Chapter 1
Introduction

- **The Los Angeles area started experiencing high levels of smog in the early 1900s, with its first smog event in 1943.**
- **Air quality has improved dramatically in Southern California over the past several decades, but the region still suffers the worst ozone air pollution and among the worst particulate matter pollution in the nation.**
- **Air pollution levels in the region exceed multiple State and federal air quality standards, including the 2015 8-hour ozone National Ambient Air Quality Standard.**
- **This document is the plan to meet the 2015 8-hour ozone standard no later than the required date of 2037.**

In This Chapter

Purpose

The greater Los Angeles area experiences some of the worst air pollution in the nation. The region has the highest levels of ozone, and among the highest levels of fine particulate matter (PM2.5). These air pollutants cause substantial health impacts, including respiratory and cardiovascular disease, worsening asthma symptoms, and premature death.

The federal Clean Air Act (CAA or Act) requires areas that do not meet the health-based National Ambient Air Quality Standards (NAAQS or federal standards) to develop and implement an emission reduction strategy to attain healthy levels of air quality in a timely manner. The State of California also requires areas that do not meet the California ambient air quality standards (CAAQS or State standards) to take all feasible measures towards achieving the CAAQS at the earliest practicable date. Air Quality Management Plans (AQMPs or Plans) provide the strategy and the underlying technical analysis for how the region will meet federal standards by the required dates and continue progress to achieve the state standards. The South Coast Air Quality Management District (South Coast AQMD), with contributions from and collaborations with the California Air Resources Board (CARB) and Southern California Association of Governments (SCAG), has developed six comprehensive AQMPs since the late 1990s to address updates to air quality standards and attainment deadlines. The primary purpose of the 2022 AQMP is to identify, develop, and implement strategies and control measures to meet the 2015 8-hour ozone NAAQS - 70 parts per billion (ppb) as expeditiously as practicable, but no later than the statutory attainment deadline of August 3, 2038 for South Coast Air Basin (Basin) ~~and Coachella Valley.~~[1] and August 3, 2033 for the Riverside County portion of the Salton Sea Air Basin (referred as Coachella Valley Planning Area or Coachella Valley).[2]

Historical Perspective

Photochemical smog is air pollution containing ozone and other chemicals that is formed with sunlight in the atmosphere. Nitrogen oxides (NOx) and Volatile Organic Compounds (VOCs) are the building blocks that form smog and are referred to as "ozone precursors.". ~~.~~ The abundant sunlight and presence of mountain ranges surrounding the greater Los Angeles area provide favorable conditions for smog formation within the Basin. As population in the region grew, the air pollution worsened from the

[1] The Basin's ozone attainment date is August 3, 2038, which is 20 years from the designation as an "extreme" nonattainment area. The U.S. EPA requires all control measures in the attainment demonstration must be implemented no later than the beginning of the attainment year ozone season. The U.S. EPA also defines the attainment year ozone season is the ozone season immediately preceding a nonattainment area's maximum attainment date, which is August 3, 2038, therefore, 2037 is the attainment year for the Basin.

[2] The Coachella Valley's ozone attainment date is August 3, 2033, which is 15 years from the designation as a ~~"extreme"~~ "severe-15" nonattainment area. The U.S. EPA requires all control measures in the attainment demonstration must be implemented no later than the beginning of the attainment year ozone season. The U.S. EPA also defines the attainment year ozone season is the ozone season immediately preceding a nonattainment area's maximum attainment date, which is August 3, 2033, therefore, 2032 is the attainment year for Coachella Valley.~~–~~

increased number of motor vehicles and industrial facilities. With this worsening of air pollution, the Los Angeles area started experiencing high levels of smog in the early 20th century. Los Angeles recorded its first smog event on July 26, 1943. The *Los Angeles Times* described this event as a cloud of smoke and fumes that descended on downtown, severely cut visibility, and invoked negative health effects in residents such as respiratory problems and headaches.

In response to rising levels of smog, the City of Los Angeles established a Bureau of Smoke Control in 1945. In 1947, State law authorized the creation of county-wide air districts with jurisdiction across cities. The Los Angeles Board of Supervisors created the Los Angeles Air Pollution Control District (APCD), the first in the nation, as a county-wide air quality agency with broad powers to adopt and enforce air pollution regulations. That same year, the newly formed agency required all major industries to have air pollution permits and adopted a rule to require metal melting plants to control dust and fumes with baghouse[3] controls.

In 1948, Arie J. Haagen-Smit, a biochemistry professor at the California Institute of Technology in Pasadena, started examining the biology of plants and crops that had been damaged by smog. By the early 1950's, Dr. Haagen-Smit had determined that smog caused eye irritation and damage to plants and materials, including rubber tubing that cracked in seven minutes when exposed to high smog levels. In 1953, the Los Angeles County APCD started requiring controls to reduce VOC emissions from industrial gasoline storage tanks, and vapor leaks from the filling of gasoline tank trucks and underground storage tanks at service stations. These actions were critical in helping to reduce the estimated 2,000 tons per day of VOCs and 250 tons per day of NOx[4] at a time when the population in the region was only five million residents.

Downtown Los Angeles, 1950s

Smog got so bad in the shadow of City Hall that pedestrians would carry

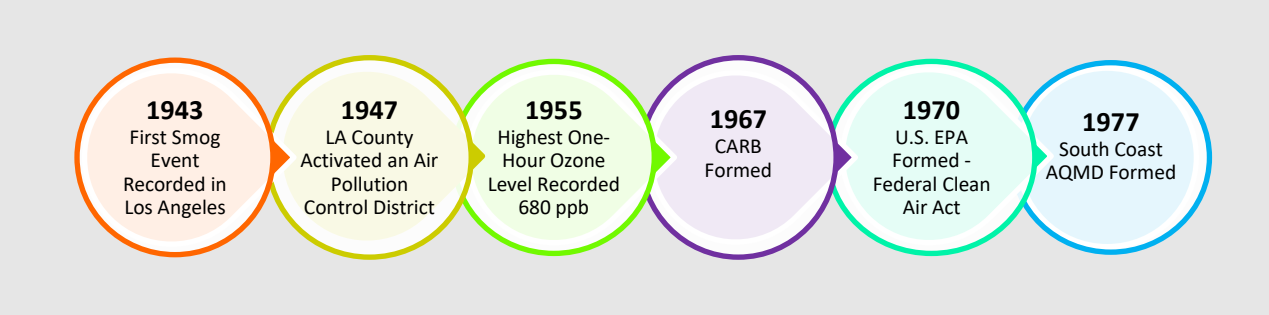
A Smog Emergency Warning System was launched in 1955 when the highest one-hour ozone level of 680 ppb was recorded in downtown L.A. The first network of air monitors was initiated in 1956 and backyard trash incinerators were banned in 1958 when trash collection programs were established in the region.

[3] A baghouse or bag filter is an air pollution control device that removes particulates out of air or gas released from commercial or industrial processes.

[4] "Second Technical and Administrative Report on Air Pollution in Los Angeles County," Annual Report 1950–51, Air Pollution Control District, Los Angeles County, California, 1952.

Other regulated sources included petroleum-based solvents, landfills, refineries, power plants, and industrial facilities.

Recognizing that counties could not adequately regulate motor vehicle pollution, the California Legislature established the California Motor Vehicle Pollution Control Board to test vehicle emissions and certify emission control devices. Six years later, California became the first state in the nation to establish automobile tailpipe emission standards, ~~one~~ 1 year before the creation of ~~the~~ CARB. By 1969, the first state ambient air quality standards were enacted in California. In the following year, the U.S. Environmental Protection Agency (U.S. EPA) was formed, and the federal CAA became law. The U.S. EPA adopted the first national ambient air quality standards in 1971. Trailing the State and federal air quality standards, California adopted regulations requiring the installation of a vehicle pollution control device, the catalytic converter, starting with the 1975 model year. Over time, motor vehicle fuels were reformulated to reduce photochemically reactive olefins, remove lead in gasoline, and utilize fewer smog-forming and toxic chemicals.



In 1977, the Los Angeles County APCD merged with the APCDs of Orange, Riverside, and San Bernardino counties to form the South Coast Air Quality Management District.[5] The following year, the newly formed agency required gas stations to install vapor recovery "boots" on gasoline nozzles, further reducing VOCs that would escape when filling the vehicle tank. The South Coast AQMD has continued to adopt and implement rules to reduce air pollution emissions and public exposure to unhealthful air pollution. In addition, efforts on the State and federal level have continued to contribute ~~toward~~towards reducing air pollution from mobile and area sources to achieve the ground-level ozone and particulate matter (PM) NAAQS.

Currently, ~~the~~ South Coast AQMD oversees three air basins, which are the South Coast Air Basin (the Basin), the Riverside County portion of the Salton Sea Air Basin (referred to as Coachella Valley Planning Area or Coachella Valley) and the Riverside County portion of the Mojave Desert Air Basin (MDAB). ~~Details~~Further details are provided in the Regional Setting section of this chapter.

[5] Pursuant to the Lewis Air Quality Management Act adopted by the California Legislature in 1976 https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=HSC&division=26.&title=&part=3.&chapter=5.5.&article=2.

Agency Responsibilities

The federal and state ~~Clean Air Acts~~CAAs provide the principal framework for national, state, and local efforts to protect public health from harmful air pollution. Authority to reduce emissions from various sectors is spread across different agencies.

