

Staff Report

CARB Review of the South Coast PM2.5 SIP Revision

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CARB staff has prepared a written report reviewing the District Plan. Copies of the report may be obtained from CARB's website at [South Coast Air Quality Plans](#). The report may also be obtained from CARB's Public Information Office, 1001 I Street, First Floor, Environmental Services Center, Sacramento, California, 95814, on October 16, 2020. However, because of current travel, facility, and staffing restrictions, CARB's office may have limited public access. If you need physical copies of the report, please contact Scott King, Air Pollution Specialist, at scott.king@arb.ca.gov, or (916) 3222832.

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For questions, please contact:

Scott King
Air Pollution Specialist
South Coast Air Quality Planning Section
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Phone: (916) 322-2832
Email: scott.king@arb.ca.gov

Or

Sylvia Vanderspek, Chief
Air Quality Planning Branch
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Phone: (916) 324-7163
Email: sylvia.vanderspek@arb.ca.gov

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I. EXECUTIVE SUMMARY

The South Coast Air Basin (South Coast) is classified as a Serious nonattainment area for the 35 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) 24-hour fine particulate matter (PM_{2.5}) national ambient air quality standard (standard). As a Serious nonattainment area, the South Coast had an attainment deadline for the standard of December 31, 2019. And while PM_{2.5} levels have decreased significantly over the last two decades in the South Coast due to aggressive State and South Coast Air Quality Management District (District) regulations and programs, the South Coast was not able to meet the 2019 attainment date.

As a consequence of missing the attainment deadline for the 35 $\mu\text{g}/\text{m}^3$ 24-hour PM_{2.5} standard, the Clean Air Act (the Act) requires the State to submit a state implementation plan (SIP) revision demonstrating attainment of the standard as expeditiously as possible but no later than five years from the date of U.S. EPA's final determination that the area failed to attain the standard. In addition to demonstrating attainment, other SIP requirements include Reasonable Further Progress (RFP), Quantitative Milestones (QMs), contingency measures for attainment and RFP, transportation conformity budgets, and New Source Review (NSR). Further, section 189(d) of the Act requires that the SIP revision provide for annual reductions of five percent of PM_{2.5} or PM_{2.5} precursors from the date of submission of the SIP revision to attainment of the standard.

The South Coast Air Quality Management District (District) developed the *South Coast Air Basin Attainment Plan for 2006 24-Hour PM_{2.5} Standard* (Plan) for meeting the requirements of the Act. The District Governing Board will consider approval of the Plan on December 4, 2020.

II. BACKGROUND

In 1997, U.S. EPA first promulgated a 24-hour PM_{2.5} standard of 65 $\mu\text{g}/\text{m}^3$ (65 $\mu\text{g}/\text{m}^3$ PM_{2.5} standard). In 2005, the South Coast was designated as nonattainment for the 65 $\mu\text{g}/\text{m}^3$ PM_{2.5} standard and given an attainment deadline of April 5, 2015. Although 24-hour PM_{2.5} levels in the South Coast were double the level of the 1997 PM_{2.5} standard when the District was initially designated nonattainment, aggressive control programs by the State and District brought the South Coast into attainment for the 65 $\mu\text{g}/\text{m}^3$ PM_{2.5} standard in 2013, almost two years ahead of the attainment deadline.

In 2006, U.S. EPA strengthened the level of the 24-hour PM_{2.5} standard to 35 $\mu\text{g}/\text{m}^3$. The South Coast was designated nonattainment for this standard and given an attainment date of December 31, 2014. Later, under the PM-specific subpart 4 portion of the Act, the South Coast was classified as a Serious nonattainment area for the standard and given an attainment date of December 31, 2019.

