROG and NOx emissions relative to the base year before controls from rules and regulations are applied. The forecast activity indicators, growth factors and data sources used in the CEPAM2022 v1.01 emissions projections are presented in Table 4-1.

Control factors (CF) represent the overall expected effectiveness of each control measure or rule to reduce emissions in a given future year. All emission categories in a base year are reviewed for potential assignment to control measures, and control factors are updated for every planning cycle. District staff calculates control measure effectiveness estimates based on the best data available, knowledge of local sources already under control, and future control technologies. Control factors may change in the future as better information becomes available during the rule development process.

A control factor is a composite of the following four multipliers:

1) technological control efficiency (CE) of the control technology, equipment or strategy requirements of the control measure;
2) compliance efficiency, or rule effectiveness (RE) of the control measure, reflecting the actual "real world" ability of a control measure to achieve expected emission reductions;
3) rule penetration (RP), or impact factor, representing the relative amount of emissions in a source category subject to a control measure, accounting for exemptions and other control measures; and,
4) implementation factor (IP), or relative amount of total control occurring in a given year, for control measures having phased implementation or control requirements occurring in tiers (i.e. increasing levels of control stringency over a period of years).

Control factors are applied to future year emissions projected from base year emissions using growth factors, resulting in the emissions remaining in a source category after control is applied, represented by the following equation: CF = 1-(CE*RE*RP*IP).

Table 4-1
Future Year Growth Factor Summary

Ventura County 2018 Base Year Forecast Activity Indicator	2024 GF	2026 GF	2030 GF	2035 GF	2040 GF	Data Source
Accommodation and Food Services	1.090	1.120	1.170	1.210	1.250	SCAG
Administrative & Building Services, Waste Mgmt. Employment	1.040	1.050	1.070	1.090	1.110	SCAG
Agricultural Aircraft	0.820	0.760	0.660	0.660	0.660	CARB/EI SUB
Agricultural Harvest Acres	0.990	0.990	0.980	0.970	0.970	FMMP
Agriculture, Forestry, Fishing & Hunting Economic Output	1.120	1.160	1.210	1.240	1.270	SCAG
Arts, Entertainment & Recreation Economic Output	1.140	1.190	1.260	1.320	1.380	SCAG
Beverage & Tobacco Products Economic Output	0.960	0.947	0.938	0.912	0.829	SCAG
Beverage Manufacturing	1.030	1.070	1.140	1.260	1.400	REMI
Chemical Manufacturing Economic Output	1.090	1.130	1.150	1.150	1.150	SCAG
Civilian Airport Operations	1.020	1.030	1.050	1.070	1.100	FAA-TAF
Computer & Electronic Products Economic Output	1.170	1.230	1.310	1.340	1.370	SCAG
Construction Employment	1.050	1.070	1.090	1.120	1.150	SCAG
Consumer Product Use - Aerosol Coatings	1.000	1.000	1.000	1.000	1.000	DOF
Disposable Personal Income	1.090	1.120	1.210	1.340	1.470	REMI
Drycleaning PERC Use	0	0	0	0	0	District
Dwelling Units	1.030	1.040	1.060	1.080	1.100	SCAG
Electric Generating Unit (Power Plant) Natural Gas Usage	2.620	2.900	2.240	2.070	1.910	CEC
Electrical Equipment & Components Economic Output	1.100	1.130	1.160	1.160	1.160	SCAG
Fabricated Metal Products Economic Output	1.080	1.100	1.120	1.110	1.100	SCAG
Federal Military Employment	1.100	1.090	1.080	1.070	1.060	REMI
Food & Agriculture	0.990	1.040	1.110	1.220	1.350	REMI
Food Manufacturing Economic Output	1.080	1.110	1.130	1.130	1.130	SCAG
Furniture & Related Products Economic Output	1.130	1.180	1.230	1.250	1.260	SCAG
Information Industries Economic Output	1.200	1.270	1.370	1.470	1.570	SCAG
Landfill Gas Emission	1.110	1.140	1.210	1.300	1.110	LandGEM
Laundering and Drycleaning (non-PERC)	1.040	1.050	1.070	1.090	1.110	SCAG
Machinery Manufacturing Economic Output	1.100	1.140	1.170	1.170	1.170	SCAG
Manufacturing and Industrial Residual Oil Use	1.050	1.060	1.070	1.060	1.050	SCAG
Merchant Wholesalers, Durable Goods Employment	1.030	1.030	1.040	1.060	1.070	SCAG
Military Coastal OGV	1.220	1.320	1.530	1.860	2.250	NBVC
Military Jets in OC1	1.265	1.368	1.600	1.947	2.368	NBVC

Ventura County 2018 Base Year Forecast Activity Indicator	2024 GF	2026 GF	2030 GF	2035 GF	2040 GF	Data Source
Military Jets in OC2	1.270	1.370	1.607	1.953	2.374	NBVC
Military Jets in SCC	1.342	1.496	1.759	2.059	2.572	NBVC
Military Piston Aircraft in SCC	1.270	1.372	1.608	1.953	2.378	NBVC
Military Vessels - Outer Continental Shelf 24-100 miles	1.230	1.330	1.550	1.890	2.300	NBVC
Military Vessels - Outer Continental Shelf 3-24 miles	1.270	1.370	1.600	1.950	2.370	NBVC
Military Vessels - Outer Continental Shelf 3-24 miles	1.270	1.370	1.600	1.950	2.370	NBVC
Miscellaneous Manufacturing Economic Output	1.120	1.170	1.210	1.220	1.220	SCAG
Motor Vehicle Gasoline Consumption	0.850	0.800	0.740	0.690	0.680	EMFAC2017
Natural Gas Combustion Commercial Space Heating	0.970	0.930	0.870	0.820	0.760	SocalGas
Natural Gas Combustion Commercial Unspecified	0.950	0.900	0.830	0.770	0.700	SocalGas
Natural Gas Combustion Commercial Water Heating	0.950	0.910	0.850	0.790	0.720	SocalGas
Natural Gas Combustion Industrial	0.910	0.900	0.880	0.850	0.830	SocalGas
Natural Gas Combustion Residential Space Heating	1.070	1.040	0.970	0.970	0.950	SocalGas
Natural Gas Combustion Residential Unspecified	1.090	1.070	1.030	1.040	1.050	SocalGas
Natural Gas Combustion Residential Water Heating	1.060	1.030	0.970	0.960	0.940	SocalGas
No Growth (Unity)	1.000	1.000	1.000	1.000	1.000	District
Nonmetallic Mineral Mining & Quarrying Economic Output	1.030	1.040	1.050	1.040	1.030	SCAG
Nonmetallic Mineral Products Economic Output	1.070	1.090	1.110	1.100	1.090	SCAG
Oil & Gas Extraction Economic Output	1.370	1.520	1.770	2.020	2.290	SCAG
Oil & Gas Extraction Economic Output - OCS	1.370	1.520	1.770	2.020	2.290	SCAG
Other Services, Except Public Administration Employment	1.030	1.040	1.050	1.070	1.090	SCAG
Paper Manufacturing Economic Output	1.080	1.100	1.130	1.120	1.120	SCAG
Petroleum & Coal Products Manufacturing Economic Output	1.150	1.210	1.270	1.290	1.310	SCAG
Pipeline Transportation Economic Output	1.160	1.210	1.300	1.360	1.430	SCAG
Plastics & Rubber Products Manufacturing Economic Output	1.040	1.050	1.050	1.040	1.020	SCAG
Population	1.030	1.040	1.050	1.070	1.090	SCAG
Population 0-4, 65-up (Hospitals)	1.160	1.200	1.270	1.330	1.390	SCAG
Primary Metal Manufacturing Economic Output	1.160	1.220	1.280	1.300	1.320	SCAG
Printing & Related Support Activities Economic Output	1.170	1.230	1.300	1.320	1.350	SCAG
Professional, Scientific & Technical Services Employment	1.040	1.050	1.070	1.090	1.110	SCAG
Public Administration Employment	1.030	1.040	1.050	1.060	1.080	SCAG
Service and Commercial LPG Use	1.090	1.120	1.170	1.210	1.250	SCAG

Ventura County 2018 Base Year Forecast Activity Indicator	2024 GF	2026 GF	2030 GF	2035 GF	2040 GF	Data Source
Total Employment	1.040	1.050	1.070	1.090	1.110	SCAG
Transit & Ground Passenger Transportation Economic Output	1.170	1.230	1.330	1.420	1.520	SCAG
Transportation Equipment Economic Output	1.100	1.140	1.170	1.180	1.190	SCAG
Water Transportation Economic Output	1.270	1.360	1.520	1.640	1.770	SCAG
Wholesale Warehousing Employment	1.020	1.000	0.970	0.960	0.980	REMI
Primary Metal Manufacturing Economic Output	1.160	1.220	1.280	1.300	1.320	SCAG

FMMP = Farmland Mapping and Monitoring Program
REMI = Regional Economic Models, Inc.
FAA-TAF – Federal Aviation Administration Terminal Area Forecast
DOF = Department of Finance
CEC = California Energy Commission
LandGEM = Landfill Generation Emission model

Each customized control factor is specific to an emission source category and reflects a future year's anticipated emission control relative to the level of control in the 2018 base year for adopted rules and regulations. Table 3-2 in Section 3 includes a summary table showing potential district control measures. Section 3.1 describes potential control measures and expected future year emissions reductions.

Table 4-1 shows the assignment of growth factors and sources of those factors for emission source categories. Table A-1 and lists adopted district rules reflected in the base year and forecast emissions in this AQMP.

The CARB Air Quality Planning and Science Division has the primary responsibility for developing on-road and off-road mobile source emission forecasts in California. CEPAM integrates the emissions estimates from the EMFAC on-road motor vehicles model and the OFFROAD and other models for off-road other mobile sources into the future year emissions projections.

Growth assumptions for these mobile source categories are a product of collaboration among transportation agencies, local planning agencies, CARB, and SCAG. Appendix A contains a discussion of data and methods used by CARB to forecast future year mobile source emissions. This Plan uses the most current version of those emissions estimates modeled by the SCAG regional transportation model and the CARB EMFAC and other mobile source models.

Table 4-2 shows important motor vehicle growth indicators from the CARB EMFAC2017 v1.0.3 on-road vehicle model and the SCAG 2020 RTP. On-road motor vehicle planning day emissions for the base year and forecast years specific to Ventura County are shown in Table 3-6.

Table 4-2
Motor Vehicle Growth Trends

Ventura County Totals	Indicator	2018	2024	2026	2030	2035	2040
Population	Residents	861,000	889,000	895,000	906,000	920,000	934,000
All vehicle categories	Vehicles	511,800	520,831	525,016	534,741	548,906	568,591
Vehicle miles traveled (x 1000)	VMT/ 1000	19,238	19,418	19,435	19,525	19,647	19,928
All vehicle trips	Trip	2,472,493	2,527,501	2,551,400	2,605,490	2,685,216	2,789,371
Fuel Consumption (1000 gallons)	Gasoline	747	614	571	512	471	456
	Diesel	88.3	95.3	95.9	96.5	98.8	102.9

Notes:
EMFAC2017 v1.0.3.
Population Derived from SCAG Connect SoCal 2020 Report, rounded to the nearest thousand.

4.1.1. External Adjustments to CEPAM2022 v1.01

For the 2022 AQMP, all emission inventory adjustments developed by CARB were made using the CARB CEPAM2022 v1.01 data processing. No external adjustments to the CEPAM2022 v1.01 data were required, so the District has not incorporated data changes to the emissions inventory developed by CARB.

4.1.2. Emission Reduction Credits

District New Source Review permitting Rules 26-26.13 require any facility that has the potential to emit five tons/year or more ROG or NOx from new, replacement, modified or relocated emissions sources to provide emission offsets for the emissions increase. ERCs represent emission reductions that already have occurred and can be used to offset emissions growth from a new or modified permitted facility. EPA policy, the federal CAA sections 172(c)(5) and 173 and the CFR (40 CFR 51.165(a)(3)(ii)(C)(1)) require ERCs from emission reductions occurring before a nonattainment plan base year to be treated as potential growth in forecast years in order for them to be used as offsets.

Unless pre-base year ERCs are included in future year growth factors, future year forecasted inventories must be adjusted to account for pre-base year inventory ERCs. Total available ERC balances as of January 2018 were 1.59 tons/day ROG and 0.87 tons/day NOx.

The projected emission growth for stationary sources from 2018 to 2026 is 1.05 tons/day ROG and 0.96 tons/day NOx. All of the pre-base year banked NOx ERCs, and a majority of the pre-base year banked ROG ERCs, are accounted for in the growth projections in the CEPAM inventory. The projected growth of NOx emissions is greater than the available pre-base year NOx ERC balance; therefore, the growth is sufficient to account for the maximum possible NOx ERC use. However, the pre-base ROG ERCs exceed the projected growth of ROG emissions from stationary sources. To prevent the usage of ROG ERCs to offset new emissions that exceed the projected emission growth from stationary sources, the District will limit the use of pre-base year ROG ERCs to no more than 1.05 tons/day (383.25 tons/year) through its permitting process. New emissions requiring ERCs that would result in the use of more than a cumulative use of 1.05 tons/day of ROG ERCs from the pre-2018 base year will not be permitted by the District. The District intends this commitment to be federally enforceable upon approval by the EPA of the AQMP into the California SIP. The District will track and report usage of pre-base year ERCs to EPA by including a statement about the use of pre-base year ERCs in its annual ERC reports to EPA. The District will revise the AQMP and submit the revision to EPA for inclusion in the California SIP if a situation arises where ROG ERCs are expected to be needed in excess of the projected ROG growth of 1.05 tons/day before attaining the 2015 ozone standard. A list of pre-2018 ERCs is shown in Appendix G.

4.2. Emissions Forecast Summary

ROG and NOx summer planning day emissions in the SCCAB (onshore Ventura County and within three miles of the coastline) for the 2018 base year and forecast years 2024, 2026, 2030, 2035 and 2040 are presented in the figures and tables below. Forecast emissions represent the effects of future socioeconomic changes and implementation of adopted local, state, and federal control measures but do not include emission reductions from proposed local control measures or CARB's 2022 State SIP Strategy.

Figure 4-1 and Figure 4-2 graphically present anticipated ROG and NOx emission trends from the 2018 base year through the interval of forecast years by emission category. Table 4-3 and Table 4-4 numerically summarize those emissions by major emission category for years 2018 through 2040.

Figure 4-1 and Table 4-3 show that summer planning day ROG emissions should decrease by 1.7 tons/day or 5.8% by 2026 and 2.6 tons/day or 8.9% by 2040. Quantities and percentages of the change in ROG emissions reductions are described below.

- Mobile Sources: 3.2 tons/day (27%) decrease by 2026, 6.1 tons/day (52%) decrease by 2040
  - On-Road Vehicles: 1.7 tons/day (40%) decrease by 2026, 2.8 tons/day (66%) decrease by 2040

    On-road vehicles represent the third largest emission category in the base year, responsible for 26% of ROG emissions, this category accounts for 9.2% of the total by 2026 and becomes the fourth largest category. By 2040, on-road mobile sources account for and 5.5% of the total ROG emissions and are the fifth largest source of ROG.
  - Other Mobile Sources: 1.5 tons/day (19%) decrease by 2026, 3.3 tons/day (44%) decrease by 2040

    This category contributed about 26% of ROG in 2018, the second leading emission category in the base year. Other mobile sources will continue to be the second largest source of ROG through 2040.
- Stationary Sources: 1.5 tons/day (8%) increase by 2026, 3.5 tons/day (20%) increase by 2040
  - Solvent Use: 0.7 tons/day (6%) increase by 2026, 1.8 tons/day increase (15%) by 2040

    Solvent use includes evaporative emissions from consumer products, architectural coatings, surface coatings, and cleaning solvent use. Solvent use accounted for 41% of total ROG emissions in 2018 as the largest emission category. Solvent use is responsible for 46% of ROG emissions by 2026 and 52% by 2040, by far the largest ROG emission category.