South Coast Air Quality Management District (South Coast AQMD): Local air districts are responsible for preparing the portion of the State Implementation Plan (SIP) applicable within their boundaries. SIPs are comprehensive plans that describe how an area will attain NAAQS. The 2022 AQMP will be the portion of the SIP for the Basin and Coachella Valley.[6] The South Coast AQMD has primary authority to reduce local emissions by adopting control regulations for stationary sources. Stationary sources include point sources, such as power plants and refineries, and selected area sources, such as gas stations, dry cleaners, and paints and coatings. The South Coast AQMD also has limited authority to address mobile sources through incentive programs and implementation of indirect source and transportation control measures (e.g., employee ridesharing rules). Mobile source emissions such as cars, trucks, trains, and off-road vehicles and equipment are instead regulated primarily by State and federal authorities. Ships and airplanes are regulated primarily by international authorities.

Southern California Association of Governments (SCAG): Under federal law (23 U.S. Code § 134 and 49 U.S. Code § 5303), SCAG is designated as the Metropolitan Planning Organization (MPO) and is designated as a Regional Transportation Planning Agency and a Council of Governments under state law (California Government Code, § 29532, et. seq.). SCAG is responsible for preparing the portion of the SIP that addresses transportation control measures, land use, and growth projections.[7] In particular, SCAG develops long-range regional transportation plans including sustainable communities strategy and growth forecast components, regional transportation improvement programs, regional housing needs allocations and a portion of the South Coast AQMD's AQMPs. SCAG provides plans for ~~6~~ six counties and 26 planning areas according to the attainment status of ozone, particulate matter less than 10 microns in diameter (PM10) and PM2.5 NAAQS. South Coast Air Basin and Coachella Valley are both included in their planning areas.

California Air Resources Board (CARB): CARB is a state level agency primarily responsible for adopting motor vehicle emission standards, compiling the SIP for submission to the U.S. EPA; approving district air quality plans as sufficient to meet State legal requirements, and providing general oversight of districts. CARB establishes State air quality regulations addressing certain categories of consumer products and mobile sources such as heavy-duty trucks, light-duty cars, construction equipment and small off-road engines. CARB has also established State ambient air quality standards for criteria pollutants which are generally more stringent than the ~~national ambient air quality standards~~NAAQS.

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[6] The Riverside portion of the MDAB is not classified as nonattainment for 2015 8-hour ozone standard and so does not need a SIP. https://www3.epa.gov/airquality/greenbook/jbtcw.html.

[7] SCAG is responsible for the portion of SIP that addresses transportation control measures, land use, and growth projections within certain districts that have not met air quality standards.

United States Environmental Protection Agency (U.S. EPA): The federal ~~Clean Air Act~~CAA requires the U.S. EPA to set standards, also known as NAAQS, for pollutants which are considered harmful to human health and the environment. The U.S. EPA is also responsible for ensuring that these air quality standards are met, or attained (in cooperation with state, Tribal, and local governments) through national standards and strategies to control pollutant emissions from selected on-road mobile source, facilities, and other mobile sources. In addition, the federal CAA requires States or the U.S. EPA (depending on the program) to set emissions standards or limits for air pollution sources such as power plants, industrial facilities, and motor vehicles. For example, the U.S. EPA is responsible for setting federal emission standards for mobile sources such as light-duty vehicles, heavy-duty engines and vehicles, and nonroad engines and vehicles.

In the South Coast Air Basin, mobile sources account for over 80 percent of smog-forming pollution. This means that the South Coast AQMD lacks direct authority to regulate the sources of emissions responsible for high levels of air pollution. Given each agency's primary responsibilities, ~~the~~ South Coast AQMD, CARB, the U.S. EPA, international agencies, and other public agencies must all work together to achieve the needed reductions to ensure that air quality standards are met in the region.

Emission reductions can be achieved by employing cleaner technologies and cleaner fuel and/or limiting activities producing emissions such as vehicle miles travelled, economic activities, and population growth. While South Coast AQMD strongly supports economic growth in the region, we also recognize that growth in sectors such as goods movement affect certain communities disproportionally.

Goods movement is a substantial source of smog-forming emissions in our region and the goods movement sector has recently experienced substantial growth in the region. Projections indicate that this expansion will continue. This growth has resulted in surging demand for warehousing, which has fueled the construction of new warehouses in the Inland Empire. Due to the substantial emissions associated with warehouses, it is critical that land use decisions regarding the siting of warehouses consider air quality impacts when approving new projects. While these decisions are typically made at the local level and South Coast AQMD lacks direct regulatory authority over land use, South Coast AQMD recognizes that collaboration across multiple public agencies and cities is required to promote better land use planning in consideration of air quality impacts. Figure 1-1 provides a summary of the agencies responsible for controlling growth rates and emissions standards. While South Coast AQMD is responsible for both, we are not the primary agency for demand management. More details regarding the specific measures that the 2022 AQMP will employ to reduce emissions from the goods movement sector can be found in Chapter 4 and Appendix IV-A and transportation control measures are in Appendix IV-C.

FIGURE 1-1
ILLUSTRATION OF LOCAL, STATE, AND FEDERAL AGENCIES AND THEIR AUTHORITY OVER EMISSIONS CONTROL TECHNOLOGY OR EMISSIONS DEMAND MANAGEMENT.[8]

Regional Setting

Because air pollution is not contained within city and county jurisdictional boundaries, local programs were not enough to solve regional problems. For air resource management, California was divided into 15 air basins which are characterized as regions having similar geography and terrain, similar weather and climate conditions, and are affected by similar regional air quality problems.[9] The jurisdiction of the South Coast AQMD covers (Figure 1-~~1~~2) an area of approximately 10,743 square miles, consisting of the ~~South Coast Air~~ Basin ~~(Basin),~~, and the Riverside County portions of the ~~Salton Sea Air Basin (~~SSAB~~)~~ and ~~Mojave Desert Air Basin (~~MDAB~~).~~. The Basin, which is a sub-region of the South Coast AQMD's jurisdiction, is bounded by the

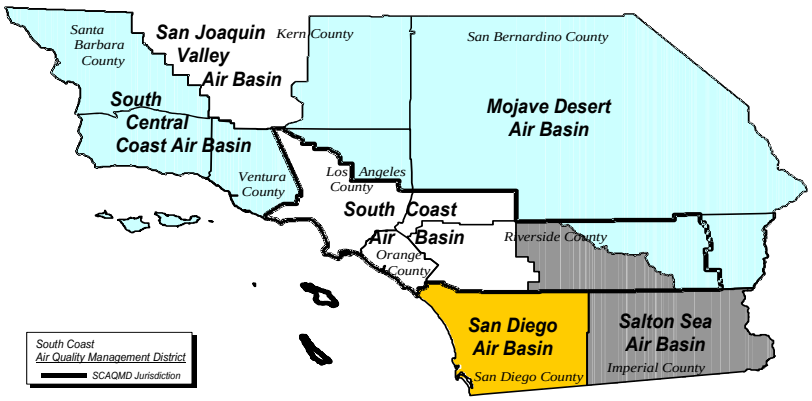


FIGURE 1-~~1~~2
BOUNDARIES OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT AND NEIGHBORING FEDERAL PLANNING AREAS

[8] The cities displayed in the figure are for illustrative purposes only and South Coast AQMD recognizes that all cities contribute to emission demand management through land use decisions.

[9] https://www.arb.ca.gov/app/emsinv/maps/2021statemap/abmap.php.

Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. It includes all of Orange County and major portions of Los Angeles, Riverside, and San Bernardino counties. The Coachella Valley Planning Area (Riverside County portion of the SSAB) is a federal nonattainment area that is part of a sub-region of Riverside County in the SSAB that is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley. The Riverside County portion of the MDAB within the South Coast AQMD jurisdiction is bounded by the eastern boundary of the Coachella Valley in the west and spans eastward to the Palo Verde Valley. The SSAB and MDAB were previously included in a single large basin called the Southeast Desert Air Basin (SEDAB).

The Coachella Valley Planning Area also experiences high levels of ozone but lacks the large sources of smog-forming emissions. Instead, it is primarily impacted by pollutants that are transported from the Basin. In addition, pollutant transport also impacts the Antelope Valley, Mojave Desert, Ventura County, and San Diego County. As part of this AQMP, the air quality planning requirements for the Coachella Valley ozone nonattainment area are discussed and addressed in Chapter 7.

The topography and climate of Southern California combine to make the Basin an area highly favorable for forming air pollution. A warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. ~~The~~Within the atmosphere, the warm upper layer forms a cap over the cooler surface layer, which traps the pollutants near the ground. Light winds can further limit ventilation. Additionally, the region experiences more days of sunlight than any other major urban area in the nation except Phoenix, Arizona. This abundant sunlight triggers the photochemical reactions which produce ozone and PM2.5.

Emissions Sources

The Basin's economic base is diverse. Historically, the four counties of the Basin have collectively comprised one of the largest and fastest-growing local economies in the nation. Significant changes have occurred in the composition of the industrial base of the region in the past few decades. As in many areas of the nation, a large segment of heavy manufacturing, including steel and tire manufacturing as well as automobile assembly, has either eliminated or greatly lessened their operations. Although there are still significant manufacturing operations in the region,[10] growth in shipping and trade, service and logistics businesses have replaced some of the heavy industry. The region is home to the largest seaport complex in the nation, and over a third of all cargo imported to the nation comes through the Ports of Los Angeles and Long Beach.[11] The goods movement sector has further grown rapidly in recent years and the emissions from the associated seaports, railyards, warehouse, drayage trucks, and cargo handling equipment accounts for a significant portion of the Basin's emissions. In particular, the COVID-19 pandemic shifted American consumers behavior from service-based economy to goods-based economy, which brought record high congestion in the Ports of Los Angeles and Long Beach and substantially increased emissions in the region. These goods movement activities posed additional challenges in cleaning air for the 17 million residents in the Basin.