Over the past two decades, 24-hour PM_{2.5} levels and the number of exceedance days for the standard have steadily decreased. Between 2000 and 2019, the number of annual exceedance days reduced by almost 90 percent. In 2012 and 2013, PM_{2.5} levels decreased to levels that were only slightly above the 35 µg/m³ 24-hour PM_{2.5} standard. However, in 2014 and 2015, due in part to extreme drought conditions experienced in Southern California and a lack of periodic winter storm events that facilitate dispersion of pollutants, PM_{2.5} levels rose back above the standard.¹

Historically in the South Coast, the design site was located in the eastern portion of the South Coast. The design site is the monitor with the highest design value (DV) for the relevant pollutant. The Mira Loma monitoring site has registered the highest 24-hour PM_{2.5} DVs most of the last two decades in the South Coast. However, in 2017, the Compton monitoring site located in Los Angeles County recorded three unusually high anomalous measurements. Because of these high days in Compton in 2017, Compton replaced Mira Loma as the design site in 2018 and 2019.

Although the South Coast did not attain the standard by the 2019 deadline, the latest two years, 2018 and 2019, recorded levels below the standard at all sites.

III. CLEAN AIR ACT SIP REQUIREMENTS

For a Serious PM_{2.5} nonattainment area that fails to attain the standard by the applicable attainment date, section 189(d) of the Act requires that the state submit a SIP revision demonstrating attainment of the standard to U.S. EPA within 12 months from the previously missed attainment date. The SIP revision is due to U.S. EPA by December 31, 2020. The Act also states that the SIP revision must demonstrate attainment of the standard as expeditiously as possible, but no later than 5 years from the date of the U.S. EPA's final determination of failure to attain the standard, which was effective October 16, 2020². The revised attainment plan must include emissions inventories for the base year and future years, a control strategy to lower emissions, and a demonstration that the area will attain the standard in the attainment year. In addition, section 189(d) of the Act requires that the revised SIP demonstrate that emissions of directly emitted PM or PM precursor will be reduced annually by at least five percent within the area. Other requirements of the revised SIP include a demonstration that all best available control measures (BACM) are in place, an RFP demonstration, QM requirements, contingency measures, and transportation conformity budgets.

¹[South Coast AQMD, Final Supplement to the 24-Hour PM_{2.5} State Implementation Plan for the South Coast Air Basin. Attachment B, Effects of the Drought.](#)

²85 FR 57733

Based on CARB staff review, the Plan meets all requirements of the Act as demonstrated below.