- Pesticide Application: .1 tons/day (7.5%) increase by 2026, 0.07 tons/day (5.5%) increase by 2040

  Pesticide Application is almost entirely attributable to agricultural pesticides (non-methyl bromide use) and contributed 4.4% of total ROG in 2018. Pesticide Application becomes about 5% of the total ROG emissions in 2026 and 2040.

- Petroleum Industry and Other Sources. 0.7 tons/day increase (16%) by 2026, 1.6 tons/day increase (37%) by 2040

  The petroleum industry includes oil and gas production and related combustion activities, and petroleum product marketing such as gasoline dispensing. Other sources such as stationary and residential fuel combustion, agricultural burning, industrial processes related to manufacturing, and waste disposal are relatively small emission categories individually. Together the petroleum industry and other sources accounted for about 15% of ROG in 2018, 18% in 2026 and 22% in 2040.

Figure 4-1
ROG Major Emission Category Trends

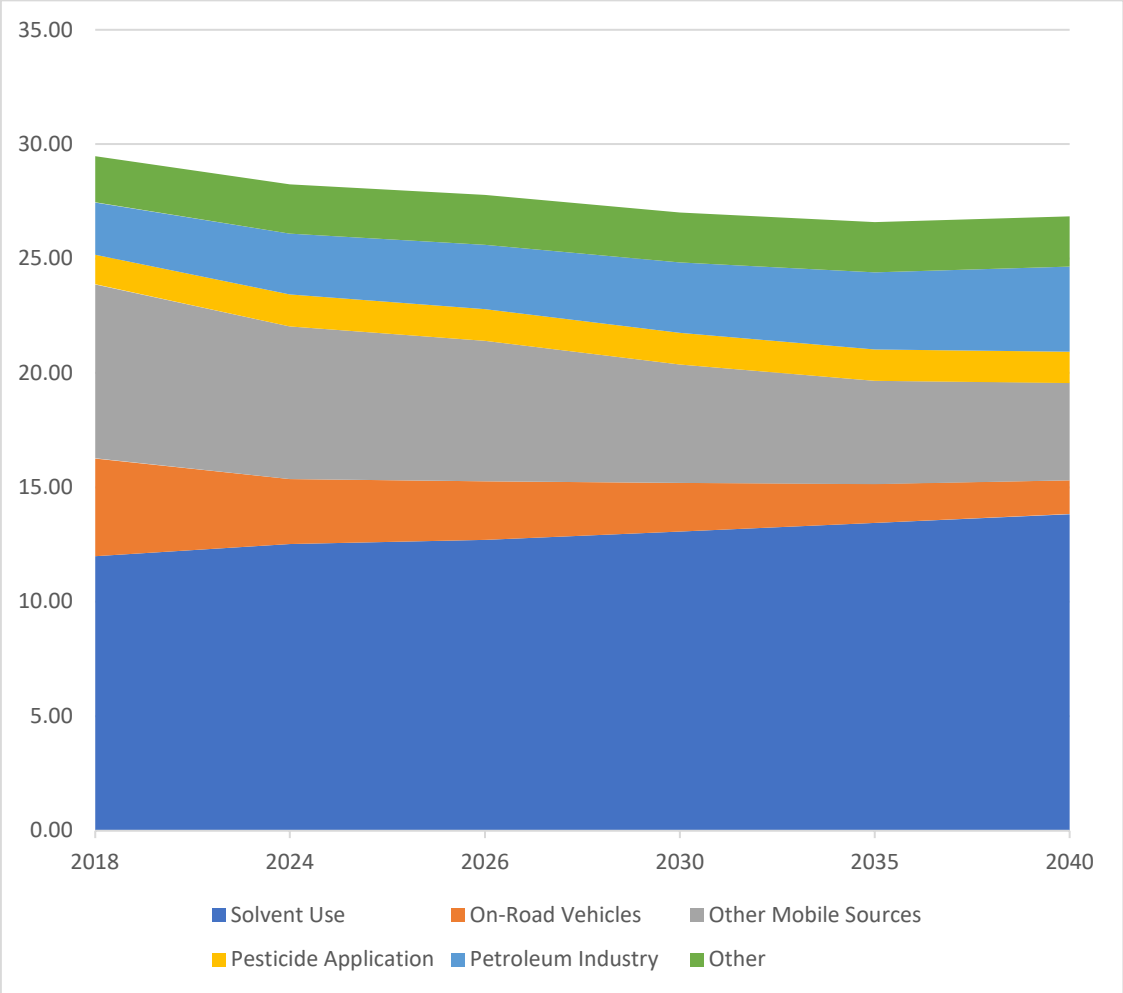


Table 4-3
Summer Planning Day ROG Emissions

Major Emission Category	ROG (tons/summer day)					
	2018	2024	2026	2030	2035	2040
Solvent Use	11.99	12.52	12.71	13.07	13.45	13.83
On-Road Vehicles	4.28	2.83	2.56	2.13	1.70	1.47
Other Mobile Sources	7.60	6.68	6.13	5.17	4.50	4.26
Pesticide Application	1.29	1.39	1.39	1.38	1.37	1.36
Petroleum Industry	2.29	2.66	2.81	3.09	3.38	3.72
Other	2.02	2.15	2.18	2.17	2.18	2.20
ROG Total Emissions	**29.48**	**28.24**	**27.78**	**27.00**	**26.58**	**26.84**

Notes:
Based on CARB CEPAM2022 v1.01 (March 2022).
Data rounding may affect displayed values and totals.
OC1 and OC2 not included

Figure 4-2 and Table 4-4 show that total summer planning day NOx emissions decrease by 5.2 tons/day or 29% by 2026, and by 7.3 tons/day or 40 percent by 2040. The vast majority of emissions reductions are attributable to Mobile Sources. Amounts and percentages of emissions changes are shown below.

- Mobile Sources: 5.8 tons/day (37%) decrease by 2026, 7.7 tons/day (49%) decrease by 2040
  - On-Road Vehicles: 4.2 tons/day (60%) decrease by 2026, 5.6 tons/day (80%) decrease by 2040

    On-Road Vehicles are the largest NOx emission category in 2018, responsible for 39% of NOx emissions. By 2026, on-road vehicles contribute 25% of total NOx and are the second largest emission category behind other mobile sources.
  - Other Mobile Sources: 0.4 tons/day decrease (7%) by 2026, 0.2 tons/day decrease (3.0%) by 2040

    Other Mobile Sources include aircraft, train locomotives, ships and commercial boats, recreational boats, off-road recreational vehicles, and farm equipment. Other Mobile Sources accounted for 32% of NOx in 2018 and are the second largest NOx emission category. Other mobile sources account for 39% of NOx emissions in 2026 and are the largest NOx emission category. By 2040 other mobile sources represent 41% of total NOx emissions, and remain the largest emission category.
  - Mobile Equipment: 1.2 tons/day (40%) decrease by 2026, 1.9 tons/day (65%) decrease by 2040

    Mobile equipment categories include industrial equipment such as forklifts, construction and mining equipment, commercial and residential lawn and garden

equipment, airport ground support equipment and transport refrigeration units. Mobile equipment represented 16% of NOx emissions in 2018, 15% by 2026 and 14% by 2040.

- Stationary Sources: 0.6 tons/day increase (26%) by 2020, 0.4 tons/day increase (18%) by 2040
  - Other Fuel Combustion: 0.12 tons/day (7%) decrease by 2026, 0.14 tons/day (8%) decrease by 2040

    Other Fuel Combustion includes stationary industrial and commercial sources (excluding electric utilities and oil and gas production), agricultural irrigation engines, landfill gas flaring, residential uses, and agricultural burning. Other Fuel Combustion sources contributed approximately 9% of NOx in 2018, 12% in 2026 and 12% by 2040.
  - Electric Utilities and the Petroleum Industry: 0.6 tons/day (142%) increase by 2026, 0.3 tons/day (61%) increase by 2040.

    Emissions from these sources are not expected to change significantly from the base year. They contributed 1% of NOx emissions in 2018, 2% by 2026 and 3% by 2040.

Summaries of forecast ROG and NOx emissions by Major Source Category and air basin follow in Table 4-5 and Table 4-6 for 2018, 2024, 2026, 2030, 2035, and 2040. The relative contributions by major emission category appear in Figure 4-3 and Figure 4-4 for ROG and NOx planning day emissions in 2026 and Figure 4-5 and Figure 4-6 for 2040.

Figure 4-2
NOx Major Emission Category Trends

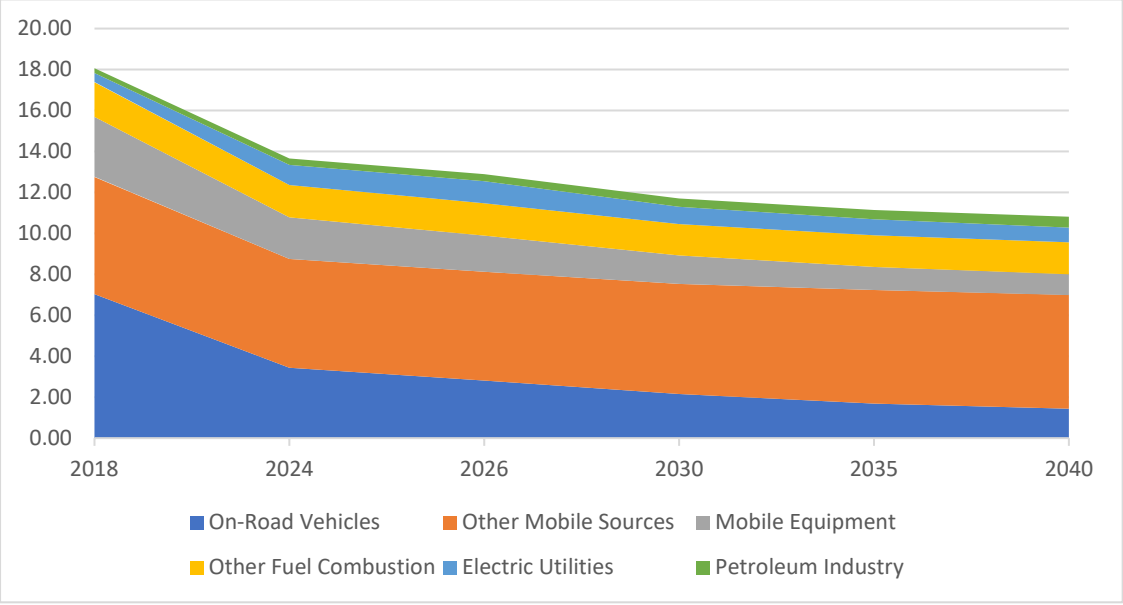


Table 4-4
Summer Planning Day NOx Emissions

Major Emission Category	NOx (tons/summer day)					
	2018	2024	2026	2030	2035	2040
On-Road Vehicles	7.03	3.43	2.82	2.16	1.69	1.44
Other Mobile Sources	5.73	5.31	5.30	5.37	5.55	5.56
Mobile Equipment	2.93	2.03	1.77	1.38	1.12	1.01
Other Fuel Combustion	1.69	1.59	1.57	1.54	1.55	1.55
Electric Utilities	0.45	0.98	1.08	0.84	0.78	0.72
Petroleum Industry	0.24	0.32	0.35	0.40	0.46	0.52
NOx Total Emissions	**18.07**	**13.66**	**12.90**	**11.70**	**11.14**	**10.81**

Notes:
Based on CARB CEPAM2022 v1.01 (March 2022).
Data rounding may affect displayed values and totals.
OCS not included.

Table 4-5
ROG Planning Emissions Forecast by Major Source Category

Ventura County	ROG (tons/summer day)					
Major Source Category Name	**2018**	**2024**	**2026**	**2030**	**2035**	**2040**
SCC AIR BASIN						
Stationary Sources						
Fuel Combustion	0.12	0.20	0.21	0.19	0.18	0.18
Waste Disposal	0.79	0.81	0.82	0.83	0.84	0.85
Cleaning And Surface Coatings	4.18	4.36	4.43	4.49	4.47	4.45
Petroleum Production And Marketing	2.28	2.64	2.79	3.06	3.35	3.69
Industrial Processes	0.54	0.57	0.57	0.58	0.59	0.59
Total Stationary Sources	**7.91**	**8.58**	**8.83**	**9.14**	**9.43**	**9.76**
Areawide Sources						
Solvent Evaporation	9.10	9.55	9.67	9.96	10.35	10.74
Miscellaneous Processes	0.59	0.60	0.60	0.60	0.60	0.60
Total Areawide Sources	**9.69**	**10.15**	**10.26**	**10.56**	**10.95**	**11.35**
Mobile Sources						
On-Road Motor Vehicles	4.28	2.83	2.56	2.13	1.70	1.47
Other Mobile Sources	7.60	6.68	6.13	5.17	4.50	4.26
Total Mobile Sources	**11.88**	**9.51**	**8.69**	**7.30**	**6.21**	**5.73**
TOTAL SCC AIR BASIN	**29.48**	**28.24**	**27.78**	**27.00**	**26.58**	**26.84**
OC1 AIR BASIN						
Stationary Sources						
Fuel Combustion	0.00	0.00	0.00	0.00	0.00	0.00
Cleaning And Surface Coatings	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum Production And Marketing	0.04	0.06	0.06	0.07	0.08	0.09
Total Stationary Sources	**0.04**	**0.06**	**0.06**	**0.08**	**0.09**	**0.10**
Mobile Sources						
Aircraft	0.00	0.00	0.00	0.01	0.01	0.01
Ocean Going Vessels	0.41	0.44	0.45	0.48	0.52	0.57
Commercial Harbor Craft	1.16	1.47	1.58	1.85	2.25	2.73
Total Mobile Sources	**1.58**	**1.91**	**2.04**	**2.34**	**2.77**	**3.30**
TOTAL OC1 AIR BASIN	**1.62**	**1.97**	**2.11**	**2.41**	**2.86**	**3.40**
OC2 AIR BASIN						
Stationary Sources						
Fuel Combustion	0.02	0.02	0.02	0.02	0.02	0.02
Cleaning And Surface Coatings	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum Production And Marketing	0.00	0.00	0.00	0.00	0.00	0.00
Total Stationary Sources	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**
Mobile Sources						
Aircraft	0.00	0.00	0.00	0.00	0.01	0.01
Ocean Going Vessels	0.20	0.22	0.22	0.23	0.24	0.25
Commercial Harbor Craft	0.00	0.00	0.00	0.00	0.00	0.00
Total Mobile Sources	**0.21**	**0.22**	**0.23**	**0.24**	**0.25**	**0.26**
TOTAL OC2 AIR BASIN	**0.23**	**0.24**	**0.25**	**0.26**	**0.27**	**0.28**
TOTAL VENTURA COUNTY	**31.32**	**32.04**	**31.73**	**31.26**	**31.30**	**32.11**

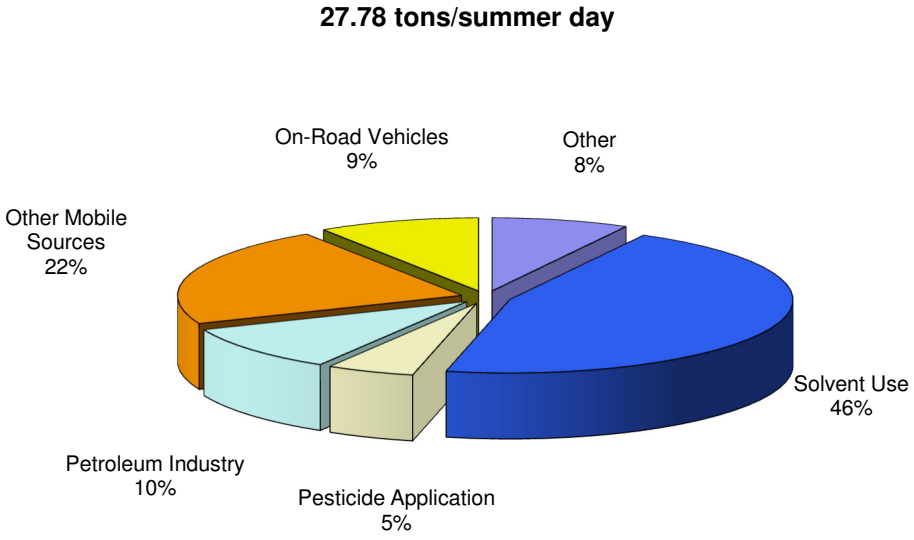
Notes:
Source: CEPAM2022 v1.01 (March 2022).
Data rounding may affect totals.