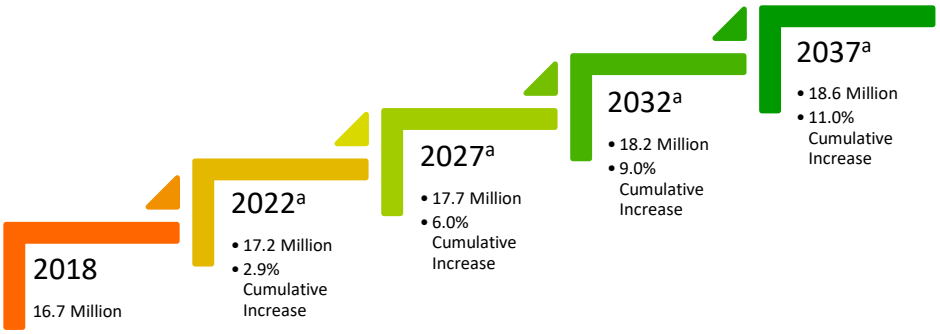
[10] http://blogs.wsj.com/economics/2015/07/15/where-are-the-most-u-s-manufacturing-workers-los-angeles/.

[11] https://www.statista.com/statistics/1265024/leading-us-ports-by-teu/.

Air pollution forms either directly or indirectly from pollutants emitted from a variety of sources. These sources of air pollution can be natural, such as oil seeps, vegetation, or windblown dust. However, the majority of emissions in the Basin are related to human activity. The air pollution control strategy in the 2022 AQMP is directed at controlling man-made sources~~.~~ of air pollution. Examples of man-made emission sources include industrial and manufacturing facilities, cars and trucks, off-road mobile sources such as locomotives, aircraft and ocean-going vessels, evaporation of organic liquids, such as those used in coating and cleaning processes, and abrasion processes, such as tires on roadways. South Coast Air Basin has a complex mix of emission sources. The Basin has around 28,400 stationary ~~sources~~source businesses operating under ~~the~~ South Coast AQMD permits, including 31 electricity generating facilities[12] and ~~5~~five major petroleum refineries.[13] The Basin is also a ~~logistic~~logistics hub with the largest port complex in the nation, ~~5~~five major commercial airports, around 9,500 locomotive fleet operating per year, and around 3,000 warehouses larger than or equal to 100,000 square feet. More details on the emission sources in the Basin are described in Chapter 3. Natural emissions are included in the air quality modeling analysis in Chapter 5.

Population

Since the end of World War II, the Basin has experienced faster population growth than the rest of the nation. The annual average percent growth has slowed but the overall population of the region is expected to continue to increase through 2037 and beyond. Figure 1-~~2~~ 3 shows the estimated population and projections based on the regional growth forecast from the 2020 Regional Transportation Plan/Sustainable Communities Strategy (2020 RTP/SCS).[14]



[a] Based on SCAG's 2020 Regional Transportation Plan

FIGURE 1-~~2~~3
REGIONAL POPULATION GROWTH

Despite this population growth, air quality has improved significantly over the years, primarily due to the impacts of air quality control programs at the local, State and federal levels. Figure 1-~~3~~ 4 shows the trends

[12] http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1135/par-1135---dsr---final.pdf?sfvrsn=12.

[13] http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-Nov5-034.pdf?sfvrsn=6.

[14] https://scag.ca.gov/read-plan-adopted-final-plan.

since 1995 of the 8-hour ozone levels, the 1-hour ozone levels, and annual PM2.5 levels (since 2001), compared to the regional gross domestic product, total employment, and population. Human activity in the region has an impact on achieving reductions in emissions. However, over the past several decades ozone and PM levels have been reduced significantly as the size of the economy and population increased, demonstrating that it is possible to maintain a healthy economy while improving public health through air quality. While California has seen tremendous regional air quality improvement, many communities known as environmental justice communities are disproportionately impacted due to multiple air pollution sources near residential areas. Details regarding environmental justice communities can be found in Chapter 8.

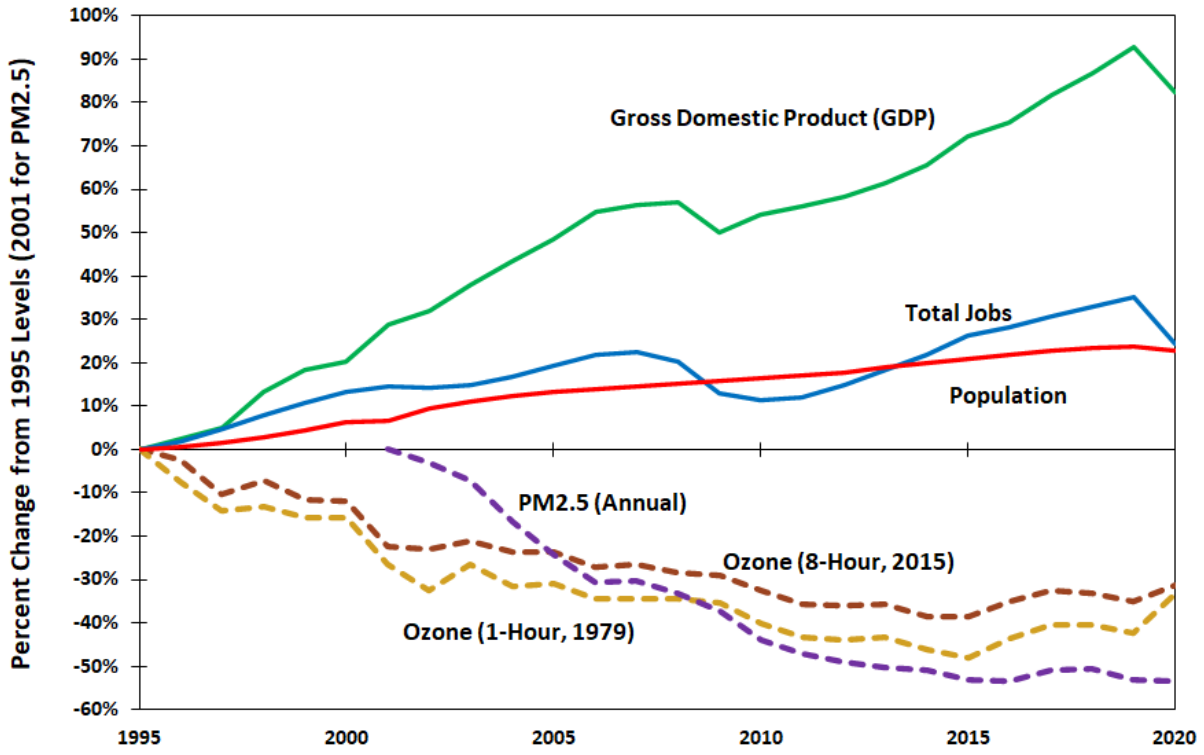


FIGURE 1-~~3~~4
PERCENT CHANGE IN AIR QUALITY ALONG WITH DEMOGRAPHIC DATA FOR THE 4-COUNTY REGION (1995–2020)
(ECONOMIC SET BACK IN 2019 AND 2020 DUE TO COVID-19 PANDEMIC)

Federal Ozone National Ambient Air Quality Standards

The U.S. EPA is required by law to review the NAAQS every ~~five~~ 5 years. The purpose of the review is for the U.S. EPA to evaluate the latest scientific data to ensure that the NAAQS are set at levels that are protective of public health. In the review, the U.S. EPA considers the most recent scientific and health

effects information, air quality information, and quantitative risk (e.g., size of at-risk groups affected). The U.S. EPA must consider the uncertainties and limitations of the scientific evidence as well as conclusions from the U.S. EPA experts and advice from the Clean Air Scientific Advisory Committee (CASAC).[15] At the conclusion of the review, the U.S. EPA determines if the current standards are "requisite to protect public health with an adequate margin of safety."[16]

In 1979, the U.S. EPA approved a 1-hour ozone standard (120 ppb) that was replaced in 1997 with a more stringent 8-hour ozone standard (80 ppb). The U.S. EPA subsequently revoked the 1-hour standard entirely, effective in 2005, based on research demonstrating that the 1-hour standard was inadequate for protecting public health, and that ozone can affect human health at lower levels and over longer exposure times than one hour. Still, in order to avoid losing clean air progress achieved under the 1-hour standard, the U.S. EPA requires that certain emissions control requirements for areas designated as nonattainment or maintenance for the revoked 1-hour standard must remain in place.[17] The 8-hour ozone standard was subsequently lowered to 75 ppb in 2008 and to 70 ppb in 2015. The U.S. EPA concluded that the 70 ppb ozone standard was sufficient to protect health in 2020~~; however~~. However, the U.S. EPA is currently in the process of revisiting that determination.