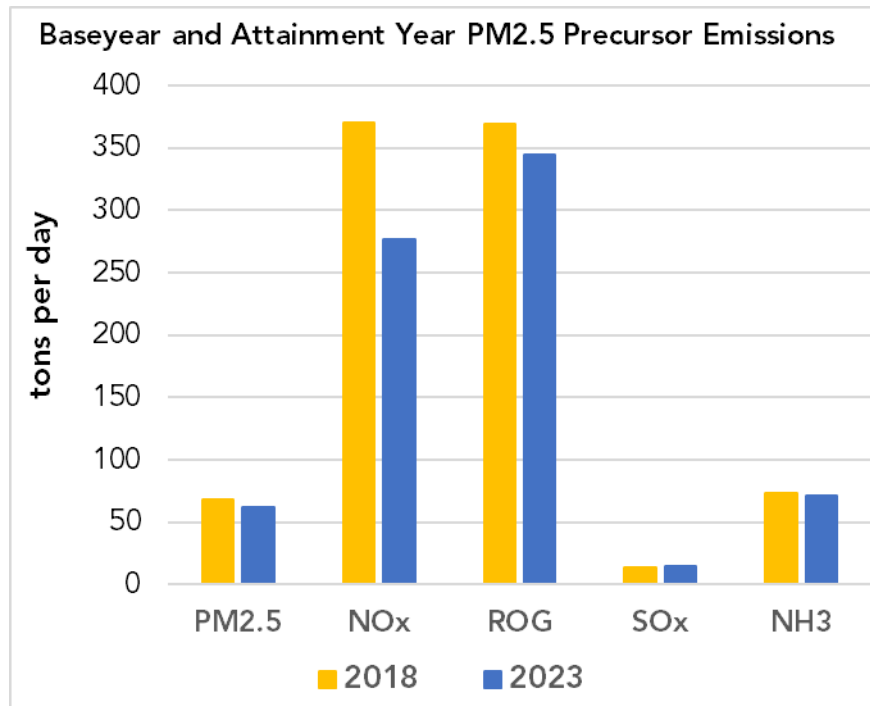
A. Attainment Demonstration

The attainment demonstration base year should be one of the three years that were part of the DV that determined that the area failed to attain the standard. The 2019 DV includes 2017, 2018 and 2019. The attainment demonstration should also include emissions inventories for the base year and future year, modeling demonstrating emission levels needed for attainment, a control strategy to achieve the reductions required for attainment, and a modeled attainment demonstration. The attainment demonstration elements in the Plan are described below.

i. Base-Year and Future-Year Emission Inventories

The District set 2018 as the base year for the 35 $\mu\text{g}/\text{m}^3$ 24-hour PM_{2.5} standard SIP revision. Chapter 3 in the Plan provides the emission inventories in the South Coast for the 2018 base year and projected emissions in 2023. Since atmospheric PM_{2.5} is derived from both direct PM_{2.5} emissions and secondary PM_{2.5} formation resulting from emissions of NO_x, ROG, SO_x and NH₃, all of these pollutants are included in the emission inventory and modeling. The 2018 base year emissions inventory reflects actual point source emissions and estimated emissions from categories subject to adopted regulations with compliance dates as of 2018. The future 2023 base year emissions inventory includes emissions reductions from already adopted measures with current and future compliance dates and economic projections for growth. The annual average emissions inventory was developed and provided the data for the PM_{2.5} modeling and required annual emission reductions demonstration. A chart showing base year, 2018, and future year, 2023, PM_{2.5} and PM_{2.5} precursors are provided in Figure 1.

Figure 1: PM2.5 and PM2.5 precursor emissions in the South Coast in 2018 and projected to 2023.



ii. Modeling

The modeling methodology can be found in the 2016 AQMP³. In general, however, site-specific future design values were determined using a Relative Response Factor (RRF) approach. RRFs were calculated to predict future emission changes of the PM2.5 components, ammonium, nitrate, sulfate, organic carbon, elemental carbon, crustal, salt, and particle-bound water. 5-year weighted PM2.5 design values were calculated at each monitor site based on the RRFs.⁴ Attainment of the standard is demonstrated when the projected year's 5-year weighted DV is equal to, or below, 35.49 µg/m³.

iii. Control Strategy

The control strategy providing the emissions reductions to meet the standard in the South Coast is based on the continued implementation of existing CARB and District regulations and programs over the next few years. Chapter 4 in the Plan describes the existing regulations providing for the attainment of the standard by 2023. In chapter 4, the District also discusses recent regulations and programs adopted by CARB and