Table 4-6
NOx Planning Emissions Forecast by Major Source Category

Ventura County	NOx (tons/summer day)					
Major Source Category Name	**2018**	**2024**	**2026**	**2030**	**2035**	**2040**
SCC AIR BASIN						
Stationary Sources						
Fuel Combustion	1.57	2.04	2.15	1.93	1.90	1.89
Waste Disposal	0.07	0.08	0.08	0.09	0.09	0.10
Cleaning And Surface Coatings	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum Production And Marketing	0.10	0.13	0.15	0.17	0.20	0.22
Industrial Processes	0.06	0.06	0.06	0.06	0.06	0.06
Total Stationary Sources	**1.79**	**2.31**	**2.44**	**2.25**	**2.25**	**2.27**
Areawide Sources						
Solvent Evaporation	0	0	0	0	0	0
Miscellaneous Processes	0.58	0.57	0.56	0.53	0.53	0.52
Total Areawide Sources	**0.58**	**0.57**	**0.56**	**0.53**	**0.53**	**0.52**
Mobile Sources						
On-Road Motor Vehicles	7.03	3.43	2.82	2.16	1.69	1.44
Other Mobile Sources	8.66	7.34	7.07	6.75	6.67	6.57
Total Mobile Sources	**15.69**	**10.78**	**9.90**	**8.92**	**8.36**	**8.01**
TOTAL SCC AIR BASIN	**18.07**	**13.66**	**12.90**	**11.70**	**11.14**	**10.81**
OC1 AIR BASIN						
Stationary Sources						
Fuel Combustion	0.00	0.00	0.00	0.00	0.00	0.00
Cleaning And Surface Coatings	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum Production And Marketing	0.02	0.02	0.03	0.03	0.04	0.04
Total Stationary Sources	**0.02**	**0.02**	**0.03**	**0.03**	**0.04**	**0.04**
Mobile Sources						
Aircraft	0.03	0.03	0.04	0.04	0.05	0.06
Ocean Going Vessels	9.04	9.38	9.60	10.12	10.98	9.12
Commercial Harbor Craft	0.47	0.52	0.54	0.58	0.65	0.73
Total Mobile Sources	**9.53**	**9.93**	**10.18**	**10.75**	**11.68**	**9.91**
TOTAL OC1 AIR BASIN	**1.62**	**1.97**	**9.55**	**9.96**	**10.21**	**10.78**
OC2 AIR BASIN						
Stationary Sources						
Fuel Combustion	0.23	0.25	0.25	0.25	0.25	0.24
Cleaning And Surface Coatings	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum Production And Marketing	0.00	0.00	0.00	0.00	0.00	0.00
Total Stationary Sources	**0.23**	**0.25**	**0.25**	**0.25**	**0.25**	**0.24**
Mobile Sources						
Aircraft	0.01	0.01	0.01	0.01	0.01	0.01
Ocean Going Vessels	3.91	3.93	3.97	4.01	4.12	3.07
Commercial Harbor Craft	0.05	0.05	0.05	0.05	0.05	0.05
Total Mobile Sources	**3.97**	**3.99**	**4.03**	**4.07**	**4.19**	**3.14**
TOTAL OC2 AIR BASIN	**0.23**	**0.24**	**4.20**	**4.24**	**4.28**	**4.32**
TOTAL VENTURA COUNTY	**31.82**	**28.73**	**28.25**	**27.67**	**28.16**	**25.02**

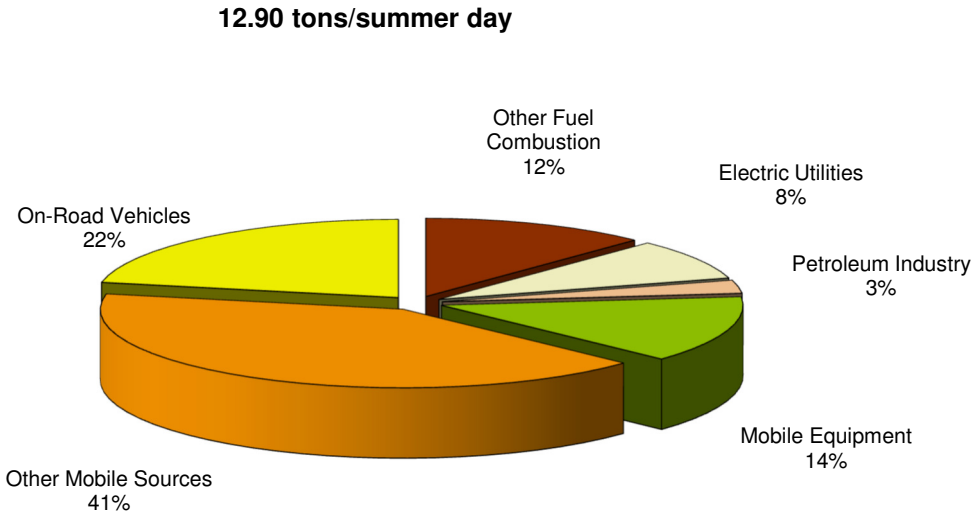
Notes:
Source: CEPAM2022 v1.01 (March 2022).
Data rounding may affect totals.

Figure 4-3
Ventura County 2026 Planning Day
ROG Emissions Inventory



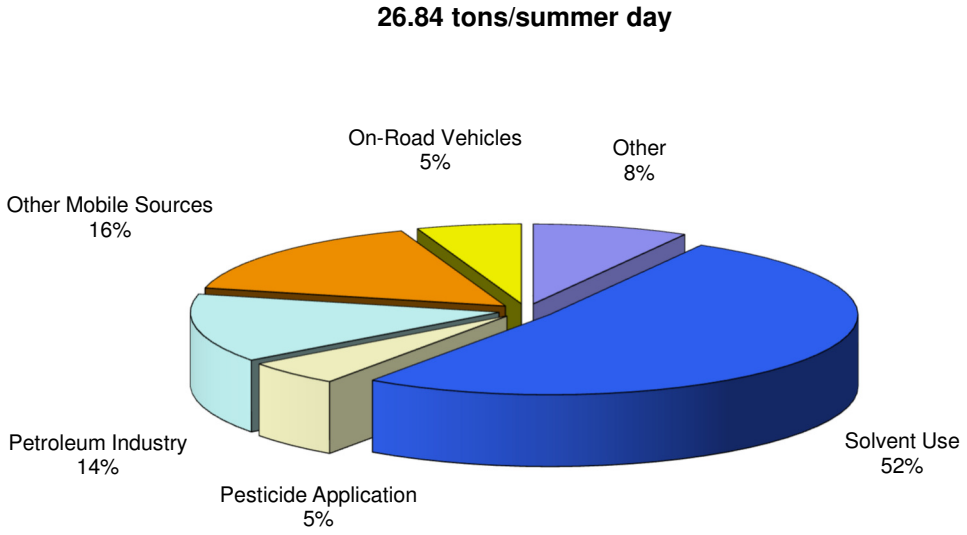
Reference:
CARB CEPAM2022 v1.01 (March 2022)
Excludes OC1, OC2, and Natural Sources

Figure 4-4
Ventura County 2026 Planning Day
NOx Emissions Inventory



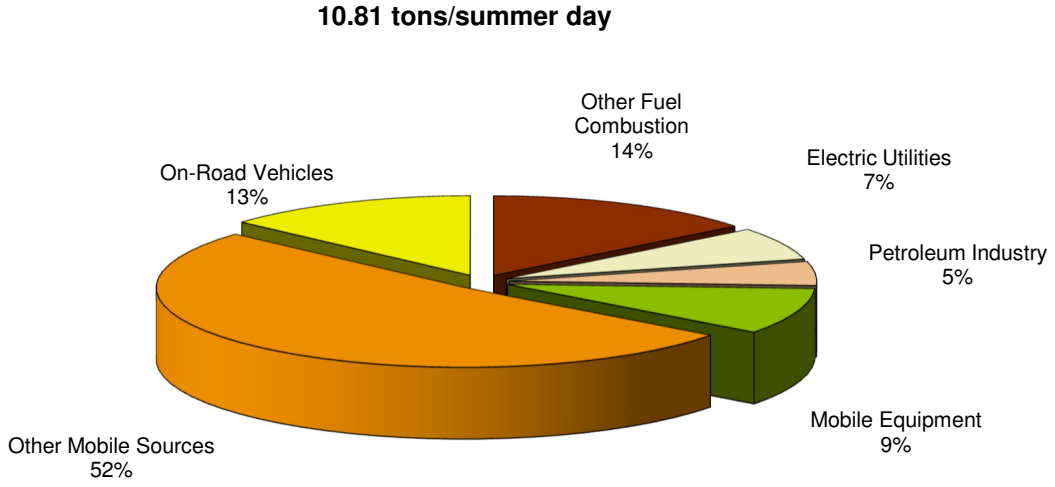
Reference:
CARB CEPAM2022 v1.01 (March 2022)
Excludes OC1, OC2, and Natural Sources

Figure 4-5
Ventura County 2040 Planning Day
ROG Emissions Inventory



Reference:
CARB CEPAM2022 v1.01 (March 2022)
Excludes OC1, OC2, and Natural Sources

Figure 4-6
Ventura County 2040 Planning Day
NOx Emissions Inventory



Reference:
CARB CEPAM2022 v1.01 (March 2022)
Excludes OC1, OC2, and Natural Sources

4.3. Ventura County Marine-Related Emissions Forecast

As discussed in Section 2, *2018 Baseline Emissions Inventory*, coastal and offshore marine emissions sources are important segments of Ventura County's overall emissions inventory. A substantial effort has been made to improve and refine emissions estimates for these sources, described in detail in Section 2.

4.3.1. SCCAB Marine-Related Emissions

Coastal marine emission sources are located in the State Tidelands within three miles of the Ventura County coastline in the SCCAB, which also incorporates the onshore portion of Ventura County, including the Port of Hueneme and its approach corridors.

As shown in Table 4-7, coastal marine emission sources include ocean-going vessels, commercial harbor craft, recreational boats, aircraft, and cargo handling equipment. Cumulatively these categories accounted for 3.69 tons/day each of ROG and 3.40 tons/day of NOx in 2018. ROG emissions from these categories will decrease by 17% by 2026, and NOx emissions from these categories will increase by 12% by 2026. Total ROG emissions decrease by about 24% and NOx emissions increase by 30% by 2040. The most important ROG and NOx emission sources and their relative contributions to total coastal emissions in 2026 and 2040 are described below.

- Ocean-Going Vessels: 1.42 tons/day NOx by 2026 (37%), 1.54 tons/day by 2040 (33%)

  Ocean-going vessels include large commercial vessels calling on Port Hueneme (auto carriers, bulk cargo carriers, container vessels, passenger vessels, roll-on/roll off vehicle carriers, refrigerated cargo vessels and tankers) and military vessel operations occurring at the U.S. Navy facilities at the Port of Hueneme, as well as some non-military vessels utilizing Navy facilities. Ocean-going vessels comprised 39% of total coastal NOx in 2018, with 78% from commercial (i.e., non-military) vessels. Coastal emissions of NOx from Ocean going vessels will increase 8% (0.11 tons/day) in 2026 and 18% (0.23 tons/day).By 2040 NOx emissions from military ocean-going vessels exceeds the NOx emissions from commercial vessels and accounts for 70% of NOx emissions from coastal ocean-going vessels.

- Commercial Harbor Craft: 1.30 tons/day NOx by 2026 (34%), 1.78 tons/day by 2040 (37%)

  Commercial harbor craft include commercial and charter fishing vessels, excursion boats, tug and towboats, barges and dredges, crew and supply boats associated with the four offshore oil and gas production platforms, and military support and operations vessels, tugboats and other vessels utilizing U.S. Navy facilities at the Port of Hueneme. Commercial harbor craft contributed 33% of coastal NOx in 2018. Emissions from all commercial harbor craft are expected to increase by 14% (0.16 tons/day) by 2026 and 56% (0.64 tons/day) by 2040. Military commercial harbor craft were responsible for 45% of NOx emissions from commercial harbor craft in 2018, and they will account for 69% of NOx emissions from commercial harbor craft.

- Recreational Boats: 2.17 tons/day ROG by 2026 (71%), 1.37 tons/day by 2040 (49%) and 0.48 tons/day NOx by 2026 (13%), 0.45 tons/day by 2040 (9%)

  Recreational Boats operate at the ports, marinas, and lakes in Ventura County, and include vessels with outboard, inboard and stern-drive engines, sailboat auxiliary engines, and personal watercraft. Recreational vessels accounted for 82% of coastal ROG emissions in 2018 and decrease by 29% (0.87 tons/day) by 2026 and 55% (1.67 tons/day) by 2040. Recreational boats are responsible for 13% of coastal NOx emissions in 2026. Those emissions are expected to decrease by 8% (0.04 tons/day) by 2026 and 14% (0.07 tons/day) by 2040.

- Aircraft: 0.70 tons/day ROG by 2026 (23%), 1.17 tons/day ROG increase by 2040 (42%) and 0.58 tons/day NOx by 2026 (15%), 0.98 tons/day NOx by 2040 (21%)

  Aircraft emissions are associated with military aircraft operations at the U.S. Naval facility at Point Mugu, including transports, jet aircraft, helicopters, and missile launches. Military aircraft activities were responsible for 88% of coastal ROG emissions from aircraft and 95% of coastal NOx from aircraft in 2018. ROG and NOx emissions are expected to increase by almost 50% by 2026 and almost one and one-half times by 2040.

- Cargo Handling Equipment: Less than 0.1 ton/day by 2026 and 2040 (1%)

  Cargo handling equipment includes port operations/cargo handling equipment operating in association with large commercial vessels calling on Port Hueneme, such as yard tractors, forklifts, cranes, loaders, and other material handling equipment. Although Cargo Handling Equipment contributed one quarter of coastal NOx in 2002 in the 2007 AQMP, this emission source became subject to CARB's Cargo Handling Equipment Regulation in 2007 and contributed less than 1% of total coastal NOx emissions in 2018. Emissions continue to decline in 2026 and 2040 but the relatively small amount of emissions results in a negligible benefit from this decrease.

Table 4-7
SCC Air Basin Coastal Marine Emissions Categories 2018 – 2040

Ventura County Emission Category	ROG Planning Day Emissions (tons/summer day) 2018	2024	2026	2030	2035	2040
Ocean-Going Vessels	0.05	0.06	0.06	0.07	0.07	0.08
Commercial Harbor Craft	0.10	0.12	0.13	0.14	0.16	0.18
Recreational Boats	3.04	2.35	2.17	1.87	1.58	1.37
Aircraft	0.48	0.64	0.70	0.82	0.95	1.17
Cargo Handling Equipment	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total SSCAB Coastal ROG	**3.685**	**3.17**	**3.06**	**2.89**	**2.76**	**2.81**

Ventura County Emission Category	NOx Planning Day Emissions (tons/summer day) 2018	2024	2026	2030	2035	2040
Ocean-going Vessels	1.31	1.38	1.42	1.55	1.74	1.54
Commercial Harbor Craft	1.14	1.25	1.30	1.42	1.58	1.78
Recreational Boats	0.52	0.49	0.48	0.47	0.46	0.45
Aircraft	0.39	0.52	0.58	0.68	0.79	0.98
Cargo Handling Equipment	0.03	0.02	0.02	0.01	0.00	0.00
Total SSCAB Coastal NOx	**3.40**	**3.66**	**3.80**	**4.11**	**4.56**	**4.75**

Notes:
CEPAM2022 v1.01 (March 2022).
No CARB Adjustments.