Within 2 years of setting a new or revised NAAQS, Title I of the CAA requires the U.S. EPA to designate areas as meeting (attainment) or not meeting (nonattainment) the standard.[18] Areas are classified based on their design values[19] for each standard. Figure 1-~~4~~ 5 shows the nonattainment classifications for the 2015 8-hour ozone standard based on design values.[20]

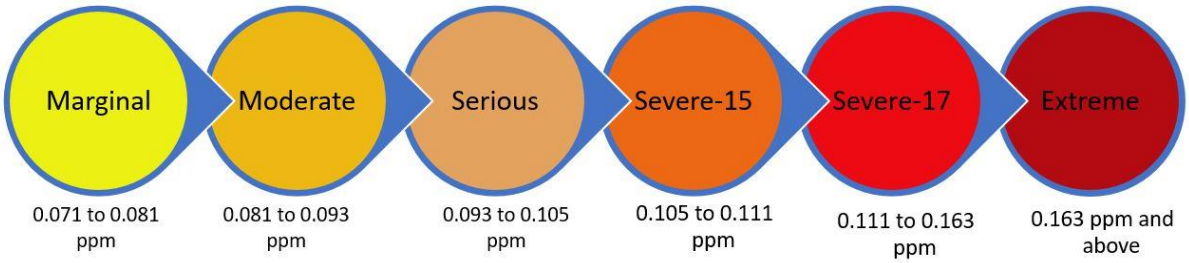


FIGURE 1-45
OZONE NONATTAINMENT CLASSIFICATIONS FOR 2015 8-HOUR STANDARD BASED ON DESIGN VALUES

[15] The Clean Air Scientific Advisory Committee (CASAC) is an independent scientific advisory committee established by the CAA charged with providing advice to the U.S. EPA.

[16] https://www.epa.gov/sites/default/files/2015-10/documents/overview_of_2015_rule.pdf.

[17] https://archive.epa.gov/ozonedesignations/web/html/fsjul05.html.

[18] https://www.epa.gov/ozone-designations/learn-about-ozone-designations#process.

[19] The design value of an air basin for the 2015 8-hour ozone standard is determined by the highest ozone value of all stations, based on a 3-year average.

[20] https://www.epa.gov/green-book/ozone-designation-and-classification-information.

TABLE 1-1

OZONE NONATTAINMENT CLASSIFICATIONS FOR SOUTH COAST AIR BASIN AND COACHELLA VALLEY

Standard	Level	South Coast Classification	Coachella Valley Classification	Attainment Date
2015 8-hour Ozone	70 ppb	Extreme	Severe	August 3, 2038 (South Coast) August 3, 2033 (Coachella Valley)
2008 8-hour Ozone	75 ppb	Extreme	Severe**	July 20, 2032 (South Coast) July 20, 2027 (Coachella Valley)
1997 8-hour Ozone	80 ppb	Extreme	Extreme*	June 15, 2024 (both South Coast and Coachella Valley)
1979 1-hour Ozone	120 ppb	Extreme	Attainment	December 31, 2022 (South Coast)

*Voluntary reclassification from “severe” to “extreme” in July 2019.
** Requested voluntary reclassification to "extreme" in November 2022.

As shown in Table 1-1, South Coast Air Basin and Coachella Valley have been classified as “extreme” and “severe” nonattainment for the 2015 ozone standard, respectively. As an “extreme” ozone nonattainment area, the South Coast AQMD has until August 3, 2038 to attain the 2015 ozone standard for the Basin, which is 20 years from the designation as an “extreme” nonattainment area. The U.S. EPA requires that all control measures in the attainment demonstration must be implemented no later than the beginning of the attainment year ozone season. The U.S. EPA also defines the attainment year ozone season as the ozone season immediately preceding a nonattainment area’s maximum attainment date, which is August 3, 2038. Therefore, 2037 is considered the attainment year for the Basin and 2032 is the attainment year for Coachella Valley. Chapter 3 provides the emission inventory for the attainment year and Chapter 5 provides the modeled projected air quality in that year to demonstrate attainment of the standard. This AQMP focuses on developing plans to address the 2015 ozone standard. Other ozone and PM standards have been addressed in prior AQMPs.

As an “extreme” nonattainment area, the Basin ozone SIP for the 2015 8-hour ozone NAAQS is required to be submitted within ~~four~~ 4 years[21] after the designation effective date. Key SIP elements for extreme nonattainment areas include, but are not limited to: (1) an attainment demonstration~~;~~, (2) a reasonable further progress (RFP) demonstration showing ozone precursor reductions of at least 3 percent per year until the attainment date~~;~~ (3) additional reasonably available control technology (RACT) rules to address sources subject to the “extreme” area major source threshold~~;~~ (4) use of clean fuels or advanced control

[21] CAA, Title I, Part D, Subpart 2, Section 182(e) requires that “extreme” areas submit according to Section 182(c)(2).

technology for boilers as described at CAA section 182(e)(3~~);~~), and (5) contingency measures.[22] ~~The~~Under the CAA, the U.S. EPA has some discretion ~~under CAA~~ with penalties for submittal deadlines~~, and penalties~~. Penalties for failure to submit SIP elements on time are not incurred until 18 months after a finding of late non-submittal.

Air Quality Planning Requirements

After approving a standard, the U.S. EPA designates areas across the nation as attainment or as nonattainment of the standard. The U.S. EPA classifies areas of ozone nonattainment (e.g., "extreme," "severe," "serious," "moderate~~"~~," or "marginal") based on how much an area exceeds the standard, which in turn affects requirements for a SIP and determines the attainment date. The more severe the ozone problem, the more time is allowed to demonstrate attainment in recognition of the greater challenges involved to reach attainment. However, the higher classifications are also subject to more stringent requirements.

If an area is designated as nonattainment of the NAAQS, the State is required to submit a SIP demonstrating compliance with a series of CAA requirements. Chapter 6 provides a detailed explanation of the federal CAA requirements along with how the requirements are addressed in this plan. In addition, the U.S. EPA requires that transportation conformity budgets are established based on both the most recent planning assumptions (i.e., within the last ~~five~~ 5 years) and approved motor vehicle emission models.[23] Transportation conformity ensures that transportation plans and programs do not cause or contribute to a new violation of a standard, increase the frequency or severity of any existing violation, or delay the timely attainment of the air quality standards.

The California Lewis Air Quality Act (now known as the Lewis-Presley Air Quality Management Act) requires that ~~the~~ South Coast AQMD prepares an AQMP consistent with federal planning requirements. In 1977, amendments to the federal CAA included requirements for submitting SIPs for non-attainment areas that fail to meet all federal ambient air quality standards. State law also imposed planning requirements for the Basin (Health & Safety Code §40462). The federal CAA was amended in 1990 to specify attainment dates and SIP requirements for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2) and PM10. The California Clean Air Act (CCAA), adopted in 1988, requires the South Coast AQMD to endeavor to achieve and maintain state ambient air quality standards for ozone, CO, sulfur dioxide (SO_2), and NO_2 by the earliest practicable date (Health & Safety Code §40910), and establishing requirements to update the plan periodically. The first AQMP was prepared and adopted by the South Coast AQMD in 1979 and has been updated and revised a number of times. The CCAA requires a ~~three~~3-year plan review and update to the AQMP. The following bullet items summarize the main components of those updates and revisions~~.~~:

[22] 84 FR 44801.

[23] Transportation conformity is required under CAA Section 176(c); transportation projects that receive federal funding, approvals, or permits must demonstrate that their actions are air quality neutral or beneficial and meet specified emissions budgets in the SIP.

- In 1982, the AQMP was revised to reflect better data and modeling tools;
- In 1987, a federal court ordered the U.S. EPA to disapprove the 1982 AQMP because it did not demonstrate attainment of all NAAQS by 1987, as required by the CAA;
- The 1989 AQMP was adopted in March 1989 and was specifically designed to attain all NAAQS. This plan called for three "tiers" of measures as needed to attain all standards and relied on significant future technology advancement to attain these standards;
- In 1991, the South Coast AQMD prepared and adopted the 1991 AQMP to comply with the CCAA;
- In 1992, the 1991 AQMP was amended to add a control measure containing market incentive programs;
- In 1994, the South Coast AQMD prepared and adopted the 1994 AQMP to comply with the CCAA ~~three~~3-year update requirement and to meet the federal CAA requirement for an ozone SIP;
- The 1997 AQMP was designed to comply with the ~~three~~3-year update requirements specified in the CCAA as well as to include an attainment demonstration for PM10 as required by the federal CAA;

- In 1999, the ozone plan portion of the 1997 AQMP was amended to address the U.S. EPA concerns with the 1997 AQMP ~~plan~~;

- In April 2000, the U.S. EPA approved the 1999 ozone SIP Amendment to the 1997 plan. The 1999 Amendment in part addressed the State's requirements for a triennial plan update;

- The 1997 PM10 SIP, as updated in 2002, was deemed complete by the U.S. EPA in November 2002 and approved in April 2003;

- The 2003 AQMP was adopted by the South Coast AQMD in August 2003;

- The 2007 AQMP was developed to comply with CAA requirements for nonattainment areas to prepare SIP revisions for the federal ~~eight~~8-hour ozone and PM2.5 standards and was adopted in June 2007;

- The 2012 AQMP was adopted in December 2012 to address the 2006 24-hour PM2.5 air quality standard and to satisfy the planning requirements of the CAA;

- A Supplement to the 2012 AQMP was prepared to demonstrate attainment of the 24-hour PM2.5 standard by 2015. The South Coast AQMD approved the Supplement in February 2015 and submitted to CARB ~~-~~/the U.S.EPA for approval as part of the SIP;

- The 2016 AQMP was developed to address five NAAQS_- three ozone standards and two PM2.5 standards_- and was adopted in March 2017; and

- The 2022 AQMP is being developed to identify and implement strategies and control measures to meet the 2015 8-hour ozone NAAQS (70 ppb) as expeditiously as practicable, but no later than the statutory attainment deadline of August 3, 2038 for South Coast Air Basin and August 3, 2033 for the Coachella Valley. The 2022 AQMP is based on the most recent assumptions provided by both CARB and SCAG for motor vehicle emissions and demographic updates and includes updated transportation conformity budgets. Chapter 2 provides more detail on the federal and State ambient air quality standards, attainment status, trends, and specific pollutant information such as the health effects due to exposure.