³South Coast 2016 AQMP, March 2017

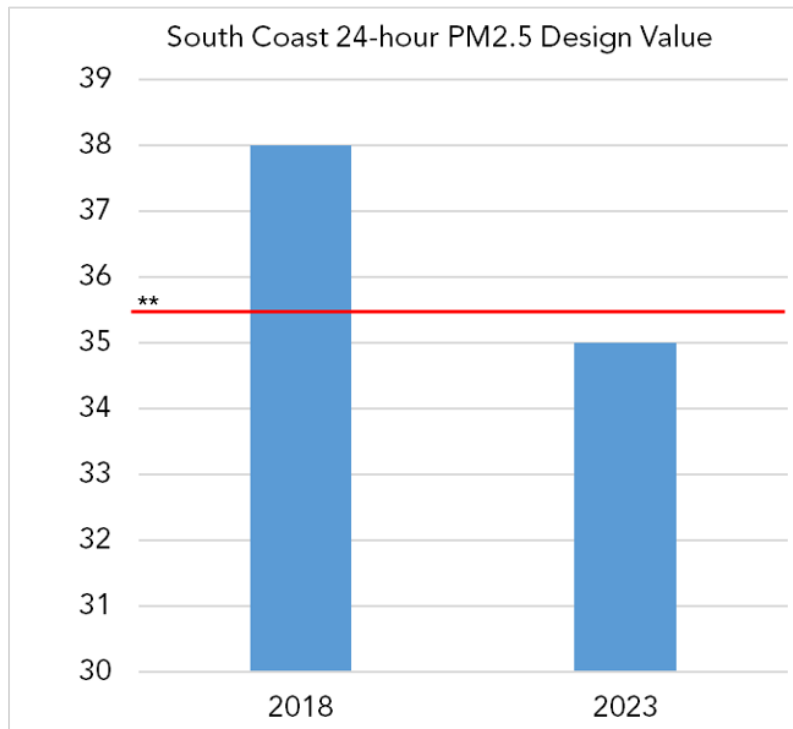
⁴U.S. EPA, (2018). Modeling Guidance for Demonstrating Air Quality Goals for Ozone, PM2.5, and Regional Haze.

the District after the 2016 AQMP and not reflected in the baseline emissions that provide further assurance the South Coast will meet the standard by the 2023 attainment date. The control strategy in the Plan meets the requirements of CFR 51.1003(c)(1)(iii).

iv. Modeled Attainment Demonstration and Weight-of-Evidence

Chapter 5 in the Plan demonstrates that, except for the Compton monitor, the highest projected PM_{2.5} DV in 2023 was 34.9 $\mu\text{g}/\text{m}^3$ at the Mira Loma monitor. The attainment demonstration is based on baseline emissions indicating that emission reductions resulting from already adopted regulations are sufficient to attain the standard by 2023, see Figure 2. For the Compton monitor, due to inexplicably high PM_{2.5} episodes measured on January 1, 2017 and in late December 2017, the Compton monitor was the 2019 high design site in the South Coast. Since the cause of the high values in 2017 at the Compton monitor remained unknown, the District has not been able to develop a control strategy to model attainment of the standard at this monitor.

Figure 2: 24-hour PM_{2.5} Design Values in the South Coast Air Basin in 2018 and 2023*



*2023 Design Values are modeled values

**Red line represents attainment of the 35 $\mu\text{g}/\text{m}^3$ standard

Monitored PM_{2.5} levels at the Compton monitor have been historically below the standard and continued to remain so in 2018 and 2019. So, although modeling cannot demonstrate attainment at the Compton monitor, the District provided an

alternative weight-of-evidence analysis that demonstrates attainment at the Compton monitor in 2023. Chapter 5 includes an analysis of the ambient air quality trends for PM_{2.5} and PM_{2.5} precursors, emissions trends, and other statistical analyses to demonstrate attainment of the standard at the Compton monitor. For the rest of the South Coast including Mira Loma, the only other monitor to exceed the standard in 2019, the District demonstrated attainment using a traditional modeling approach as described above.

B. Five Percent Annual Reductions of PM_{2.5} or PM_{2.5} Precursors

Section 189(d) of the Act states that Serious nonattainment areas failing to attain the standard by the applicable attainment date shall submit, within 12 months after the applicable attainment date, a plan revision which demonstrates an annual reduction in directly emitted PM or PM precursor emissions within the area of not less than five percent of the amount of total emissions as reported in the most recent inventory. The reductions must begin from the date of the SIP submission and continue until attainment.

Chapter 6 of the Plan demonstrates that the South Coast meets the annual five percent reduction of PM_{2.5} or PM_{2.5} precursor emissions for all the years though attainment. NO_x emission reductions are used to demonstrate the 5 percent annual reductions meeting the requirement of section 189(d) of the Act. The baseline and future milestone years' emissions inventories are presented in Chapter 3 of the Plan.