4.3.2. OC1 and OC2 Air Basin Marine-Related Emissions

Offshore emissions marine sources shown in Table 4-8 and Figures 4-7 through 4-10 occur in the region beyond three miles of the coastline in the OC1 and OC2 Air Basins, San Nicolas Island, and the offshore shipping lanes in the Santa Barbara Channel. OC1 and OC2 emissions sources accounted for 13.75 tons/day of NOx and 1.85 tons/day ROG in 2018. Total OC1 and OC2 NOx emissions increase by 5% by 2026 but decrease by 3% to 13.34 tons/day by 2040. ROG emissions increase by over 27% by 2026 and almost double by 2040. The most important ROG and NOx emission sources and their change in contributions to total OC1 and OC2 emissions in 2026 and 2040 are described below.

- Ocean-Going Vessels**:** 0.67 tons/day ROG by 2026 (29%), 0.82 tons/day by 2040 (22%) and 13.57 tons/day NOx by 2026 (94%), 12.20 tons/day by 2040 (91%)

  This category pertains to large commercial vessels traversing the Santa Barbara Channel shipping lanes offshore of Ventura County, including vessels calling on Port Hueneme or the ports of Los Angeles/Long Beach and transiting vessels passing through southern California waters but without calling at either port, and large military vessels operating offshore and in the approach corridors to Port Hueneme and San Nicolas Island. Ocean-going vessels accounted for 94% of NOx and 33% of ROG emissions in the OC1 and OC2 Air Basins in 2018. Emissions of NOx should increase 5% by 2026 but decrease by 6% from the baseline by 2040 due largely to state and federal commercial vessel control measures. ROG emissions are expected to increase by 10% by 2026 and 33% by 2040. Virtually all ROG emissions are from commercial vessels. Commercial vessels will account for 93% of NOx emissions from marine-related ocean-going vessels in 2026, and 87% of NOx emissions from marine-related ocean-going vessels in 2040.

- Commercial Harbor Craft: ROG by 2026 (67%), 2.73 tons/day by 2040 (74%) and 0.59 tons/day NOx by 2026 (4%), 0.78 tons/day by 2040 (6%) and 1.59 tons/day

  Commercial harbor craft include commercial and charter fishing vessels, excursion boats, tug and towboats, crew and supply boats affiliated with the offshore oil and gas production platforms, military support and operations vessels, tugboats and other vessels operating offshore and in the approach corridors to Port Hueneme and San Nicolas Island. Commercial harbor craft contributed nearly 63% of offshore ROG and about 4% of NOx in 2018. ROG emissions should increase by 36% by 2026 and 134% by 2040, while NOx emissions will increase by 14% by 2026 and 51% by 2040. From 2018 to 2040, the proportion of the commercial harbor craft emissions from military sources will increase from 82% of ROG to 90% of ROG and from 4% of NOx to 12% of NOx.

- Aircraft: 0.01 tons/day ROG by 2026 (1%), 0.02 tons/day by 2040 (1%)

  Aircraft emissions are associated with military aircraft operations at the U.S. Naval facility on San Nicolas Island, including transports, jet aircraft, helicopters, and missiles. Aircraft activities will remain a small contributor to offshore emissions until 2040.

- Stationary Sources: 0.09 tons/day ROG by 2026 (4%), 0.12 tons/day by 2040 (3%), and 0.28 tons/day NOx by 2026 (2%), 0.28 ton/day by 2040 (2%)

  Stationary Sources include oil & gas production, fuel combustion and coatings & solvents emissions categories. Oil & gas production ROG emissions are fugitive hydrocarbon losses from oil and gas production components and production and processing equipment on the offshore oil and gas production platforms; natural gas flaring is responsible for ROG and NOx emissions. Fuel combustion sources primarily are related to electric generating types of equipment. Coatings & solvents ROG emissions are from routine maintenance surface coating and cleaning operations for the offshore oil and gas production platforms and the U.S. Naval facility on San Nicolas Island. Stationary Sources contributed 3% of ROG

emissions and 2% of NOx in the OC1 and OC2 air basins 2018. Emissions from stationary sources in the OC1 and OC2 air basins remain relatively low through 2040.

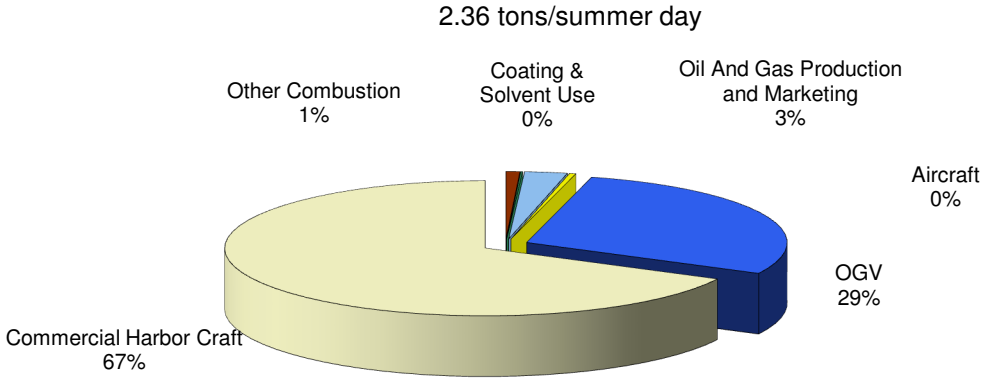
Table 4-8
OC1 and OC2 Air Basin Marine Emissions Categories 2018 – 2040

Ventura County Emission Category	ROG Planning Day Emissions (tons/summer day) 2018	2024	2026	2030	2035	2040
Other Combustion	0.02	0.02	0.02	0.02	0.02	0.02
Coating/Solvent Use	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Oil And Gas Production and Marketing	0.04	0.06	0.06	0.07	0.08	0.09
Aircraft	0.01	0.01	0.01	0.01	0.01	0.02
OGV	0.61	0.66	0.67	0.71	0.76	0.82
Commercial Harbor Craft	1.17	1.47	1.59	1.85	2.25	2.73
Total OCS Air Basin ROG	**1.85**	**2.21**	**2.36**	**2.67**	**3.13**	**3.68**

Ventura County Emission Category	NOx Planning Day Emissions (tons/summer day) 2018	2024	2026	2030	2035	2040
Oil And Gas Production	0.02	0.02	0.03	0.03	0.04	0.04
Aircraft	0.03	0.04	0.04	0.05	0.06	0.08
OGV	12.95	13.31	13.57	14.13	15.11	12.20
Commercial Harbor Craft	0.52	0.57	0.59	0.64	0.70	0.78
Other Combustion	0.23	0.25	0.25	0.25	0.25	0.24
Total OCS Air Basin NOx	**13.75**	**14.20**	**14.48**	**15.10**	**16.15**	**13.34**

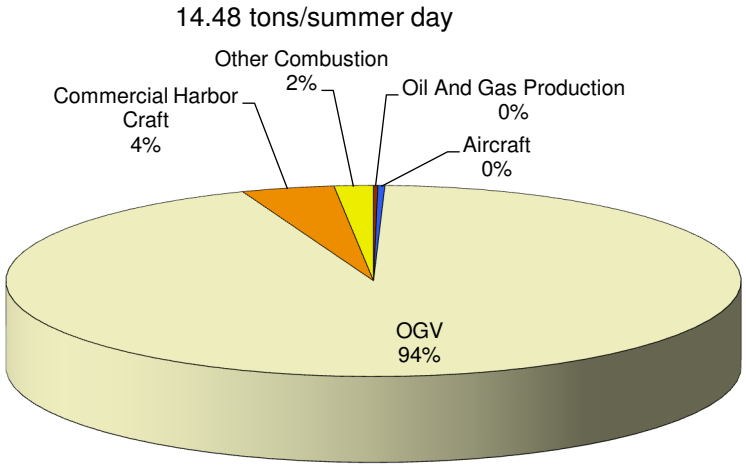
Notes:
CEPAM2022 v1.01 (March 2022).
No CARB Adjustments.

Figure 4-7
Ventura County 2026 Planning Day
ROG Emissions Inventory (OC1 and OC2 Air Basins)



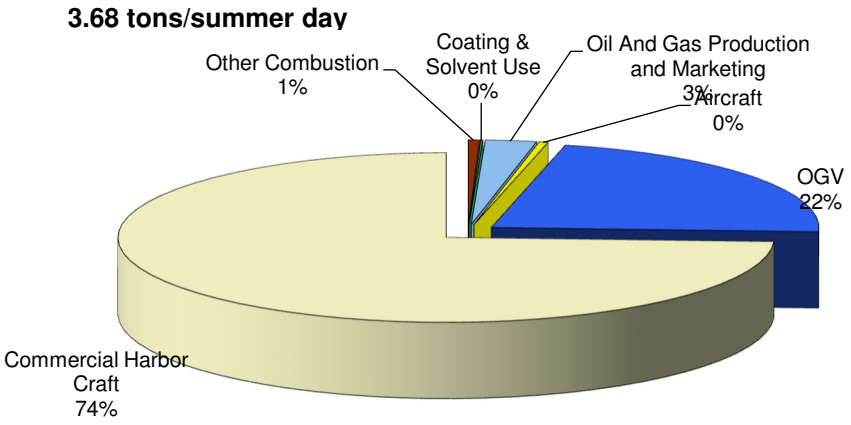
Reference:
CARB CEPAM2022 v1.01 (March 2022).
OC1 is 3 – 24 miles offshore. OC2 is 24-100 miles offshore

Figure 4-8
Ventura County 2026 Planning Day
NOx Emissions Inventory (OC1 and OC2 Air Basins)



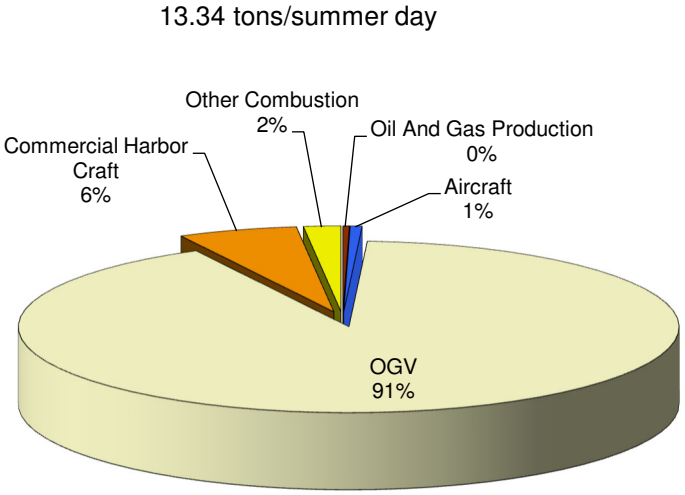
Reference:
CARB CEPAM2022 v1.01 (March 2022).
OC1 is 3 – 24 miles offshore. OC2 is 24-100 miles offshore

Figure 4-9
Ventura County 2040 Planning Day
ROG Emissions Inventory (OC1 and OC2 Air Basins)



Reference:
CARB CEPAM2022 v1.01 (March 2022).
OC1 is 3 – 24 miles offshore. OC2 is 24-100 miles offshore

Figure 4-10
Ventura County 2040 Planning Day
NOx Emissions Inventory (OC1 and OC2 Air Basins)



Reference:
CARB CEPAM2022 v1.01 (March 2022).
OC1 is 3 – 24 miles offshore. OC2 is 24-100 miles offshore

4.4. Naval Base Ventura County Emission Forecasts

EPA's General Conformity Rule discussed in Section 3, *Control Strategy*, ensures federal actions or projects do not interfere with a nonattainment area's ability to attain and maintain national air quality standards by requiring emissions associated with the federal action or project to be accounted for in the attainment demonstration of the applicable State Implementation Plan.

The 2022 AQMP includes emissions associated with potential growth or change in activity at NBVC. The baseline and projected emissions are from aircraft and missile operations associated with NBVC Point Mugu and ship operations at Port Hueneme occurring within the Ventura County nonattainment area (the SCCAB, including the mainland and three nautical miles offshore) and are included in the AQMP's base year inventory and emissions forecasts. Baseline and emissions projections were provided to the District by NBVC in February 2021. Increases in motor vehicle activity at NBVC are part of SCAG's regional transportation model and are not included in NBVC's baseline emissions or projections.

Table 4-9 summarizes the 2018 emissions, estimated future year emissions from potential projects, and an additional 4% annual growth allowance[1] for NBVC through year 2026 within the Ventura County nonattainment area. The 4% annual growth allowance is intended to account for uncertainties in potential projects resulting from future actions and unknown projects in response to national security and possible mission requirements. This additional growth would result in a base-wide emissions budget for NBVC of 241.4 tons per year of ROG and 597.21 tons per year of NOx by the 2026 attainment year.

Table 4-9
Naval Base Ventura County Emissions Budget
(tons per year)

Pollutant	2018	2021	2022	2023	2024	2025	2026
ROG	175.69	197.93	206.42	214.04	223.22	234.57	241.40
NOx	429.59	480.06	505.38	521.14	547.08	581.88	597.21

Notes:
Source: Revised Final 2 Naval Base Ventura County Mobile Source Emissions 2017 Baseline emissions and Future Emission Projection for 8-Hour Ozone SIP Planning (February 2021).

4.5. Emissions by Jurisdiction

The District has reviewed emission sources by the agency primarily responsible for regulating those sources. Those source categories and the agency responsible for regulating them is shown in Table 4-10. The District is committed to achieving the 2015 70-ppb ozone air quality standard and has implemented some of the strictest emission standards for ozone precursors for sources under District jurisdiction. However, the District only has jurisdiction over 8% of NOx emitted in its

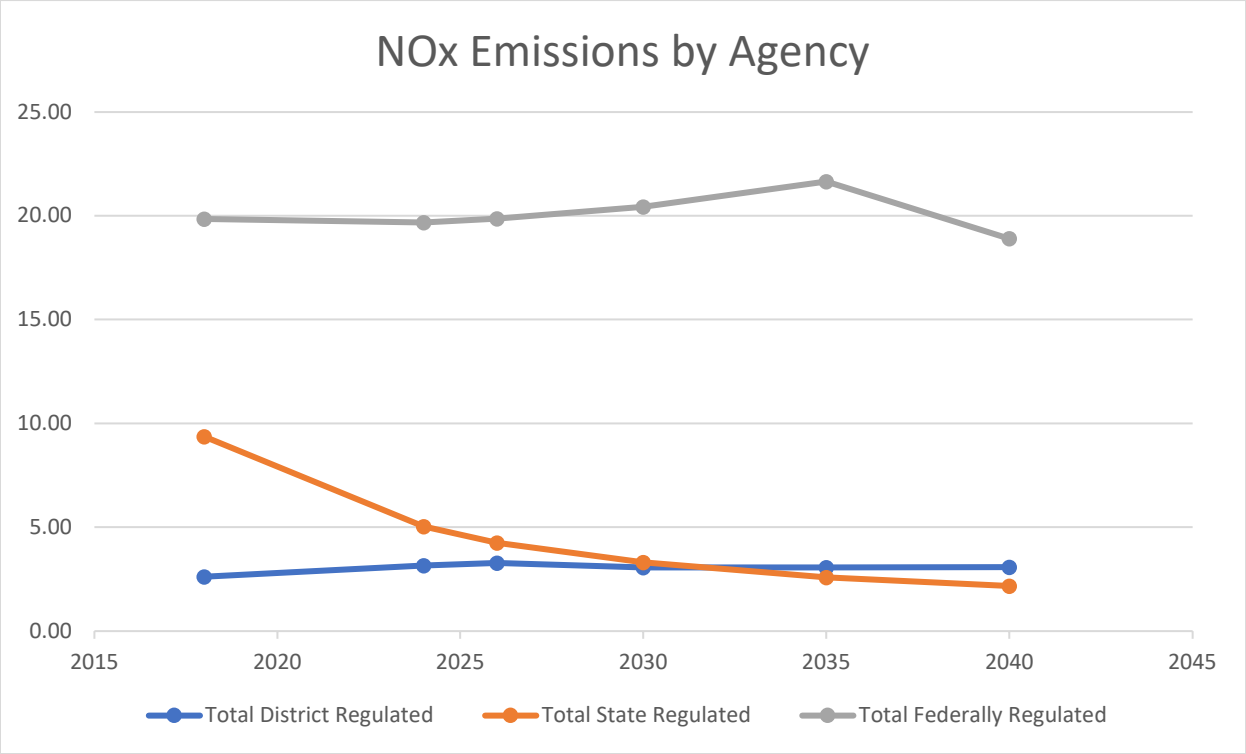
[1] 4% growth for all sources except a 2% growth rate assumed for cargo vessels at NBVC Berth N3.

jurisdiction for the 2018 baseline, and the District will only have primary regulatory authority over 12% of NOx emissions in 2026. Figure 4-11 shows NOx emissions by primary jurisdiction over time. The EPA is the primary regulatory agency over 62% of NOx emissions in 2018 and will be the primary regulatory agency over 73% of emissions in 2026. The greatest potential for NOx reductions is from sources not controlled by the District.