Air Quality Progress

As of 2022, the region's population exceeds 17 million people, yet emissions have continued to decrease. In the South Coast Air Basin, approximately ~~417~~406 tons per day of VOCs and ~~347~~351 tons per day of NOx were emitted in 2018 (the base-year of the emissions inventory and modeling analysis in this plan). Based on current regulations and actions already taken, emissions are estimated to be approximately ~~389~~339 tons per day of ~~VOCs~~VOC emissions and ~~220~~184 tons per day of NOx emissions in 2037. See Appendix III for 2018, and 2037 summer planning inventory emissions. However, these levels are not low enough to meet the 2015 8-hour ozone NAAQS for the Basin and significant additional ~~emission~~emissions reductions are necessary.

Substantial progress has been made in reducing the pollutants that form ozone (i.e., VOCs, NOx) and PM2.5 emissions through regulatory measures, voluntary actions, and partnerships with other agencies and stakeholders. Figure 1-~~5~~ 6 illustrates the ozone and PM2.5 levels in the Basin as a percentage of the federal standard~~, demonstrating~~ which demonstrates that while air quality progress has been dramatic since the 1990s, much work remains to bring the Basin into attainment of the ozone standards. Detailed ozone concentrations and trends can be found in Chapter 2.

Even with the substantial progress, more action must occur to meet the federal and California health-based standards. The 2022 AQMP explores new and innovative ways to accomplish these goals through incentive programs, efficiency improvements, recognition of co-benefits from other programs, regulatory measures, and other voluntary actions.

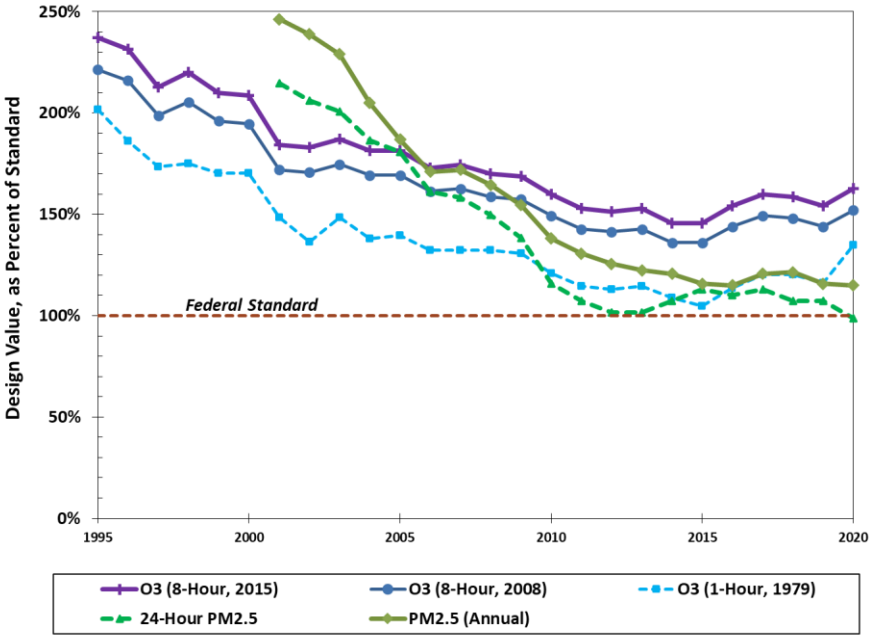


FIGURE 1-~~5~~6
TRENDS OF SOUTH COAST AIR BASIN MAXIMUM 3-YEAR DESIGN VALUES FOR OZONE AND PM2.5
(*AS PERCENTAGES OF CURRENT FEDERAL STANDARDS. 24-HOUR PM2.5 DESIGN VALUES EXCLUDE EXCEPTIONAL EVENTS CAUSED BY THE BOBCAT AND EL DORADO FIRES IN 2020*)

Progress in Implementing the 2016 AQMP

South Coast AQMD's Actions – Rules and Regulations

The 2016 AQMP was adopted in March 2017, approved by CARB the same month, and submitted to the U.S. EPA in April 2017. The 2016 AQMP included a comprehensive control strategy with specific control measures to attain ozone and PM2.5 NAAQS. The ozone portion and the 24-hour PM2.5 standard elements of the 2016 AQMP have been approved by the U.S. EPA into the SIP.[24] The "moderate" annual PM2.5 elements of the 2016 AQMP have also been approved by the U.S. EPA~~,~~ and in 2020 the U.S. EPA approved the Basin's re-designation as a "serious" nonattainment area for the annual PM2.5 standard.[25] These approvals include SIP revisions submitted in response to the U.S. EPA's initial findings.

Since its adoption,~~ the~~ South Coast AQMD has continued to implement the controls described in the 2016 AQMP control strategy. Progress toward fulfilling the 2016 AQMP commitments is tracked by emissions reductions that have occurred and are expected to occur from the implementation of adopted

[24] 84 FR 52005.

[25] 85 FR 71264.

regulations. ~~A~~In the past several years, a particular area of focus ~~the past several years~~ has been ~~on~~ implementing Control Measure CMB-05 for transitioning facilities from the Regional Clean Air Incentives Market (RECLAIM) Program to Best Available Retrofit Control Technology (BARCT) level controls. That transition is expected to achieve ~~five~~ 5 tons per day of NOx reductions in addition to the reduction on the RECLAIM allocation cap as specified in the 2015 Regulation XX amendment. The recent amendments of rules applicable to the RECLAIM facilities also address in part the requirements set by the AB 617 Community Emissions Reductions Programs. From 2018 to 2021, a total of twelve rules (Rules 1109.1, 1110.2, 1117, 1118.1, 1134, 1135, 1146, 1146.1, ~~and~~ 1146.2, 1147.1, 1150.3, and 1179.1) were adopted/amended to establish BARCT NOx emission limits.

With the exception of Rule 1109.1, the total emission reductions resulting from these rules are about 5.9 tons per day, which are anticipated to be achieved by 2024 (reductions from Rule 1118.1 are allocated to CMB-03). Implementation of Rule 1109.1, adopted on November 5, 2021, is estimated to reduce NOx emissions by approximately 7.7 to 7.9 tons per day upon final implementation, with 3.7 to 3.8 tons per day expected by 2023. ~~2.6 tons per day o~~Out of the total 7.7 to 7.9 tons per day reductions, 2.6 tons per day will be used to fulfill the RECLAIM shave commitment set by the 2015 amendment of Regulation XX. Furthermore, four additional rules (Rules 1147, 1147.2, 1153.1, and 1159.1) are currently under development and are scheduled for amendment ~~/~~ /adoption in calendar year 2022. More details on the RECLAIM Program and associated emissions can be found in Chapter 3.

~~The~~ South Coast AQMD has ~~also~~ taken several innovative actions to implement the facility-based mobile source measures included in the 2016 AQMP to achieve further reductions from mobile sources. These are measures aimed at reducing emissions from indirect sources, which are facilities which do not directly emit significant air pollution ~~themselves~~, but attract substantial mobile sources. Rules focused on ~~emission~~emissions reductions from indirect sources are referred to as indirect source rules (ISR). ~~The~~ South Coast AQMD has been pursuing implementation of facility-based mobile source measures in five key areas as described below~~:~~.

- Marine Ports: On May 4, 2018, the South Coast AQMD Governing Board (Board) directed staff to pursue both regulatory and voluntary approaches for some of the Basin's largest indirect sources, which include marine ports and airports. In August 2021, the Board directed staff to pursue a Memorandum of Understanding (MOU) with the ports of Los Angeles and Long Beach for another four months and ~~begin evaluation of marine ports ISR in December 2021~~, if a draft MOU (or draft MOUs) is not ready for full execution by all parties~~.~~, to begin evaluation of a marine ports ISR in December 2021. Per the Board direction, ~~emission~~emissions reductions from marine ports pivoted fully to an ISR approach in February 2022 due to the lack of progress in developing MOUs with the ports~~;~~.

- Commercial Airports: Following Board direction ~~from~~ given on May 4, 2018, emissions reductions from the operations of commercial airports were pursued using a collaborative and voluntary approach with five major commercial airports in the Basin. As a result, MOUs with five commercial airports were developed and adopted at the December 6, 2019 Governing Board meeting, with a projected NOx emission reduction of 0.52 and 0.37 tons per day in 2023 and 2031, respectively~~;~~.

- Warehouses/Distribution Centers: Rule 2305 ~~(~~ Warehouse Indirect Source Rule~~)~~ – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program was adopted in May 2021 to reduce NOx and diesel emissions associated with warehousing activities~~,~~ with estimated NOx reductions of 1.5 to 3 tons per day by 2031~~;~~.

- Railyards: Rulemaking is currently underway for new rail yards~~; and~~.

- New and Re-development: ~~this~~The measure is currently under development.