C. Control Strategy Analysis

CFR 51.1010 (c) requires states with Serious PM_{2.5} areas that fail to attain the standard by their attainment date to identify all sources of direct PM_{2.5} emissions and PM_{2.5} precursors and identify all potential control measures to reduce emissions from the sources of direct PM_{2.5} and PM_{2.5} precursor emissions.

Chapter 6 in the Plan includes an evaluation of control strategies being implemented in the South Coast. The evaluation concluded that the District and State rules are as stringent as, or more stringent than, analogous rules in other air districts or states, and are considered as BACM. The District also included an evaluation of additional feasible measures and, also, concluded that no additional feasible measures could be identified for achieving further emission reductions. The evaluation in Chapter 6 meets the requirements of CFR 51.1010(c).

D. Reasonable Further Progress

The Act requires that nonattainment area SIPs demonstrate RFP through emissions reductions phased in from the base year until the attainment date. For the standard, SIPs must demonstrate RFP reductions every three years with linear progress from base year emissions to the carrying capacity in the attainment year. The emission reductions needed for RFP can be from either directly emitted PM_{2.5} or PM_{2.5} precursors, and RFP is demonstrated when the base line emissions in a year are below emission targets based on the linear progress to attainment.

The Plan is required to demonstrate RFP in the milestone years of 2020, 2023 and the post-attainment milestone year of 2026. Chapter 6 in the Plan demonstrated RFP in the milestone years 2020, 2023 and 2026, meeting the requirements of CFR 51.1012.

E. Quantitative Milestones

Section 189(c)(1) of the Act requires that PM_{2.5} SIPs include specific Quantitative Milestones (QMs) demonstrating successful implementation of measures responsible for RFP in the area. Milestones are to be achieved every three years until the area is redesignated to attainment. In addition, the Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements (PM Rule) requires that Serious area SIPs include additional QMs to be met 3-years beyond the attainment date, in 2026⁵.

Chapter 6 in the Plan includes QMs for the milestone years 2020, 2023 and the post-attainment milestone year of 2026 meeting the requirements of CFR 51.1013.

F. Contingency Measures

CFR 51.1003(c)(1)(vii) requires that revised attainment plans for Serious areas include contingency measures. The PM rule requires these measures must have an automatic triggering mechanism in place and provide for emissions reductions that are approximately equivalent to either one year's worth of air quality improvement or one year's worth of reductions needed for RFP.

Chapter 6 of the Plan describes the District's contingency measures that meet this requirement. District Rule 445 (Wood-Burning Devices), amended in June of 2020, includes a "trigger" to implement the rule lowering the threshold for the District to call a "no burn day". Rule 445 is triggered in the event that the South Coast fails to meet RFP, a quantitative milestone, submit a quantitative milestone report, or attain the standard.

⁵81 FR 58010

To meet the requirement that contingency measures will provide approximately one years' worth of reductions, the District has included emissions reductions from amendments to the Heavy Duty Vehicle Inspection Program and Periodic Smoke Inspection Program⁶ (HDVIP and PSIP) that CARB adopted in May of 2018, and became effective on July 1, 2019. Reductions from these programs are in excess of the reductions included in the baseline emission inventory, and therefore these can be applied to contingency measures reductions.

Together, the amendments of District Rule 445 and CARB's HDVIP and PSIP satisfy the two requirements for contingency measures, that is a 'triggering mechanism' requirement set by the U.S. EPA based on the September 2016 decision by the U.S. Court of Appeals for the Ninth Circuit in *Bahr v. U.S. EPA*⁷, and section 172(c)(9) of the Act requiring emissions reductions equivalent to approximately one years' worth of progress.

G. Transportation Conformity

Section 176(c) of the Act establishes transportation conformity requirements intended to ensure that transportation activities do not interfere with air quality. Transportation plans, programs, and projects that obtain federal funds or approvals must be shown to conform to applicable SIPs before being approved by a Metropolitan Planning Organization (MPO). That is, the transportation plans must not result in emissions that exceed the "motor vehicle budget", that is the portion of the total emissions inventory from on-road highway and transit vehicles in all RFP milestone years and the attainment year meeting Act requirements⁸.