Table 4-10
Source Categories by Primary Regulatory Agency

Regulatory Jurisdiction	Source Category
District	Fuel combustion Waste management Cleaning and surface coating Petroleum production and marketing Industrial processes Architectural coating Asphalt paving/roofing Residential fuel combustion Construction and demolition Dust Fires Managed burning and disposal Cooking Other
State	Consumer products Pesticides On-road motor vehicles Off-road portable equipment (PERP) Off-road mobile equipment Farm equipment Commercial harbor craft Fuel storage and handling
Federal	Aircraft Trains Ocean going vessels Recreational boats Off-road recreational vehicles

Figure 4-11
Ventura County NOx Emissions by Jurisdiction



SECTION 5. ATTAINMENT DEMONSTRATION

5.1. Introduction

This section presents the attainment demonstration to show that the proposed control strategy for the 2022 AQMP will provide sufficient emission reductions for Ventura County to attain the 2015 federal 8-hour ozone standard by no later than 2026, the county's mandated ozone attainment year under the federal CAAA. The attainment demonstration consists of two primary components: photochemical modeling and Weight of Evidence (WOE) assessment.

The SCAQMD conducted the photochemical modeling for the 2022 AQMP. The SCAQMD also conducted the photochemical modeling for the South Coast, San Diego County, Imperial County, Coachella Valley, and Western Mojave Desert ozone nonattainment areas. CARB prepared the WOE for the 2022 AQMP, presented in Appendix H.

5.1.1. Photochemical Modeling

Section 181(a)(1) of the federal CAAA requires that ozone nonattainment areas attain the federal 8-hour ozone standard as expeditiously as practicable but no later than by specific dates based on their ozone nonattainment area classifications – marginal, moderate, serious, severe, and extreme. Moreover, Section 182(c)(2)(A) of the federal CAAA requires that serious and above ozone nonattainment areas, including Ventura County, use a photochemical grid model to show attainment.

Photochemical grid models are computer programs that mathematically simulate each of the physical and chemical processes that govern air pollution in the lower atmosphere. Such processes include air pollutant release into the air, air pollutant transport and diffusion by the wind, air pollutant creation and destruction in the air through chemical reactions, and deposition of pollutants onto the ground. Further information regarding air quality models, including photochemical grid models of the type used for the 2022 AQMP, can be found on EPA's website at https://www.epa.gov/scram/photochemical-air-quality-modeling.

The region analyzed by a photochemical air pollution model is termed the modeling region or modeling domain and is a geographical area divided into a three-dimensional array of grid cells. The model calculates air pollutant concentrations in each grid cell for each hour of the modeling period and often displays the results graphically.

EPA modeling guidance, *Modeling Guidance for Demonstrating Air Quality Goals for Ozone, PM2.5, and Regional Haze*, recommends that nonattainment areas supplement their photochemical modeling results with a WOE assessment to address the uncertainties inherent to photochemical modeling assessments. Further, EPA guidance indicates that as an area approaches the target attainment date, ambient air quality and emissions data become an increasingly important element in demonstrating progress toward air quality goals.

The photochemical modeling for the 2022 AQMP contains three principal components.

The first, presented in Appendix G, is the *Protocol for Photochemical Modeling of Ozone for Ventura County*, which is excerpted from Appendix V of the 2022 SCAQMD AQMP. The Protocol defines the scope of the regional modeling analyses including the attainment demonstration methodology and chemical transport platforms, gridded and speciated emission inventories, and geographical characteristics of the modeling domains. The Protocol also defines the methodology to assess model performance and the selection of the simulation periods.

The second, presented in Appendix H, is the *Model Performance Analysis*. This analysis evaluated how well the photochemical model for the 2022 AQMP was able to predict 8-hour ozone concentrations at each monitoring site in the county compared to observed 8-hour ozone concentrations at those same monitoring sites.

The third, presented in Appendix I, is the *Ventura County Unmonitored Area Analysis*. This analysis estimated 8-hour ozone design values in areas of Ventura County that do not have ambient ozone monitors, such as the Los Padres National Forest region of the county. It is required by EPA modeling guidance to show that all grid cells in a modeling domain will attain the federal ozone standard.

5.1.2. Weight of Evidence Assessment

A Weight of Evidence (WOE) assessment is a set of analyses intended to verify modeled predictions of future air quality, especially at levels near the federal standards. These analyses can include air quality trends, emission trends, meteorological data, evaluation of other air quality indicators, and additional air quality modeling.

Because all analysis methods have strengths and weaknesses, examining an air quality problem using various analysis methods helps offset the limitations and uncertainty inherent in all air quality modeling methods. The scope of a WOE analysis is different for each nonattainment area. The level of detail appropriate for an area depends upon the complexity of the air quality problem in the area, how far into the future the attainment deadline is, and the amount of data and modeling available.

To complement regional photochemical modeling analyses included in the 2022 AQMP, the WOE assessment for Ventura County includes detailed analyses of county ambient ozone data, ozone precursor emission trends, population exposure trends, and a discussion of conditions that contribute to exceedances of the 70-ppb federal ozone standard in Ventura County. Further, the rate of progress toward air quality goals was evaluated by considering trends in the county's ozone design values, precursor emission reductions, and the relationship between ozone air quality and past emission reductions.

The WOE assessment for Ventura County evaluated ambient air quality and emission trends to complement the regional photochemical modeling analyses conducted to evaluate Ventura County's progress toward meeting its 2026 ozone attainment date. Control measures implemented in the county through federal, state, and local programs have led to a substantial decline in emissions of ozone precursors and a substantial improvement in ozone air quality countywide.

Between 2000 and 2021, total NOx emissions in Ventura County declined by 50 percent and total ROG emissions declined by 45.5 percent. Moreover, between 2000 and 2021, the number of exceedance days in the County declined by 95 percent and the design value decreased by over 27 percent, from 105 ppb to 75 ppb (Simi Valley). In 2021, four out of five monitoring sites in the County met the standard.

Ventura County is classified as a serious nonattainment area with a 2026 ozone attainment date. Regression trends derived from ozone design values, as well as the association between NOx emissions and the fourth highest 8-hour ozone concentration, indicate that Ventura County is on track to attain the 70-ppb standard by 2026, which is consistent with design value projections derived from the regional photochemical modeling assessment conducted by the SCAQMD for Ventura County.

Appendix J, *Ventura County Weight of Evidence Assessment*, contains the WOE for the 2022 AQMP. Appendix K, *Ventura County Unmonitored Area Analysis*, contains additional information about modeling for unmonitored areas.

5.2. Attainment Demonstration Summary

Based on photochemical modeling design value projections presented in Table 5-1, as well as the supporting WOE assessment, Ventura County can expect to attain the federal 70 ppb 8-hour ozone standard by no later than August 3, 2027, the attainment date for serious ozone nonattainment areas.

Table 5-1
Regional Modeling Design Value Projections (ppb)

Site	2018 Design Value	2026 Baseline Design Value	2026 Control Design Value
Thousand Oaks	68.3	65.8	65.1
Piru	71.3	67.6	66.5
Ojai	68.0	65.5	64.8
Simi Valley	75.7	71.7	70.3
El Rio	60.7	59.4	58.9

5.3. 2026 Target Attainment Date

The photochemical modeling and accompanying WOE assessment project the earliest date that a nonattainment area could meet the standard. The photochemical modeling and WOE show Ventura County will meet the federal 8-hour ozone standard in 2026. Neither analysis indicated a likelihood the area could meet the standard earlier than the statutory attainment date.

Annual variations in air quality make it difficult to pinpoint a specific year that an area will first achieve clean data and thus meet the standard. Therefore, Ventura County has identified 2026 as its attainment year, the attainment year for serious nonattainment areas, for this and the following reason.

EPA's *Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze,* dated April 2007, acknowledges the variability in year-to-year weather patterns, among other factors, when compared to photochemical modeling results by stating,

> "Past modeling analyses have shown that future design value uncertainties of 2-4 ppb for ozone, can result from use of alternate, yet equally appropriate, emissions inputs, chemical mechanisms, and meteorological inputs (Jones, 2005; Sistla, 2004)[1]."

The photochemical modeling and WOE analysis in this plan demonstrate a design value of 70 ppb in 2026. The modeling uncertainty of 2-4 ppb referenced in the previous EPA modeling guidance indicates this modeled result is not an absolute predictor of future attainment. The supplemental information in the WOE indicates attainment is achievable by the statutory attainment deadline but it is unlikely the area would attain the standard prior to that date.

Additionally, NOx and ROG emissions contribute significantly to ozone formation in Ventura County and likewise, reductions in NOx and ROG emissions will reduce ozone concentrations. In Ventura County, mobile sources contribute to over 90 percent of NOx emissions. Achieving NOx reductions leading up to the 2026 attainment year is reliant upon current CARB mobile source programs. While continuation of the existing mobile source program will achieve reductions between now and 2026, those reductions are represented in the model and there are no additional mobile source programs that will begin implementation in this period to further accelerate emission reductions in Ventura County.

[1] Pg. 105,https://www.epa.gov/scram/sip-modeling-guidance-documents

SECTION 6. REASONABLE FURTHER PROGRESS

6.1. RFP Requirements

Sections 172(c)(2) and 182(b)(1) of the Clean Air Act (Act) require ozone attainment plans to provide for Reasonable Further Progress (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 begin lowering air pollution in a timely manner and not delay implementation of control programs until immediately before the attainment deadline.

There are two separate RFP requirements for ozone nonattainment areas depending upon their classification. For ozone nonattainment areas classified as Moderate or above, there 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 (section 182(b)(1)). For ozone nonattainment areas classified as Serious or higher, section 182(c)(2)(B) of the Act has an additional requirement to demonstrate 3 percent per year cumulative reduction of ozone precursors averaged over each consecutive three-year period until attainment.

In 1997, U.S. EPA approved a 15 percent ROG-only rate of progress demonstration for the Ventura County for the 1-hour ozone standard covering the entire nonattainment area for the 70 ppb 8-hour ozone standard.1 As such, the requirement under section 182(b)(1) of the Act in the first 6 years of the attainment planning period has been met for the Ventura County ozone nonattainment area.

For the 182(c)(2)(B) RFP requirement for Serious and higher areas, U.S. EPA guidance allows for oxides of nitrogen (NOx) substitution to demonstrate the annual 3 percent reductions of ozone precursors if it can be demonstrated that substitution of NOx emission reductions (for ROG reductions) yields equivalent ozone reductions.2 Additional U.S. EPA guidance states that certain conditions are needed to use NOx substitution in an RFP demonstration.3 First, an equivalency demonstration must show that cumulative RFP emission reductions are consistent with the NOx and ROG emission reductions determined in the ozone attainment demonstration. Second, the reductions in NOx and ROG emissions should be consistent with the continuous RFP emission reduction requirement. The guidance states that "Any combination of VOC (ROG) and NOx emission reductions which totals 3 percent per year and meet other SIP consistency requirements described in this document are allowed."

[1] 62 FR 1150 https://www.gpo.gov/fdsys/pkg/FR-1997-01-08/pdf/97-144.pdf

[2] P1001E8Z.PDF (epa.gov)

[3] https://www3.epa.gov/ttn/naaqs/aqmguide/collection/cp2/19931201_oaqps_nox_substitution_guidance.pdf

6.1. RFP Demonstration

Table 6-1 demonstrates that the cumulative ROG and NOx emission reductions in Ventura County meets the RFP targets in the 2023 milestone year and the attainment year, 2026. In accordance with U.S. EPA guidance for implementation of the 70 ppb 8-hour ozone standard attainment plans, *Implementation of the 2015 National Ambient Air Quality Standards for Ozone: Nonattainment Area State Implementation Plan Requirements*, the emissions reductions in the RFP demonstration occur inside the nonattainment area, are achieved through existing control regulations, and start from a baseline year of 2017.[4]

The Ventura County 70 ppb 8-hour ozone RFP demonstration was developed using CARB's California Emissions Projection Analysis Model (CEPAM), 2022 Emission Projections, Version 1.01 (see Appendix A for more information on the planning emissions inventory). In order to demonstrate consistency between the RFP demonstration and the motor vehicle emissions budgets (MVEB), a line item adjustment is made in the RFP demonstration to account for the differences in the on-road mobile source emissions projections in the CEPAM inventory and the MVEB which is rounded up to the nearest tenth of a ton (see Chapter 3.3.2).

Emissions Reductions Credits (ERCs) banked prior to the RFP baseline year of 2017 must be accounted for in RFP demonstrations for the 70 ppb 8-hour ozone standard. For Ventura County, all of the pre-baseline year banked NOx ERCs, and a majority of the pre-baseline year banked ROG ERCs, are accounted for in the growth projections in the CEPAM inventory.

The projected emission growth for stationary sources from 2018 to 2026 is 1.05 tons/day ROG and 0.96 tons/day NOx. The projected growth of NOx emissions is greater than the available pre-base year NOx ERC balance; therefore, the growth is sufficient to account for the maximum possible ERC use. However, the pre-baseline ROG ERCs exceed the projected growth of ROG emissions from stationary sources. In order to ensure that pre-baseline year banked ROG ERCs in excess of amount accounted for in the CEPAM inventory are not used, the District is proposing a cap on the use of pre-baseline year banked ROG ERCs through the 2026 attainment year that is equal to the amount accounted for in the CEPAM inventory, 1.05 tpd (see Appendix L for a listing of ERCs).

New emissions requiring ROC ERCs that would result in the use of more than a cumulative use of 1.05 tons/day of ROG ERCs from the pre-2017 baseline will not be permitted by the District. The District intends this commitment to be federally enforceable as part of the adopted SIP. The District will also include a statement about the use of pre-baseline ROC ERCs in its annual ERC reports to the EPA.

[4] 83 FR 62998, 2018-25424.pdf (govinfo.gov)

Table 6-1: Ventura County RFP demonstration for the 70 ppb 8-hour ozone standard

Year	2017	2023	2026
ROG emissions	29.96	28.35	27.78
MVEB Rounding Margin		0.10	0.05
Maximum ROG Emissions	29.96	28.45	27.82
Required % change since 2017		18%	27%
Target ROG Level		24.56	21.87
Shortfall (-)/ Surplus (+) in ROG		-3.88	-5.96
Shortfall (-)/ Surplus (+) in ROG, %		-13.0%	-19.9%
Year	2017	2023	2026
NOx emissions, tpd	19.61	14.48	12.90
MVEB Rounding Margin, tpd		0.04	0.01
Maximum NOx Emissions	19.61	14.52	12.91
Change in NOx since 2017, tpd		5.09	6.70
Change in NOx since 2017, %		25.9%	34.2%
NOx reductions since 2017 used for ROG substitution in this milestone year, %		13.0%	19.9%
Shortfall (-)/ Surplus (+), %		13.0%	14.3%
RFP shortfall (-), if any		0%	0%
RFP Met?		YES	YES

SECTION 7. CONTINGENCY MEASURES

7.1. Contingency Measures Introduction

Contingency measures are required by the Clean Air Act to be implemented should an area fail to make reasonable further progress or attain the NAAQS by the required date. Over the last few years, multiple court decisions in the 9th circuit and nation-wide have effectively disallowed the SIP-approved approach which CARB and the districts have historically used to meet contingency measure requirements. CARB continues to strive to meet the requirements, but U.S. EPA has not yet released comprehensive and updated guidance encompassing the full scope of contingency measure requirements, in light of the results of the varying court decisions. Guidance is needed for CARB, and other air agencies across California and the U.S., to ensure that any resources devoted to creating, adopting, and implementing a measure will result in one that meets the requirements and be approved into the SIP.