Table 1-2 lists ~~the~~ South Coast AQMD's 2016 AQMP commitments and the control measures or rules that were adopted through 2021. ~~Emission reduction~~ Emissions reductions commitments and reductions achieved through adopted measures are based on the ~~emission~~emissions inventories and milestone years from the 2016 AQMP. The new control strategy and attainment demonstrations in the 2022 AQMP are expected to supersede any previous commitments not achieved and not to be re-introduced in the proposed control strategy. "N/A" in the tables ~~indicate~~indicates a measure designed to ensure that reductions assumed to occur will in fact occur. "TBD" reductions are to be determined once the technical assessment is complete~~,~~ and inventory and specific control approach are identified.

TABLE 1-2

2016 AQMP ~~EMISSION~~EMISSIONS REDUCTIONS (TONS PER DAY) BY MEASURE/ADOPTION DATE

Control Measure #	Control Measure Title	Adoption Date	Commitment		Adopted to be Achieved	
			2023	2031	2023	2031
NOx EMISSIONS[a]						
CMB-01	Transition to Zero and Near-Zero Emission Technologies for Stationary Sources	--	2.5	6.0	--	--
CMB-02	Emission Reductions from Replacement with Zero or Near-Zero NOx Appliances in Commercial and Residential Applications [R1111]	2018	1.1	2.8	0.01[b]	--
CMB-03	Emission Reductions from Non-Refinery Flares [R1118.1]	2018	1.4	1.5	0.2[c]	--
CMB-04	Emission Reductions from Restaurant Burners and Residential Cooking	--	0.8	1.6	--	--
CMB-05	Further NOx Reductions from RECLAIM Assessment	2018-2021	0.0	5.0	9.4[d]	11.7[d]
ECC-02	Co-Benefits from Existing Residential and Commercial Building Energy Efficiency Measures	2018	0.3	1.1	0.3[e]	--
ECC-03	Additional Enhancements in Reducing Existing Residential Building Energy Use	--	1.2	2.1	--	--
MOB-03	Emission Reductions at Warehouse Distribution Centers	2021	TBD	TBD	0.7 to 1.5[f]	1.5 to 3.0[f]
MOB-04	Emission Reductions at Commercial Airports	2019	TBD	TBD	0.5	0.37
MOB-10	Extension of the SOON Provision for Construction/ Industrial Equipment	Ongoing	1.9	1.9	--[g]	TBD
MOB-11	Extended Exchange Program	Ongoing	2.9	1.0	<0.1	TBD
MOB-14	Emission Reductions from Incentive Programs	Ongoing	11	7.8	11.2	TBD
TOTAL NOx REDUCTIONS			**23.1**	**31.0**	**22.3 to 23.1**	**13.6 to 15.1**

TABLE 1-2 (CONTINUED)

2016 AQMP ~~EMISSION~~EMISSIONS REDUCTIONS (TONS PER DAY) BY MEASURE/ADOPTION DATE

Control Measure #	Control Measure Title	Adoption Date	Commitment		Adopted to be Achieved	
			2023	2031	2023	2031
VOC EMISSIONS[a]						
CTS-01	Further Emission Reductions from Coatings, Solvents, Adhesives, and Sealants [R1168]	2017	1.0	2.0	1.4[h]	--
FUG-01	Improved Leak Detection and Repair	--	2.0	2.0	--	--
CMB-01	Transition to Zero and Near-Zero Emission Technologies for Stationary Sources	--	1.2	2.8	--	--
CMB-03	Emission Reductions from Non-Refinery Flares [R1118.1]	2018	0.4	0.4	0.014[c]	--
ECC-02	Co-Benefits from Existing Residential and Commercial Building Energy Efficiency Measures	2018	0.07	0.3	0.07	--
ECC-03	Additional Enhancements in Reducing Existing Residential Building Energy Use	--	0.2	0.3	--	--
BCM-10	Emission Reductions from Greenwaste Composting	--	1.5	1.8	--	--
MSC-02	Application of All Feasible Measures	TBD	TBD	TBD	0.88[i]	--
TOTAL VOC REDUCTIONS			**6.4**	**9.6**	**2.4**	**--**

TABLE 1-2 (CONCLUDED)

2016 AQMP ~~EMISSION~~EMISSIONS REDUCTIONS (TONS PER DAY) BY MEASURE/ADOPTION DATE

Control Measure #	Control Measure Title	Adoption Date	Commitment		Adopted to be Achieved	
			2021	2025	2021	2025
PM2.5 EMISSIONS						
BCM-01	Further Emission Reductions from Commercial Cooking	--	0.0	3.3	--	--
BCM-04	Emission Reductions from Manure Management Strategies [NH3]	--	0.26	0.2	--	--
BCM-10	Emission Reductions from Greenwaste Composting [NH3]	--	0.1	0.1	--	--
TOTAL PM2.5 REDUCTIONS			**TBD**	**3.3**	--	--

[a] SIP commitments in the 2016 AQMP for VOC and NOx use a summer planning inventory, whereas expected ~~emission~~emissions reductions shown in this table are based on annual average inventories estimated during development of specific rules/measures. Annual average inventories for VOC and NOx are generally lower than summer planning inventories~~, hence~~. Hence, this table shows conservatively low ~~emission~~emissions reductions relative to SIP commitments.

[b] ~~Emission~~Emissions reductions reflect implementation of existing requirements in Rule 1111.

[c] During rule development, ~~emission~~emissions levels were found to be lower than those estimated in the 2016 AQMP.

[d] Reflects emission reductions from Rules 1109.1, 1110.2, 1117, 1134, 1135,1146 series, 1147.1, 1150.3, and 1179.1 (adopted from 2018 to 2021, with partial reductions of 3.7 tons per day and 5.8 tons per day by 2023 and 2031, respectively for Rule 1109.1). The specific ~~emission~~emissions reductions by 2023/2031 vary depending on the implementation schedule of each rule. There may be partial overlap between the ~~emission~~emissions reductions shown and those achieved from the RECLAIM shave, as described in the 2015 amendment of Rule 2002. In addition, part of these ~~emission~~emissions reductions resulting from non-RECLAIM facilities satisfy commitments for CMB-01 and CMB- 02.

[e] A linear extrapolation was used to estimate ~~emission~~emissions reductions from ECC-02 which are co- benefits from the adoption of State policies, such as SB350 and Title 24.

[f] SIP credit subject to the U.S. EPA's approval.

[g] Estimated reductions for MOB-10 are included in MOB-14.

[h] Amendment to Rule 1168 underway; emissions reductions to be updated.

[i] Includes ~~emission~~emissions reductions from Rule 1113 amendment adopted in February 2016, which was not reflected in the 2016 AQMP ~~emission~~emissions inventory.

South Coast AQMD's Actions – Technology Demonstration and Incentives

One of the key elements of the 2016 AQMP is to make private and public funding available to help further development and deployment of ~~the~~ advanced cleaner technologies, such as zero emission and near-zero emission technologies, and also achieve co-benefits from existing programs (e.g., climate and energy efficiency). Significant public and private investments are essential to achieve the needed transformation to zero emission technologies. The costs of zero emission technologies could be high when they are not commercially available on a large scale and thus, those investments would help expedite continued innovation and the advancement and deployment of clean technologies.

On January 4, 2019, the South Coast AQMD Governing Board awarded funding to 26 ~~emission reduction~~emissions reductions incentive projects, totaling over $47 million to support the 2016 AQMP's ~~emission reduction target~~emissions reductions targets via an incentive approach. Of the 26 projects, 16 would implement commercially available zero or near-zero control technologies or support infrastructure for implementation of cleaner fuels. These projects are anticipated to result in approximately 0.24 tons per day of NOx and 0.005 tons per day of PM2.5 emissions reductions in the Basin, with the majority of the projects implemented in environmental justice communities. Additionally, 11 stationary and mobile source technology demonstration projects were also included in this funding program. Upon successful demonstration and deployment, these projects have the potential to provide additional long-term NOx and VOC ~~emission~~emissions reductions. The awarded projects are consistent with the commitments in various 2016 AQMP control measures including MOB-14, CMB-02, CMB-04, and ECC-03. To estimate the benefits of zero and near-zero ~~emission~~emissions technology in the residential and commercial sectors, staff has also developed an interactive tool to estimate changes in criteria and GHG emissions and costs associated with upgrades in residential appliances. The Net Emissions Analysis Tool (NEAT) has been developed to assist in implementing control measures CMB-02 and ECC-03 of the 2016 AQMP. These measures seek ~~emission~~emissions reductions with zero and near-zero NOx appliances in commercial and residential applications, and integrate energy efficiency enhancements with criteria pollutants (e.g., NOx) and greenhouse gas ~~emission reduction~~emissions reductions co-benefits.

In addition, ~~the~~ South Coast AQMD continues the implementation of existing ongoing mobile source programs such as Surplus Off-Road Opt-In for NOx (SOON), the extended exchange program, and incentive programs (e.g., Carl Moyer) specified in the 2016 AQMP control measures MOB-10 (Extension of the SOON Provision for Construction/Industrial Equipment), MOB-11 (Extended Exchange Program), and MOB-14 (Emission Reductions from Incentive Programs). The ~~Mobile Source Incentive Programs~~mobile source incentive programs listed in Table 1-3 includes the number of affected mobile source equipment and ~~emission~~emissions reductions in tons per year for projects approved in year 2021.