Motor vehicle emission budgets for ROG, NO_x, and PM_{2.5} for the attainment year (2023) and the post-attainment year (2026) are presented in Chapter 6 of the Plan meeting the requirements of CFR 51.1003(d).

H. New Source Review Requirements

Section 172(c) of the Act requires permits for the construction and operation of new or modified major stationary sources within a nonattainment area. Section 189(b)(3) defines a major source for an area classified as Serious for the standard as 70 tons per year (tpy) and section 189(e) of the Act states that control requirements applicable to plans in effect for major stationary PM sources shall also apply to major stationary sources of PM precursors, except where such sources do not contribute significantly to PM levels which exceed the standard in the area.

⁶[Amendments to the Heavy-Duty Vehicle Inspection Program and Periodic Smoke Inspection Program](#)

⁷*Bahr v. U.S. Environmental Protection Agency*, (9th Cir. 2016) 836 F.3d 1218.

⁸ Federal transportation conformity regulations are found in 40 CFR Part 51, subpart T – Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. of the Federal Transit Laws. Part 93, subpart A of this chapter was revised by the EPA in the August 15, 1997 Federal Register.

District Rule 1325, Federal PM2.5 New Source Review Program, has been amended to update the Major Polluting Facility definition to align the associated major source emission threshold at 70 tons per year for PM2.5 and PM2.5 precursors. As such, the District's New Source Review Regulations currently addresses the NSR requirements for a Serious PM nonattainment area.

IV. CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA) requires that State and local agency projects be assessed for potential environmental impacts. An air quality plan may be a "project" that is potentially subject to CEQA requirements. The District found that the proposed Plan will not result in any potentially significant adverse effects on the environment and is exempt from CEQA pursuant to CEQA Guidelines Sections 15061(b)(3) and 15308. The District will file a Notice of Exemption upon approval of the Plan by its Governing Board at its public hearing in December 2020.

CARB has determined that the proposed Plan is a ministerial activity by CARB for purposes of CEQA (14 CCR § 15268). A "ministerial" decision is one that involves fixed standards or objective measurements, and the agency has no discretion to shape the activity in response to environmental concerns (14 CCR § 15369; *San Diego Navy Broadway Complex Coalition v. City of San Diego* (2010) 185 Cal.App.4th 924, 934). Because CARB lacks authority to modify a SIP submittal that fully complies with Act requirements, its action here is ministerial.

Furthermore, CARB has determined that the proposed Plan is not a "project" subject to CEQA because CARB's approval simply acknowledges requirements that are already binding and enforceable. CARB's approval and submission of these requirements to the U.S. EPA does not repeal or revise these requirements, and would thus not cause a substantial change to the environment requiring additional environmental review. (See *Sherwin-Williams Co. v SCAQMD* (2001) 86 Cal.App.4th 1258, 1286.)

V. CONCLUSION AND STAFF RECOMENDATION

CARB staff has concluded that the *South Coast Air Basin Attainment Plan for 2006 24-Hour PM2.5 Standard* meets the requirements of the Act for a Serious 24-hour PM2.5 nonattainment area failing to attain the standard by the required attainment date. CARB staff recommends that the Board:

1. Adopt the *South Coast Air Basin Attainment Plan for 2006 24-Hour PM2.5 Standard* which includes Emission Inventories, Attainment Demonstration, RFP demonstration, Quantitative Milestones, Contingency Measures, New Source Review requirements, Transportation Conformity requirements, the demonstration of five percent annual reductions of PM2.5 or PM2.5 precursors, and an evaluation of emissions sources and emissions controls that

demonstrates all BACM and feasible control measures are in place in the South Coast for directly emitted PM_{2.5} and all PM_{2.5} precursors; and

2. Direct the Executive Officer to submit the Plan to U.S. EPA as a revision to the California SIP.