Additionally, California faces the most difficult air quality challenges in the nation and, accordingly, leads the country with the most stringent air pollution control programs. Historically, U.S. EPA guidance required contingency measures to achieve approximately one year's worth of emission reductions. CARB's control programs are advanced, and primarily-federally regulated sources contribute over half of the emissions. Thus, opportunities for a triggered contingency measure that can be implemented by the State and result in one year's worth of emission reductions in the required time frame are not readily available. Further, if any measure that could achieve this level of emission reductions existed, it would be adopted to improve air quality and support attainment of NAAQS and would not be withheld for contingency purposes. Even with recent court decisions, U.S. EPA has the opportunity to justify a revised approach for contingency measures recognizing the maturity of control programs or allow states to provide a reasoned justification for achieving less than the required amount. California continues to work towards meeting contingency measure requirements, but U.S. EPA must issue guidance to provide clarity and direction for states to move forward and pursue contingency measures that will meet the requirements.

7.2. Background

The Clean Air Act specifies that SIPs must 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 primary ambient air quality standard by the attainment date…." The Clean Air Act is silent though on the specific level of emission reductions that must flow from contingency measures. In the absence of specific requirements for the amount of emission reductions required, in 1992, U.S. EPA conveyed that the contingency measures should, at a minimum, ensure that an appropriate level of emissions reduction progress continues to be made if attainment of RFP is not achieved and additional planning by the State is needed (57 Federal

Register 13510, 13512 (April 16, 1992)). Further, U.S. EPA ozone guidance states 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". U.S. EPA, though, has accepted contingency measures that equal less than a year's worth of progress 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.'"[1]

Historically, U.S. EPA allowed contingency measure requirements to be met via excess emission reductions from ongoing implementation of adopted emission reduction programs, a method that CARB has used for a contingency measure and U.S. EPA has approved in the past. In 2016, in *Bahr v. U.S. Environmental Protection Agency*[2] *(Bahr),* the 9th Circuit Court of Appeals determined U.S. EPA erred in approving a contingency measure that relied on an already-implemented measure for a nonattainment area in Arizona, thereby rejecting U.S. EPA's longstanding interpretation of section 172(c)(9). U.S. EPA staff interpreted this decision to mean that contingency measures must include a future action triggered by a failure to attain or failure to make reasonable further progress. This decision was applicable to the states covered by the 9th Circuit Court. In the rest of the country, U.S. EPA was still approving contingency measures using their pre-Bahr stance. In January 2021, in *Sierra Club v. Environmental Protection Agency*[3], the United States Court of Appeals for the D.C. Circuit, ruled that already implemented measures do not qualify as contingency measures for the rest of the country (*Sierra Club*).

In response to *Bahr* and as part of the 75 ppb 8-hour ozone SIPs due in 2016, CARB developed the statewide Enhanced Enforcement Contingency Measure (Enforcement Contingency Measure) as a part of the *2018 Updates to the California State Implementation Plan* to address the need for a triggered action as a part of the contingency measure requirement. CARB worked closely with U.S. EPA regional staff in developing the contingency measure package that included the triggered Enforcement Contingency Measure, a district triggered measure and emission reductions from implementation of CARB's mobile source emissions program. However, as part of the *San Joaquin Valley 2016 Ozone Plan for 2008 8-hour Ozone Standard* SIP action, U.S. EPA wrote in their final approval that the Enforcement Contingency Measures did not satisfy requirements to be approved as a "standalone contingency measure" and approved it only as a "SIP strengthening" measure. U.S. EPA did approve the district triggered measure and the implementation of the mobile reductions along with a CARB emission reduction commitment as meeting the contingency measure requirement for this SIP.

[1] See, e.g. 78 Fed.Reg. 37741, 37750 (Jun. 24, 2013), approval finalized with 78 Fed.Reg. 64402 (Oct. 29, 2013).

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

[3] *Sierra Club v. Environmental Protection Agency,* (D.C. Cir. 2021) 985 F.3d 1055.

Subsequently, the Association of Irritated Residents filed a lawsuit against the U.S. EPA for their approval of various elements within the *San Joaquin Valley 2016 Ozone Plan for 2008 8-hour Ozone Standard*, including the contingency measure. The 9th Circuit Court of Appeals issued its decision in *Association of Irritated Residents v. EPA*[4] (*AIR*) that U.S. EPA's approval of the contingency element was arbitrary and capricious and rejected the triggered contingency measure that achieves much less than one year's worth of emission reductions. Most importantly, the 9th Circuit Court said that, in line with U.S. EPA's longstanding interpretation of what is required of a contingency measure and the purpose it serves, together with *Bahr*, all reductions needed to satisfy the Clean Air Act's contingency measure requirements need to come from the contingency measure itself and the amount of reductions needed for contingency should not be reduced by the fact of surplus emission reductions from ongoing programs absent U.S. EPA formally changing its historic stance on the amount of reductions required. U.S. EPA staff has interpreted AIR to mean that triggered contingency measures must achieve the entirety of the required one year's worth of emission reductions on their own. In addition, surplus emission reductions from ongoing programs cannot reduce the amount of reductions needed for contingency.

In response to *Bahr* and *Sierra Club*, in 2021, U.S. EPA convened a nation-wide internal task force to develop guidance to support states in their development of contingency measures. That task force is now also considering the impact of *AIR*. U.S. EPA has indicated that the contingency measure guidance may be released fall 2022. The SIPs for the 70 ppb 8-hour ozone standard are due to U.S. EPA August 3, 2022. In their updated guidance, U.S. EPA needs to recognize that many state control programs are mature and opportunities to withhold measures for contingency are scarce.

Since *Bahr*, CARB has worked closely with our U.S. EPA regional office in developing contingency measures with little success. CARB is committed to meeting the Clean Air Act requirements for contingency measures, but without finalized national guidance on this complex issue, it is not a good use of resources to pursue contingency measures that may not ultimately coincide with the upcoming new guidance.

7.3. CARB's Opportunities for Contingency Measures

Much has changed since U.S. EPA's 1992 guidance on contingency measures. Control programs across the country have matured as have the health-based standards. Ozone standards have strengthened in 2008 and 2015 with attainment dates out to 2037. California has the only two extreme areas in the country. Control measures identified for these areas must be implemented for meeting the standard and not held in reserve.

[4] *Association of Irritated Residents v. U.S. Environmental Protection Agency*, (9th Cir. 2021) 10 F.4th 937

To address contingency measure requirements given the courts' decisions and current U.S. EPA guidance, CARB and local air districts would need to develop a measure or measures that, when triggered by a failure to attain or failure to meet RFP, will achieve one year's worth of emissions reductions for the given nonattainment area, or approximately 3 percent of total baseline emissions.

Given CARB's wide array of mobile source control programs, the relatively limited portion of emissions primarily regulated by the local air district, and the fact that primarily-federally regulated sources are expected to account for approximately 46 percent of statewide NOx emissions by 2026[5], finding a single triggered measure that will achieve the required reductions would be nearly impossible. That said, even discounting the amount to reflect the proportion that is primarily-federally regulated, approximately 1.3 percent of total baseline emissions would still be needed. Even targeting a lower percentage, additional control measures that can be identified by CARB are scarce or nonexistent that would achieve the require emissions reductions needed for a contingency measure.

Adding to the difficulty of identifying available control measures, not only does the suite of contingency measures need to achieve a large amount of reductions, but they will also need to achieve these reductions in the year following the year in which the failure to attain or meet RFP has been identified. Control measures achieving the level of reductions required may take years to implement and will likely not result in immediate reductions. In the 2022 State SIP Strategy, CARB's three largest NOx reduction measures, In-Use Locomotive Regulation, Zero -Emission Standards for Space and Water Heaters and Advanced Clean Fleets, rely on accelerated turnover of older engines/trucks. Buildup of infrastructure and equipment options limits the availability to have significant emission reductions in a short amount of time. Unless U.S. EPA changes its historic stance or finds a reasoned justification for requiring less than the stated amount, adopting a single triggered measure that can be implemented and achieve the necessary reductions in the time frame required is scarce in California and may not be possible.

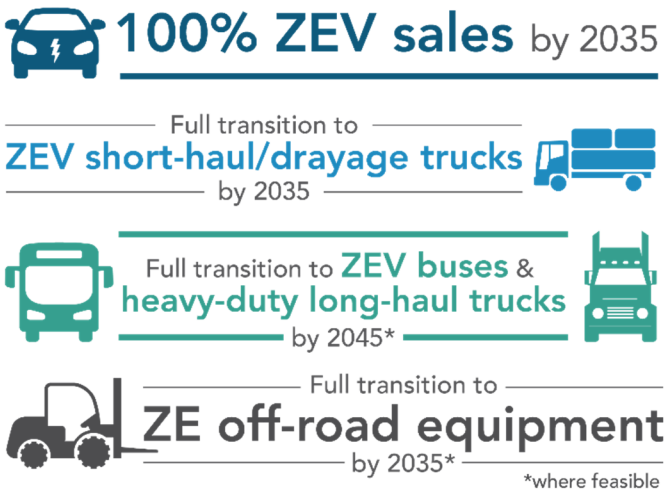
CARB has over 50 years of experience reducing emissions from mobile and other sources of pollution under State authority. The Reasonably Available Control Measures for State Sources analysis illustrates the reach of CARB's current programs and regulations, many of which set the standard nationally for other states to follow. Few sources CARB has primary regulatory authority over remain without a control measure, and all control measures that are in place support the attainment of the NAAQS. There is a lack of additional control measures that would be able to achieve the necessary reductions for a contingency measure. Due to the unique air quality challenges California faces, should such additional measures exist, CARB would pursue those measures to support expeditious attainment of the NAAQS and would not reserve such measures

[5] Source: CARB 2022 CEPAM v1.01; based on 2026 emissions totals.

for contingency purposes. Nonetheless, CARB continues to explore options for potential statewide contingency measures utilizing its authorities in anticipation of U.S. EPA's written guidance. CARB anticipates that U.S. EPA's guidance will allow an assessment of viability of such a state-wide measure.

A central issue in considering a statewide contingency measure under CARB's authority, is that CARB is already fully committed to the "drive to zero" effort. In 2020, Governor Newsom signed Executive Order N-79-20 (Figure 1) that established a first-in-the-nation goal for 100 percent of California sales of new passenger cars and trucks to be zero-emission by 2035. The Governor's order set a goal to transition 100 percent of the drayage truck fleet to zero-emission by 2035, all off-road equipment where feasible to zero-emission by 2035, and the remainder of the medium- and heavy-duty vehicles to zero-emission where feasible by 2045.

Figure 7-1. Governor Newson Executive Order N-79-20



CARB is committed to achieving these goals. Thus, CARB's programs not only go beyond emissions standards and programs set at the federal level, but many include zero-emissions requirements or otherwise, through incentives and voluntary programs, drive mobile sources to zero-emissions, as listed in Table 7-2 below. CARB is also exploring and developing a variety of new measures to drive more source categories to zero-emissions and reduce emissions even further, as detailed in the 2022 State Strategy for the State Implementation Plan. With most source categories being driven to zero-emissions, opportunities for which a triggered measure that could reduce emissions by the amount required for contingency measures are scarce.

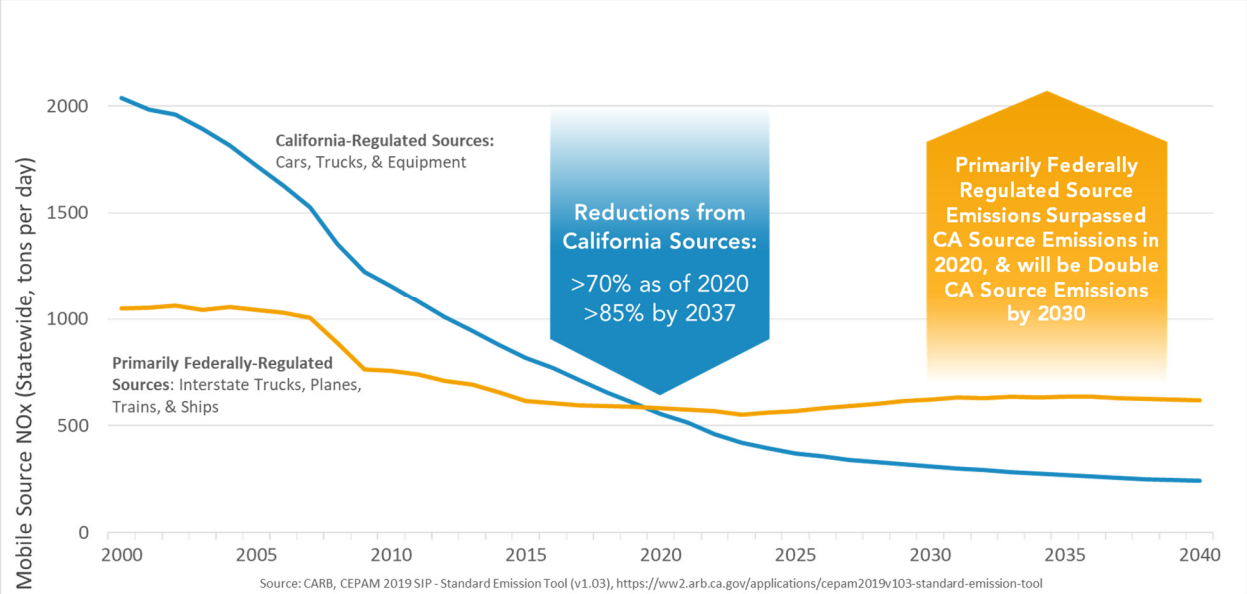
Table 7-1 - Emissions Sources and Respective CARB Programs with a Zero-Emissions Requirement/Component

Emission Source	Regulatory Programs
Light-Duty Passenger Vehicles and Light-Duty Trucks	• Advanced Clean Cars Program (I and II*), including the Zero Emission Vehicle Regulation • Clean Miles Standard *
Motorcycles	• On-Road Motorcycle Regulation*
Medium Duty-Trucks	• Advanced Clean Cars Program (I and II*), including the Zero Emission Vehicle Regulation • Zero-Emission Powertrain Certification Regulation • Advanced Clean Trucks Regulation • Advanced Clean Fleets Regulation*
Heavy-Duty Trucks	• Zero-Emission Powertrain Certification Regulation • Advanced Clean Trucks Regulation • Advanced Clean Fleets Regulation*
Heavy-Duty Urban Buses	• Innovative Clean Transit • Advanced Clean Fleets Regulation*
Other Buses, Other Buses – Motor Coach	• Zero-Emission Airport Shuttle Regulation • Advanced Clean Fleets Regulation*
Commercial Harbor Craft	• Commercial Harbor Craft Regulation
Recreational Boats	• Spark-Ignition Marine Engine Standards*
Transport Refrigeration Units	• Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (Parts I and II*)
Industrial Equipment	• Zero-Emission Forklifts* • Off-Road Zero-Emission Targeted Manufacturer Rule*
Construction and Mining	• Off-Road Zero-Emission Targeted Manufacturer Rule*
Airport Ground Support Equipment	• Zero-Emission Forklifts*
Port Operations and Rail Operations	• Cargo Handling Equipment Regulation • Off-Road Zero-Emission Targeted Manufacturer Rule*
Lawn and Garden	• Small Off-Road Engine Regulation • Off-Road Zero-Emission Targeted Manufacturer Rule*
Ocean-Going Vessels	• At Berth Regulation
Locomotives	• In-Use Locomotive Regulation*

*Indicates program or regulation is in development

There are few sources remaining without a control measure implemented by CARB, and those that do remain are primarily-federally regulated sources, including interstate trucks, ships, locomotives, aircraft, and certain categories of off-road equipment, constituting a large source of potential emissions reductions. Figure 7-2 shows how primarily California-regulated source emissions compare to primarily federally regulated source emissions from 2000 to 2040. Since these are primarily regulated at the federal and, in some cases, international level, options to implement a contingency measure with reductions approximately equivalent to one year's worth of emission reductions are limited.