TABLE 1-3

ESTIMATED ~~EMISSION~~EMISSIONS REDUCTIONS BENEFITS FROM 2021 INCENTIVE PROGRAMS

Program	# of Engines / Equipment / INF Stations	Estimated Emission Reductions NOx (Tons/Year)	Estimated Emission Reductions PM (Tons/Year)	Award Amount
Carl Moyer	163	231.9	4.1	$39,664,068
AB 617 CAPP Incentives	239	123.5	6.0	$37,762,509
Lower-Emission School Bus	178	34.1	4.8	$46,983,000
FARMER Program	2	5.8	0.3	$711,736
Volkswagen Mitigation	107 (First Come First Serve)	--[a]		$8,974,476
	38 (Competitive)	12.2	--[b]	$2,361,126
VIP	30	19.6	0.1	$1,300,000
Prop 1B	307	101.8	0	$32,825,000
Replace your Ride	865	2.5	0.1	$7,014,500
			TOTAL	**$177,596,415**

[a] ~~Emission~~Emissions reduction values pending evaluation from this first-come-first-served (FCFS) solicitation.

[b] Only NOx is required for ~~VW~~Volkswagen Environmental Mitigation Trust Program.

2022 AQMP

Scope

The 2022 AQMP is designed ~~to~~ primarily to address the federal 2015 8-hour ozone NAAQS, to satisfy the planning requirements of the federal CAA for the Basin and the Coachella Valley. Specific federal CAA requirements included in the 2022 AQMP are discussed later in this section. Once approved by the South Coast AQMD Governing Board and CARB, the 2022 AQMP will be submitted to the U.S. EPA as part of California's SIP.

In addition, the 2022 AQMP includes a chapter reporting on the air quality status of the ~~Riverside County portion of the Salton Sea Air Basin (~~Coachella Valley~~)~~ (Chapter 7). Chapter 8 describes the air quality impacts experienced in environmental justice communities and outline some of the steps South Coast AQMD is taking to address localized impacts. An additional chapter provides the public process and participation of the 2022 AQMP development (Chapter 9).

Approach

As described in Chapter 5, the Basin is expected to attain the 2015 8-hour ozone NAAQS in 2037 with the existing control programs and the newly proposed control strategy in the 2022 AQMP. Under the federal CAA, the Basin must achieve the federal NAAQS "as expeditiously as practicable." Therefore, if feasible measures are available, they must be adopted and implemented ~~in~~into the SIP. Chapter 4 of the 2022 AQMP outlines a comprehensive control strategy that meets the requirement for expeditious progress towards the attainment date for the 2015 8-hour ozone NAAQS ~~being analyzed~~.

The ~~Clean Air Act~~CAA provides additional flexibilities to nonattainment areas that are classified as "extreme" for ozone. Section 182(e)(5) allows extreme ozone nonattainment areas to take credit for emission reductions from future improvements and breakthroughs in control techniques and technologies. These emissions reductions are also known as "black box" measures because the specific technologies or controls to achieve the ~~emission~~emissions reductions are not yet known. The rationale for allowing "black box" measures is that extreme ozone nonattainment areas have 20 years to attain the standard~~,~~ and, in that time, advanced technologies to achieve further ~~emission~~emissions reductions are presumed to become available.

As shown in the ozone strategy in Chapter 4, reliance on "black box" ~~emission~~emissions reductions strategies is necessary. This is due to the substantial ~~emission~~emissions reductions that are needed to attain the standard. The photochemical ozone modeling analysis and attainment demonstration included in Chapter 5 indicate that ~~71~~67 percent of ~~emission~~emissions reductions beyond the 2037 baseline are required. This is equivalent to an ~~82~~83 percent reduction from 2018 emissions. Given the magnitude of ~~emission~~emissions reductions required for attainment of the 2015 8-hour ozone standard, ~~we~~the attainment demonstration will have to rely on the deployment of future advanced technologies to achieve the needed ~~emission~~emissions reductions.

The magnitude of ~~emission~~emissions reductions needed also means that no single emissions category can be left uncontrolled, including sources subject to federal authority. While emissions from sources subject to the authority of the South Coast AQMD and CARB have been significantly reduced in the past few decades, emissions from sources primarily regulated by federal and international authorities have remained relatively stagnant or have increased over this time period. The reductions from the sources that are subject to federal and international authorities are subject to CAA Section 182(e)(5) provisions, since the State and local district cannot assign ~~emission~~emissions reductions to federal entities through the SIP. As such, reliance on 182(e)(5) "black box" provisions is necessary in demonstrating attainment of the 2015 ozone standard. ~~The~~ South Coast AQMD will pursue close collaboration with other agencies to continue progress and work actively towards defining and achieving as many ~~emission~~emissions reductions as possible, and not wait until subsequent AQMPs to begin to address any shortfalls.

The control measures contained in the 2022 AQMP can be categorized as follows:

Ozone Measures~~.~~: These measures provide for necessary actions to attain the 2015 8-hour ozone NAAQS in 2037, including actions to reduce NOx and VOC emissions from both stationary (point and area) and mobile sources, as included in ~~the~~ South Coast AQMD's proposed stationary and mobile source measures, as well as CARB's State Strategy for the State Implementation Plan (State SIP Strategy~~.~~). The mobile source measures include actions to be taken by ~~the~~ South Coast AQMD, CARB and the U.S. EPA.

Contingency Measures~~.~~: ~~–~~These measures are to be automatically implemented if the Basin fails to achieve the ozone standard by the latest statutory attainment date or ~~Reasonable Further Progress~~s reasonable further progress requirements.

Transportation Control Measures~~.~~: ~~–~~These measures are generally designed to reduce vehicle miles traveled (VMT) as included in SCAG's 2020 Regional Transportation Plan~~.~~ (RTP).

Some of the control measures achieve ~~emission~~emissions reductions by taking advantage of existing programs, while some control measures focus on incentives, outreach, and education to bring about ~~emission~~emissions reductions through voluntary participation and behavioral changes needed to complement regulations.

Need for Integrated and Coordinated Planning

The Basin faces several ozone and PM2.5 attainment challenges, as strategies for significant emission reductions become harder to identify and the federal standards continue to become more stringent. California's ~~greenhouse gas~~GHG reduction targets under SB 32 and Governor Executive Order B-55-18 add new challenges and timelines that affect many of the same sources that emit criteria pollutants. In finding the most cost-effective and efficient path to meet multiple deadlines for multiple air quality and climate objectives, an integrated planning approach is optimal. Responsibilities for achieving these goals span all levels of government and coordinated and consistent planning efforts among multiple government agencies are a key component of this integrated approach.

Federal CAA Planning Requirements Addressed by 2022 AQMP

In November 1990, Congress enacted a series of amendments to the ~~Clean Air Act (~~CAA~~),~~, intended to strengthen air pollution control efforts across the nation. One of the primary goals of these amendments was an overhaul of the planning provisions for those areas not currently meeting NAAQS. The CAA identifies specific emission reduction goals, requires both a demonstration of reasonable further progress and an attainment demonstration, and incorporates more stringent sanctions for failure to attain or to meet interim milestones.

There are several sets of general planning requirements in the federal CAA, both for nonattainment areas (Section 172(c)) and for implementation plans in general (Section 110(a)(2)). These requirements are listed and briefly described in Tables 1-4 and 1-5, respectively. The general provisions apply to all applicable pollutants unless superseded by pollutant-specific requirements. Chapter 6 and Appendix ~~6~~ VI describe the specific CAA requirements and how these requirements are satisfied by the 2022 AQMP.

TABLE 1-4

NONATTAINMENT PLAN PROVISIONS [CAA SECTION 172(C)]

Requirement	Description
Reasonably available control measures	Implementation of all reasonably available control measures as expeditiously as practicable [Section 172(c)(1)]
Reasonable further progress	Provision for reasonable further progress, which is defined 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" [Section 172(c)(2)]
Inventory	Development and periodic revision of a comprehensive, accurate, current inventory of actual emissions from all sources [Section 172(c)(3)]
Allowable emission levels	Identification and quantification of allowable emission levels for major new or modified stationary sources [Section 172(c)(4)]
Permits for new and modified stationary sources	Permit requirements for the construction and operation of new or modified major stationary sources [Section 172(c)(5)]
Other measures	Inclusion of all enforceable emission limitations and control measures as may be necessary to attain the standard by the applicable attainment deadline [Section 172(c)(6)]
Contingency measures	Implementation of contingency measures to be undertaken in the event of failure to make reasonable further progress or to attain the NAAQS [Section 172(c)(9)]

TABLE 1-5

GENERAL CAA REQUIREMENTS FOR IMPLEMENTATION PLANS [CAA SECTION 110(A)]

Requirement	Description
Enforceable emission limitations	Enforceable emission limitations or other control measures as needed to meet the requirements of the CAA [Section 110(a)(2)(A)]
Ambient air quality monitoring	An ambient air quality monitoring program [Section 110(a)(2)(B)]
Enforcement and regulation	A program for the enforcement of adopted control measures and emission limitations and regulation of the modification and construction of any stationary source to assure that the NAAQS are achieved [Section 110(a)(2)(C)]
Interstate transport	Adequate provisions to inhibit emissions that will contribute to nonattainment or interfere with maintenance of NAAQS or interfere with measures required to prevent significant deterioration of air quality or to protect visibility in any other state [Section 110(a)(2)(D)]
Adequate resources	Assurances that adequate personnel, funding, and authority are available to carry out the plan [Section 110(a)(2)]
Source testing and monitoring	Requirements for emission monitoring and reporting by the source operators [Section 110(a)(2)(F)]
Emergency authority	Ability to bring suit and issue administrative orders to enforce against source presenting imminent and substantial endangerment to public health or environment [Section 110(a)(2)(G)]
Plan revisions	Provisions for revising the air quality plan to incorporate changes in the standards or in the availability of improved control methods [Section 110(a)(2)(H)]
Other CAA requirements	Adequate provisions to meet applicable requirements relating to new source review, consultation, notification, and prevention of significant deterioration and visibility protection contained in other sections of the CAA [Section 110(a)(2)(I),(J)]
Impact assessment	Appropriate air quality modeling to predict the effect of new source emissions on ambient air quality [Section 110(a)(2)(K)]
Permit fees	Provisions requiring major stationary sources to pay fees to cover reasonable costs for reviewing and acting on permit applications and for implementing and enforcing the permit conditions [Section 110(a)(2)(L)]
Local government participation	Provisions for consultation and participation by local political subdivisions affected by the plan [Sections 110(a)(2)(M) & 121]

The CAA requires that submitted plans include information on tracking plan implementation and milestone compliance. Requirements for these elements are described in CAA Section 182(g), and Chapters 4 and 6 address these issues.