Figure 7-2. Federal and State Regulated Emissions



7.4. Vessel Speed Reduction

The District believes that the only potential regulatory measure that could result in the reduction of one year of emissions is making the current voluntary VSR program mandatory. The District does not have the jurisdiction to require VSR from OGV, but it believes that CARB and the EPA have the jurisdiction to require VSR within state waters.

The current voluntary VSR program resulted in the reduction of 748 tons of NOx reductions during ozone season of 2020, approximately 4.1 tons per day, as reported on the Protecting Blue Whales and Blue Skies website www.bluewhalesblueskies.org[6]. Not all shipping companies participate in the voluntary VSR program, and compliance with speed reductions is not 100% for any participating shipping company. These NOx emission reductions exceed the total NOx emissions from sources primarily regulated by the District.

[6] These emission reductions estimates are not modeled in CARB's CEPAM model and have not been verified by CARB

VSR is a regulation that will have immediate emission reductions if implemented and enforced. Mandating a speed limit within the coastal waters off Ventura County does not require an extended equipment replacement period, and it would have immediate impact on the emissions off the coast of Ventura County.

The District believes that CARB and the EPA should evaluate mandatory VSR as a potential contingency measure for the Ventura County 2022 SIP.

7.5. Summary

At this time, CARB is including a zero-emission component in most of our regulations, both those already adopted and those that are in development, and the vast majority of these regulations are statewide. Beyond the wide array of sources CARB has been regulating over the last few decades, and especially considering those we are driving to zero-emission, there are few sources of emissions left for CARB to implement additional controls upon under its authorities. The few source categories that do not have control measures are primarily-federally and internationally regulated.

Given the courts' decisions over the last few years, CARB and local air districts will need to implement contingency measures that, when triggered, would achieve one year's worth of emissions reductions, or at least the relevant portion equivalent to the contribution of sources primarily regulated at the State and local level, unless a reasoned rationale for achieving less emission reductions can be provided. Considering the air quality challenges California and local air districts face, CARB would implement the measure to support expeditious attainment of the NAAQS as the Clean Air Act requires rather than withhold it for contingency measure purposes. Should there be a measure achieving the required emission reductions, the measure would likely take more than one year to reduce the necessary emissions.

CARB fully intends to meet the contingency requirement as required by the Clean Air Act, but written U.S. EPA guidance that addresses the dilemma California faces is needed to provide direction and clarity for CARB and local air districts to develop and adopt approvable contingency measures. CARB continues to explore potential contingency measures while awaiting U.S. EPA's written guidance. Further, since it's been about 30 years, since U.S. EPA developed the guidance, this may be the time for U.S. EPA to update the guidance by formally changing its historic stance on the amount of reductions required to meet the contingency measure requirement and allowing states with mature control programs to demonstrate that contingency measure opportunities are scarce.

GLOSSARY

Activity Indicator: A measure of socioeconomic conditions relative to a base year, such as population, housing, and employment data, used to project future year emissions by the relationship of the related activity. Example: Natural gas use per household.

Aerosols: Very small particles of solid or liquid matter suspended in the air.

Air Basin: An area of the state designated by the California Air Resources Board pursuant to Subdivision (a) of Section 39606 of the CH&SC that has similar meteorological and geographic conditions.

Air Contaminant: Any discharge, release, or other propagation into the atmosphere and includes but is not limited to, smoke, charred paper, dust, soot, grime, carbon, fumes, gases, odors, particulate matter, acids, or any combination thereof.

Air Monitoring: The periodic or continuous sampling and analysis of air pollutants in ambient air or from individual air pollutant sources.

Air Pollutants: Substances that are foreign to the atmosphere or are present in the natural atmosphere to the extent that they may result in adverse effects on humans, animals, vegetation, and/or materials.

Air Pollution Control Board (APCB): The governing body for an air pollution control district.

Air Pollution Control District (APCD): A county agency with authority to regulate sources of air pollution (other than emissions from mobile sources) such as refineries, manufacturing facilities, gasoline stations, dry cleaners, and power plants within a given county, and governed by a district APCB composed of elected city and county officials.

Air Pollution Control Officer (APCO): A person appointed by the APCB and given the authority to appoint district personnel for the purpose of observing and enforcing the provisions of Part 4, Division 26 of the CH&SC.

Air Quality Management District (AQMD): A group or portions of counties, or an individual county specified in law with authority to regulate stationary, indirect, and area sources of air pollution with the region and governed by a regional air pollution control board comprised mostly of elected officials within the region.

Air Quality Management Plan (AQMP): A plan prepared by an APCD for a county or region designated nonattainment for one or more federal or state air pollutants, for the purpose of bringing the area into compliance with the requirements of the federal and/or California ambient air quality standards. AQMPs are incorporated into the SIP.

Air Quality Standards: Those ambient air quality standards as promulgated by State or Federal pollution control agencies.

Ambient Air: Air occurring at a particular time and place outside of structures. Often used interchangeably with outdoor air.

Anthropogenic: Of, relating to, or influenced by the impact of humans on nature; man-made.

Area-wide Sources: Also known as "area" sources; are those sources which are not large enough to be tracked individually, but when added together can represent a large quantity of pollution. Examples of such sources include water heaters, gas furnaces, fireplaces, gas stations, dry cleaners, and woodstoves. Area sources of pollution are identified by Category of Emission Source codes.

Attainment: Achieving and maintaining one or more of the and/or California Ambient Air Quality Standards.

Atmosphere: The air that surrounds the earth but does not include the general volume of gases contained in any bona fide building.

Attainment Area: A geographic area that complies with one or more of the NAAQS or CAAQS.

Base Year: The year used in a predictive air pollution model that includes the known economic conditions, population, and air emissions. The base year, current or past, is used to predict the forecast year in a predictive model.

Best Available Control Technology (BACT): The most up-to-date methods, systems, techniques, and production processes available to achieve the greatest feasible emission reductions for given regulated air pollutants and processes. BACT is a requirement of NSR and Prevention of Significant Deterioration (PSD).

Best Available Retrofit Control Technology (BARCT): An emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each air pollutant source class or category (Section 40406 CH&SC).

Bike Lanes: The California Streets and Highway Code Section 890.4 defines a "Bikeway" (herein referred to as a "bike lane") as a facility that is provided primarily for bicycle travel. A Class I bikeway (or bike path) provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow by motorists minimized. A Class II bikeway (or bike lane) provides a striped lane for one-way bike travel on a street or highway. A Class III bikeway (or bike route) provides for shared use with pedestrian or motor vehicle traffic.

Biogenic: Produced by living organisms. Biogenic air pollutant emissions are of great interest because of the predominance of agriculture and natural vegetation in Ventura County. However, the District has no authority to regulate biogenic emissions. Preliminary studies indicate that biogenic emissions may be at least two times the total hydrocarbon emissions already quantified in the emissions inventory for the AQMP.

California Air Resources Board (CARB): The State's lead air quality agency consisting of an eleven-member Governor-appointed board and supporting staff fully responsible for motor vehicle pollution control, and having oversight authority over California's air pollution management program.

California Clean Air Act (CCAA): A California law passed in 1988 that provides the basis for air quality planning and regulation independent of federal regulations, and which establishes new authority for attaining and maintaining California's air quality standards by the earliest practicable date. A major element of the Act is the requirement that local air districts in violation of the California clean air standards must prepare attainment plans that identify air quality problems, causes, trends, and actions to be taken for attainment.

California Department of Transportation (Caltrans): A California state agency that oversees the state's transportation infrastructure.

California Emissions Inventory Development and Reporting System (CEIDARS): The state's emissions inventory data base system.

California Emission Forecasting System (CEFS): CARB's model to forecast air pollutant emissions. A major feature of the model is its ability to track the effects of emission control rules and growth activity for stationary and other mobile sources by linking these factors directly to the emission categories.

California Environmental Quality Act (CEQA): A California law that sets forth a process for public agencies to make informed decisions on discretionary projects such land use entitlements. The process aids decision makers to determine whether any environmental impacts are associated with a proposed project. It requires elimination or reduction of environmental impacts associated with a proposed project and the implementation of mitigation measures to reduce or remove those impacts.

California Health and Safety Code (CH&SC): The California Health and Safety Code is the collection of state laws that govern, among other things, the handling of air pollution, hazardous waste, corrective action and permitted facilities.

Carbon Monoxide (CO): A colorless, odorless gas resulting from the incomplete combustion of fossil fuels. Over 80 percent of the CO emitted in urban areas is contributed by motor vehicles. CO is a criteria pollutant and interferes with the blood's ability to carry oxygen to the body's tissues and results in numerous adverse health effects.

Cargo Handling Equipment: Cargo handling equipment is equipment used at ports to transfer goods or perform maintenance and repair activities, including but not limited to equipment such as yard trucks (hostlers), rubber-tired gantry cranes, top handlers, side handlers, forklifts, and loaders, etc.

Carl Moyer Program: The Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program) is an incentive program offered jointly by the California Air Resources Board and California's local air districts that provides grants for cleaner-than-required engines and equipment to help improve air quality in California. The grants are administered by the local air districts.

City Urban Restriction Boundary (CURB): A regional boundary set in an attempt to control urbanization by designating the area inside the boundary for higher density urban development and the area outside for lower density rural development.

Clean Air Act Amendments (CAAA): Amendments passed in 1977 and 1990 to the federal Clean Air Act of 1970 and which form the basis for the current national air pollution control effort. Basic elements of the amended act include national ambient air quality standards for major air pollutants, air toxics standards, acid rain control measures, and enforcement provisions.

Commercial Harbor Craft: Commercial harbor craft include ferries, excursion vessels, tugboats, towboats, crew and supply vessels, work boats, commercial and charter fishing boats, and barge and dredge vessels. In 2010, CARB staff estimated there are approximately 4,300 commercial harbor craft vessels with 8,700 diesel-fueled engines operating in California coastal waters.

Compressed Natural Gas (CNG): An alternative fuel that is cleaner burning and helps to meet CARB's mobile and stationary emission standards. CNG may be used in place of less clean fuels for powering motor vehicles.

Conformity: A formal demonstration of whether a federally-supported activity is consistent with the SIP – per section 176(c) of the federal CAA. Transportation conformity refers to plans, programs, and projects approved or funded by the Federal Highway Administration or the Federal Transit Administration. General conformity refers to non-transportation projects approved or funded by other federal agencies.

Consumer Products: Products such as detergents, cleaning compounds, polishes, personal care products, and automotive specialty products that are part of our everyday lives and, through consumer use, may contribute to air pollution.

Contingency Measure: Requires back-up air pollution control measures to be implemented in the event of specific conditions, such as failure to meet interim milestone emission reduction targets or failure to attain an applicable air quality standard by the statutory attainment date. Both the state and federal clean air acts require that District clean air plans include contingency measures.

Control Efficiency (CE): A variable that estimates the technological efficiency of an air pollutant control strategy. Control efficiency is one of the variables used to develop a control factor.

Control Factor (CF): Data derived from adopted State and Federal regulations and local district rules that impose emission reductions or a technological change on a particular emission process. Control factors are closely linked to the type of emission process and type of industry. They also account for three types of variables which include control efficiency, rule effectiveness, and rule penetration.

Control Measure: A single measure in an air quality plan to maintain or reduce the emissions of criteria pollutants. Control measures are enforceable commitments in the air quality plan.

Control Strategy: A combination of control measures designed to reduce air contaminant emissions to attain and maintain ambient air quality standards.

Control Techniques Guidelines (CTG): Guidance documents issued by EPA designed to assist state and local pollution authorities to achieve and maintain air quality standards for certain air pollutant sources (e.g., organic emissions from solvent metal cleaning known as degreasing) through RACT. CTGs contain information on the economic and technological feasibility of available emission control techniques.

Criteria Air Pollutant: An air pollutant for which acceptable levels of exposure can be determined and for which a federal or state ambient air quality standard has been set to protect public health and welfare. Examples include ozone, carbon monoxide, lead, nitrogen dioxide, sulfur dioxide, and fine particulates.

Department of Motor Vehicles (DMV): The California state agency responsible for registering motor vehicle drivers and motor vehicles and collecting state and local motor vehicle fees.

Design Value: The pollutant concentration used by air quality managers as the basis for determining attainment of an air quality standard, generally by using an air quality model. The design value may or may not be the same as the designation value.

District: A local air pollution control agency as defined by the CH&SC Section 40150. The Ventura County Air Pollution Control District is the local air pollution control agency for Ventura County, California.

EMFAC: The EMission FACtor computer model used by CARB to estimate on-road mobile vehicle emissions. This model is part of CARB's overall on-road mobile source Mobile Vehicle Emission Inventory model.

Early Progress Plan (EPP): An air quality planning document that shows progress towards attaining the federal ozone standards and establishes transportation conformity budgets.

Emissions Data: Measured or calculated concentrations or weights of air contaminants emitted into the ambient air. Data used to calculate emissions data are not emissions data.

Emission Factor: For stationary sources, the relationship between the amount of pollution produced and the amount of raw material processed or burned. For mobile sources, the relationship between the amount of pollution produced and the number of vehicle miles traveled. By using the emission factor of a pollutant and specific data regarding quantities of material used by a given source, it is possible to compute emissions for the source.

Emission Offsets: Actual enforceable emission reductions from existing sources sufficient to offset anticipated emission increases associated with new or modified stationary sources. A rule-making concept, whereby approval of a new stationary source of air pollution, or an increase of emissions from an existing source of air pollution, is conditional on the equal or greater reduction of emissions from other existing stationary sources of air pollution. This concept is utilized in addition to reduction in emissions by employing BACT.

Emission Reduction Credit (ERC): Credits given for actual emission reductions that are real, enforceable, permanent, quantifiable, and surplus (beyond any required reductions). An actual credit is certified via a District-issued document that specifies the date of issuance, expiration date of credit, type of pollutant, and legal owner of emission reduction credits. In some cases, ERCs can be transferred to another owner or saved for future use.

Emission Standard: The maximum amount or rate of a pollutant permitted from a polluting source such as an automobile or smoke stack.

Emissions Inventory: An emissions inventory is a large dataset that, as a whole, describes emission sources and quantifies pollutants released into the atmosphere. Considerations that go

into the inventory include type and location of emission sources, the processes involved, and the level of activity (day, month) and year of activity.

Emissions Inventory Category: A group of similar air pollutant sources. Examples include oil and gas production, dry cleaning, and pesticide application.

Emissions Inventory Code (EIC): State computer coding scheme (14 digits) used to categorize emissions in the CEIDARS database.

Equipment: Any operation, article, machine, equipment, or contrivance that may emit or reduce the emissions of any air contaminant or affected air pollutant.

Exceedance: Measured concentration of an air pollutant in ambient air is higher than the state and/or federal ambient air quality standard for that pollutant.

Federal Aviation Administration (FAA): An agency of the United States Department of Transportation with authority to regulate and oversee all aspects of civil aviation in the U.S.

Federal Clean Air Act (CAA): A federal law passed in 1970 and significantly amended in 1977 and 1990 that forms the basis for the national air pollution control efforts. Basic elements of the Act include national ambient air quality standards for major air pollutants, air toxics standards, acid rain control measures, and enforcement provisions.

Federal Highway Administration (FHWA): A division of the United States Department of Transportation that specializes in highway transportation. The agency's major activities are grouped into two programs, The Federal-aid Highway Program, and the Federal Lands Highway Program.

Federal Implementation Plan (FIP): A plan prepared and enforced by the EPA that provides measures nonattainment areas must take to meet the requirements of the federal CAA. The EPA implements FIPs when states are unable or unwilling to adopt and implement adequate SIPs.

Federal Transit Administration (FTA): An agency within the United States Department of Transportation that provides financial and technical assistance to local public transit systems.

Federal Transportation Improvement Plan (FTIP): A staged, multiyear, intermodal program of transportation projects covering a metropolitan planning area, consistent with the metropolitan transportation plan, and developed pursuant to 23 CFR Part 450.

Forecast Year: The future year of interest in a predictive air pollution or emissions model. The predictivie model results produce future year emissions based on expectations of future land use, transportation changes, econmic conditions, population growth, and emission controls.

Greenhouse Gas (GHG): Gaseous components of the atmosphere that contribute to the greenhouse effect. Greenhouse gases include, in order of relative abundance: water vapor, carbon dioxide, methane, nitrous oxide, ozone and chlorofluorocarbons.

Growth Factor (GF): Data derived from county-specific economic activity profiles, population forecasts, and other socio-demographic activity.

Hydrocarbon: Any of a large number of compounds containing various combinations of hydrogen and carbon atoms. They may be emitted into the air as a result of fossil fuel combustion and fuel volatilization and are a major contributor to smog.

Hydrofluorocarbons: A group of chemical compounds, consisting of alkanes, such as methane or ethane, with one or more halogens linked, such as chlorine or fluorine, making them a type of organic halide.

Implementation Factor (IF): A variable used to develop control factors, indicating the relative amount of total control from a control measure occurring in a given year to account for phased implementation or control requirements occurring in tiers.

Indirect Source: Any facility, building, structure, or installation, or combination thereof, which generates or attracts motor vehicle activity resulting in emissions of any pollutant (or precursor) for which there is a state or federal ambient air quality standard. Examples of indirect sources include employment sites, shopping centers, sports facilities, housing developments, airports, educational institutions, commercial and industrial developments, and parking lots and garages.

Internal Combustion Engine: A heat engine in which the combustion generates the heat inside the engine proper instead of in a furnace. An example of an IC engine is an automobile engine.

Inversion: A layer of warm air in the atmosphere that lies over a layer of cooler air, trapping pollutants beneath it.

Lead: A gray-white metal that is soft, malleable, ductile, and resistant to corrosion. Sources of lead resulting in concentrations in the air include industrial sources and crustal weathering of soils followed by fugitive dust emissions. Health effects from exposure to lead include brain and kidney damage and learning disabilities. Lead is the only substance currently listed as both a criteria air pollutant and a toxic air contaminant.

Local Agency Formation Commission (LAFCo): A decision making government entity in California with the responsibility to decide boundary issues pertaining to city and county (non-incorporated) lands, including spheres of influence, and issues about the annexation of county lands into a city or special district.

Local Sources: Air pollution sources for which local governments (cities, counties, air agencies) have primary regulatory authority.

Maintenance Plan: A plan that details the actions needed to maintain air quality at or below federal standards. The federal CAA requires maintenance plans for areas that have been re-designated attainment areas.

Major Source Category: A general, broad category of similar emission sources. Examples are Fuel Combustion, Waste Disposal, Solvent Evaporation, are broad category classifications which are made up of many sub-categories.

"Major" Sources under CAAA: A source with a potential to emit more than a specific threshold of emissions annually, determined by the nonattainment designation of an air quality district.

Memorandum of Understanding (MOU): A formal agreement made among agencies for the purposes of jointly accomplishing a goal, program, etc. The governing boards of the involved agencies must ratify the agreement.

Metropolitan Planning Organization (MPO): The organization designated as being responsible, together with the State, for conducting the continuing, cooperative, and comprehensive planning process under 23 U.S.C. 134 and 49 U.S.C. 1607. It is the forum for cooperative transportation decision-making.

Mobile Sources: Sources of air pollution such as automobiles, motorcycles, trucks, off-road vehicles, boats, and airplanes.

Motor Vehicle: A self-propelled vehicle as defined in the California Vehicle Code, Division I, Section 415.

National Ambient Air Quality Standards (NAAQS): Standards set by the EPA for the maximum levels of certain air pollutants in outdoor air without unacceptable effects on human health or public welfare. There are NAAQS for ozone, particulates, carbon monoxide, nitrogen dioxide, lead, and sulfur dioxide.

Naval Base Ventura County: A major U.S. military facility in Ventura County, California.

New Source Review (NSR): The mechanism to ensure that new and modified stationary sources of air pollution will not interfere with the attainment or maintenance of any ambient air quality standard or prevent reasonable further progress towards the attainment or maintenance of any ambient air quality standard. A program used in a nonattainment area to permit or site new

industrial facilities or modifications to existing industrial facilities that emit nonattainment criteria air pollutants. The two major requirements of NSR are Best Available Control Technology and Emission Offsets.

Nitrogen Dioxide (NO_2): A reddish-brown gas with a characteristic sharp, biting odor. Nitrogen dioxide is one of the most prominent air pollutants and a poison by inhalation.

Nonattainment Area: An area identified by the EPA and/or CARB as not meeting either federal or state clean air standards for a given criteria air pollutant.

Ocean-going Vessel: An ocean-going vessel (OGV) is a commercial ship greater than or equal to 400 feet in length or 10,000 gross tons; or propelled by a marine compression ignition engine with a displacement of greater than or equal to 30 liters per cylinder. The emissions inventory includes all OGV emissions occurring within 100 nautical miles of the California coastline.

OFFROAD Emissions Model: California Air Resources Board model that estimates population, activity, and emissions for specific categories of off-road (non-highway) equipment by fuel types at the county level.

Other Mobile Sources: A broad emissions category for mobile off-road equipment, including aircraft, locomotives, marine vessels, agricultural and construction equipment and more.

Organic Solvents: Liquids containing organic compounds which are used as dissolvers, viscosity reducers, or cleaning agents. These liquids are principally derived from petroleum and include petroleum distillates, chlorinated hydrocarbons, chlorofluorocarbons, ketones, and alcohols. Solutions, emulsions, and dispersions of water and soap, or water and detergent are not organic solvents. Soaps and detergents are water-based surfactants.

Outer Continental Shelf (OCS): All submerged lands lying seaward of state coastal waters (beyond 3 miles offshore) which are under U.S. jurisdiction as defined by the Outer Continental Shelf Lands Act of 1953.

Oxides of Nitrogen (NOx): A general term pertaining to compounds of nitric oxide (NO), nitrogen dioxide (NO_2), and other oxides of nitrogen. Nitrogen oxides are created during combustion processes and are major contributors to smog formation and acid deposition. NO_2 is a criteria pollutant and may result in numerous adverse human health effects.

Ozone: A reactive gas consisting of three oxygen atoms found in two layers of the atmosphere, the stratosphere, and the troposphere. In the stratosphere (the atmospheric layer 7 to 10 miles or more above the earth's surface), ozone is a natural form of oxygen that provides a protective layer shielding the earth from ultraviolet radiation.

In the troposphere (the layer extending up 7 to 10 miles from the earth's surface), ozone is a chemical oxidant and major component of photochemical smog. It can seriously impair the respiratory system and is one of the most widespread of all the criteria pollutants for which the federal Clean Air Act required EPA to set standards. Ozone in the troposphere is produced through complex photochemical reactions of nitrogen oxides, which are among the primary pollutants emitted by combustion sources; hydrocarbons, released into the atmosphere through the combustion, handling and processing of petroleum products; and sunlight.

Ozone Precursors: Chemicals such as volatile organic compounds and nitrogen oxides, occurring either naturally or as a result of human activities, which contribute to the formation of ozone, a major component of smog.

Ozone Summer Season: May – October months, when ozone formation potential is the greatest.

Particulate Matter (PM): Any material, except pure water, that exists in the solid or liquid state in the atmosphere. The size of particulate matter can vary from coarse, wind-blown dust particles, to fine particle combustion products.

Particulate Matter - Fine ($PM_{2.5}$): A mixture of very small atmospheric particles with an aerodynamic diameter equal to or less than 2.5 microns. $PM_{2.5}$ consists of particles directly emitted into the air and particles formed in the air from the chemical transformation of gaseous pollutants. $PM_{2.5}$ particles result from activities such as industrial and residential combustion, and from vehicle exhaust. Particles 2.5 microns or smaller infiltrate the deepest portions of lungs, increasing the risks of long-term disease, including chronic respiratory disease, cancer, and increased and premature death.

Particulate Matter (PM_{10}): A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and mists. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the air sacs deep in the lungs where they may be deposited to result in adverse health effects. PM_{10} also causes visibility reduction and is a criteria air pollutant.

Parts per million (ppm): Standard measurement of concentration by which ozone or other atmospheric gases are measured. 1 ppm is equivalent to 1,000 parts per billion (ppb).

Perfluorocarbons: Compounds derived from hydrocarbons by replacement of hydrogen atoms by fluorine atoms and made up of carbon and fluorine atoms only, such as octafluoropropane, perfluorohexane, and perfluorodecalin.

Photochemical Reaction: A term referring to chemical reactions brought about by the light energy of the sun. Photochemical reactions in the atmosphere create harmful air pollutants such as ozone.

Point Source: Stationary emission sources having a district permit to operate identified on an individual basis due to the quantity or nature of their emissions. Examples of point sources include electrical power generating plants or large surface coating operations.

Rate of Progress: Section 182(c)(2) of the federal CAA Amendments requires ozone nonattainment areas designated serious or above to demonstrate post-1996 volatile organic compound emission reductions of three percent per year, averaged over a three- year period. The U.S. Environmental Protection Agency refers to these reductions as the rate-of-progress requirement.

Reactive Fraction: The relative amount of TOG compounds which is photochemically reactive and participates in ozone formation, excluding methane and other compounds with inconsequential effects on ozone photochemical reactivity.

Reactive Organic Gas (ROG): A reactive chemical gas composed of hydrocarbon compounds that may contribute to the formation of smog by their involvement in atmospheric chemical reactions. Also, sometimes referred to as non-methane organic compounds (NMOCs). VOC emissions are a subset of ROG emissions.

Reasonably Available Control Measures (RACM): A broadly defined term referring to technologies and measures to control air pollution.

Reasonably Available Control Technology (RACT): A set of air pollution control technologies defined in the CFR 57 FR 55620, as "the lowest emission limitation that a unit is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility".

Reasonable Further Progress (RFP): A requirement for a State Implementation Plan showing increments of progress (emission reductions) from the date of designation of nonattainment for federal ozone standards to the attainment dates - applicable for both Subpart 1 and Subpart 2 ozone nonattainment areas.

Recreational Boats: Recreational boats include pleasure boats with inboard or outboard engines, and personal watercraft, etc.

Regional Transportation Plan (RTP): The official intermodal metropolitan transportation plan developed through the metropolitan planning process for the metropolitan planning area and developed pursuant to 23 CFR Part 450.

Rule Effectiveness: An estimate of how well an air pollution rule or control strategy works in "real-world" application. Rule effectiveness is one of the variables used to develop a control factor.

Rule Penetration: An estimate of the degree an air pollution control strategy will penetrate a certain regulated sector taking into account such things as equipment exemptions.

Save Open-Space and Agricultural Resources (SOAR): A local nonprofit citizen organization in Ventura County dedicated to making Ventura County a better place to live by limiting urban sprawl, protecting open space and agricultural lands, and promoting livable and sustainable communities in Ventura County.

South Central Coast Air Basin (SCCAB): An air basin established by CARB that has similar meteorological and geographical conditions that consists of San Luis Obispo, Santa Barbara, and Ventura Counties.

South Coast Air Quality Management District (SCAQMD): South Coast Air Quality Management District. A regional air quality control district encompassing four counties in Southern California (Los Angeles, Orange, Riverside and San Bernardino).

Southern California Association of Governments (SCAG): The organization, known in federal law as the Council of Governments and Metropolitan Planning Organization, representing Los Angeles, Ventura, San Bernardino, Riverside, Orange, and Imperial Counties, and the cities within those six counties. As the designated Metropolitan Planning Organization for the designated areas, the Association of Governments is mandated by the federal government to research and formulate plans for transportation, growth management, hazardous waste management, and air quality. Additional mandates exist at the state level.

Smog: A combination of smoke, ozone, hydrocarbons, nitrogen oxides, and other chemically reactive compounds, which, under various conditions of weather and sunlight, may result in a murky brown haze that causes adverse health effects and human welfare effects. A primary source of smog is motor vehicles.

Smog Check Program: A motor vehicle inspection program implemented by the California Bureau of Automotive Repair. It is designed to ensure the effectiveness of automobile emission control systems on a biennial basis. The program was enacted in 1979 and strengthened in 1990. Also known as the Inspection and Maintenance Program (I & M).

State Implementation Plan (SIP): A document prepared by each state describing existing air quality conditions and measures that it will take to attain and maintain national ambient air quality standards. The provisions and commitments in SIPs are federally enforceable.

State Tidelands: The offshore region three miles from the shoreline.

Stationary Sources: Non-mobile sources such as power plants, refineries, and manufacturing facilities, and turbines that emit air pollutants.

Sulfur Dioxide (SO_2): A colorless, extremely irritating gas or liquid of sulfur and oxygen and whose chemical formula is SO_2. Sulfur dioxide mainly enters the atmosphere as a pollutant through burning high sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries. SO_2 is a criteria air pollutant.

Summer Planning Day Emissions: Emissions occurring during a typical summer day during the months of May – October. This term is interchangeable term with "ozone season" day emissions.

Tons per day (tpd): A unit of measurement often used in air pollutant emission inventories.

Total Organic Compounds (TOC): Organic compounds of carbon including methane emitted to the atmosphere. TOCs exclude carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates and ammonium carbonate.

Total Organic Gases (TOG): Total organic gases mean "compounds of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate." TOG includes all organic gas compounds emitted to the atmosphere, including the low reactivity, or "exempt VOC", compounds (e.g., methane, ethane, various chlorinated fluorocarbons, acetone, perchloroethylene, volatile methyl siloxanes, etc.).

TOG also includes low volatility or "low vapor pressure" organic compounds (e.g., some petroleum distillate mixtures). TOG includes all organic compounds that can become airborne (through evaporation, sublimation, as aerosols, etc.), excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate.

Transportation Control Measure (TCM): Any control measure or strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions. TCMs include encouraging the use of carpools mass transit, walking, and bicycling.

United States Environmental Protection Agency (EPA): The United States agency charged with setting policy, guidelines, and carrying out legal mandates for the protection of national interests in environmental resources.

Vehicle Miles Traveled (VMT): A measure of both the volume and extent of motor vehicle operation; the total number of vehicle miles traveled within a specified geographical area over a given period of time.

Ventura County Transportation Commission (VCTC): Agency responsible for planning and funding transportation and transit improvements in Ventura County. VCTC develops and implements transportation policies, projects, and funding priorities for a wide variety of transportation projects.

Visibility: The distance that atmospheric conditions allow a person to see at a given time and location. Visibility reduction from air pollution is often due to the presence of sulfur and nitrogen oxides, as well as particulate matter, including aerosols.

Volatile Organic Compounds (VOC): Hydrocarbon compounds that exist in the ambient air. VOCs contribute to the formation of smog and/or may themselves be toxic. VOCs often have an odor, and examples include gasoline, alcohol, and paint solvents.

Weight of Evidence (WOE): A supplementary set of analyses intended to verify modeled predictions of future air quality, especially at levels near the federal standards. These analyses can include air quality trends, emission trends, meteorological data, evaluation of other air quality indicators, and additional air quality modeling.