The U.S. EPA also requires a public hearing on many of the required elements in SIP submittals before considering them officially submitted. ~~The~~ South Coast AQMD's AQMP public process includes multiple public workshops and public hearings on all the required elements prior to submittal. Chapter 9 describes the public process, participation, and comprehensive outreach program for the 2022 AQMP.

State Law Requirements Addressed by the 2022 AQMP

The ~~California Clean Air Act (~~CCAA~~)~~ (Health and Safety Code Sections 40910 *et seq*.) was signed into law on September 30, 1988, became effective on January 1, 1989, and was amended in 1992. Also known as the Sher Bill (AB 2595), the CCAA established a legal mandate to achieve health-based state air quality standards at the earliest practicable date. The California ambient air quality standards for ozone are 90 ppb for 1-hour ozone, established in 1987 and 70 ppb for 8-hour ozone, established in 2005. The Lewis Presley Act provides that the South Coast AQMD's plan must also contain deadlines for compliance with all state ambient air quality standards and the federally mandated primary ambient air quality standards (Health and Safety Code Section 40462(a)). Chapter 6 describes how the 2022 AQMP meets the State planning requirements under the CCAA, including schedules, plan effectiveness, ~~emission~~emissions reductions of 5 percent per year or adoption of all feasible measures, reducing population exposure to criteria pollutants, and ranking control measures by cost-effectiveness.

Format of This Document

This document is organized into eleven chapters, each addressing a specific topic. Each of the chapters is summarized below.

Chapter 1, "Introduction," introduces the 2022 AQMP including purpose, historical air quality progress, and the approach for the 2022 AQMP.

Chapter 2, "Air Quality and Health Effects," discusses the Basin's current air quality in comparison with federal and State health-based air pollution standards.

Chapter 3, "Base Year and Future Emissions," summarizes emissions inventories, estimates current emissions by source and pollutant, and projects future emissions with and without growth.

Chapter 4, "Control Strategy and Implementation," presents the control strategy, specific measures, and implementation schedules to attain the air quality standards by the specified attainment dates.

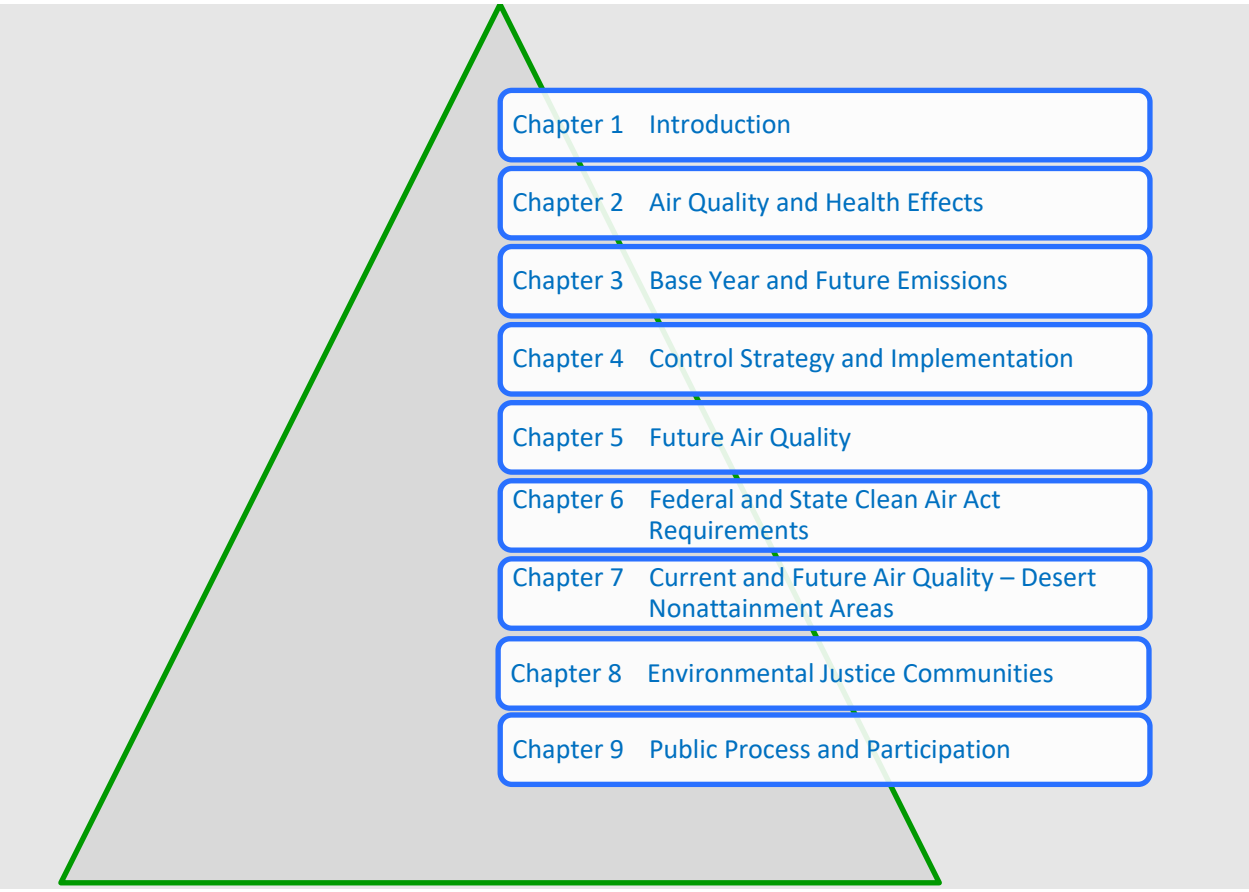
Chapter 5, "Future Air Quality," describes the modeling approach used in the AQMP and summarizes the Basin's future air quality projections with and without the control strategy.

Chapter 6, "Federal and State Clean Air Act Requirements," discusses specific federal and State requirements as they pertain to the 2022 AQMP, including anti-backsliding requirements for revoked standards.

Chapter 7, "Current and Future Air Quality – Desert Nonattainment Areas," describes the air quality status of the Coachella Valley, including emissions inventories, designations, and current and future air quality.

Chapter 8, "Environmental Justice Communities," describes air quality impacts experienced in environmental justice communities and outline some of the steps ~~the~~ South Coast AQMD is taking to address localized impacts.

Chapter 9, "Public Process and Participation," describes ~~the~~ South Coast AQMD's public outreach effort associated with the development of the 2022 AQMP.



A "Glossary" is provided at the end of the document, presenting definitions of commonly used terms found in the 2022 AQMP.

2022 AQMP technical appendices are listed below:

Appendix I (Health Effects) presents a summary of scientific findings on the health effects of ambient air pollutants, portions of which satisfy the requirements of California Health and Safety Code Section 40471(b).

Appendix II (Current Air Quality) contains a detailed summary of the air quality in 2020, along with prior year trends, in both the Basin and Coachella Valley, as monitored by the South Coast AQMD.

Appendix III (Base and Future Year ~~Emission~~Emissions Inventory) presents the 2018 base year emissions inventory and projected ~~emission~~emissions inventories of air pollutants in future milestone and attainment years for both annual average and summer planning inventories.

Appendix IV-A (South Coast AQMD's Stationary and Mobile Source Control Measures) describes ~~the~~ South Coast AQMD staff's proposed stationary and mobile source control measures.

Appendix IV-B (CARB's SIP Mobile Source Strategy) describes CARB staff's ~~proposed~~ 2022 State SIP ~~strategy~~Strategy.

Appendix IV-C (SCAG's Regional Transportation Strategy and Control Measures) describes the SCAG's Final 2020 Regional Transportation Plan/Sustainable Communities Strategy and Transportation Control Measures.

Appendix V (Modeling and Attainment Demonstrations) provides the details of the regional modeling for the attainment demonstrations that illustrate that the proposed ~~emission~~emissions reductions will achieve the federal ozone air quality standards by the regulatory attainment deadlines in the Basin and Coachella Valley.

Appendix VI (Compliance with Other Clean Air Act Requirements) provides the details demonstrating that the 2022 AQMP complies with specific federal and California Clean Air Act Requirements.

Appendix VII (CARB'S Commitment for Coachella Valley) describes new SIP measures and potential emissions reduction SIP commitments for the Coachella Valley based on the measures identified and quantified to date as provided in CARB's 2022 State SIP Strategy.