



# Chapter 6

## Federal and State Clean Air Act Requirements

- Both South Coast Air Basin (Basin) and Coachella Valley are required to satisfy several obligations under the federal and State clean air acts for ozone nonattainment areas.
- The 2022 AQMP addresses the federal requirements, including the implementation of reasonably available control measures, reasonable further progress, a comprehensive emission inventory, control strategies, contingency measures, general conformity, and vehicle miles traveled.
- The 2022 AQMP also addresses state clean air act requirements including plan effectiveness, emission reductions, population exposure, and cost-effectiveness elements.

# In This Chapter

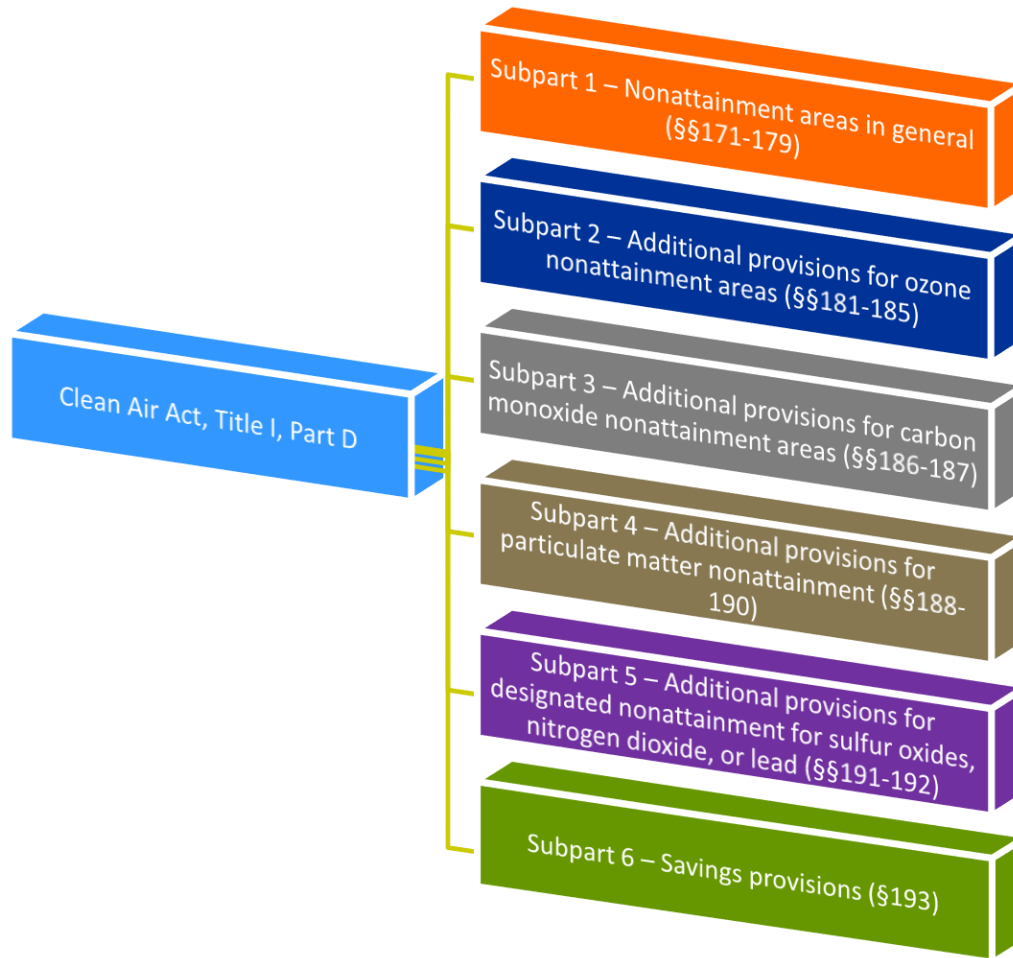
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## Introduction

The 2022 Air Quality Management Plan (AQMP) is designed to satisfy several requirements under the federal and state clean air acts. While the primary focus of the plan is the strategy to attain the 2015 8-hour ozone national ambient air quality standard (NAAQS), other elements include requirements for the California Clean Air Act (CCAA) triennial update, and the requirement to update transportation emissions budgets based on the latest approved motor vehicle emissions model and planning assumptions. Specific information related to the air quality and planning requirements for portions of the Salton Sea Air Basin (SSAB) under South Coast Air Quality Management District (South Coast AQMD)'s jurisdiction is discussed in Chapter 7. Upon approval by the South Coast AQMD Governing Board and California Air Resources Board (CARB), the 2022 AQMP will be submitted to the United States Environmental Protection Agency (U.S. EPA) as a revision to the State Implementation Plan (SIP).

In November 1990, Congress enacted a series of amendments to the federal CAA intended to strengthen air pollution control efforts across the nation. One of the primary goals of the 1990 CAA Amendments was to overhaul the planning provisions for those areas not currently meeting the federal standards. The CAA identifies specific emission reduction goals, requires both a demonstration of reasonable further progress (RFP) and attainment. Title I (Air Pollution Prevention and Control) of the CAA contains four parts (Part A through Part D) that provide provisions for air pollution prevention and control. Specifically, Part D describes the Plan requirements for nonattainment areas within six subparts as outlined in Figure 6-1. Subpart 1 describes the general provisions that apply to all applicable criteria pollutants unless superseded by pollutant-specific requirements in Subparts 2 through 5.

There are several sets of general planning requirements in the CAA, both for nonattainment areas (Section 172(c)) and for SIPs in general (Section 110(a)(2)). These requirements are listed and briefly described in Chapter 1. This chapter presents the CAA requirements for the ozone NAAQS and demonstrates how the 2022 AQMP satisfies these requirements.



**FIGURE 6-1**  
**CLEAN AIR ACT, TITLE I, PART D – PLAN REQUIREMENTS FOR NONATTAINMENT AREAS**

## Federal Air Quality Standards for Ozone

### Background

In 1979, the U.S. EPA established a primary health-based NAAQS for ozone at 120 parts per billion (ppb) averaged over a 1-hour period. Pursuant to the 1990 CAA amendments, the U.S. EPA later classified nonattainment areas on a scale from “marginal” to “extreme,” based on the severity of the ozone problem. “Extreme” areas were provided the most time to attain the standard until November 15, 2010, but with more stringent requirements. The Basin was classified as “extreme” nonattainment on November 6, 1991<sup>1</sup> and a 1-hour ozone SIP was submitted in 1994 by South Coast AQMD and CARB. The U.S. EPA approved the 1-hour ozone SIP for the South Coast in 1997 as well as the CARB revisions to the SIP in 2000. Subsequently, revisions to the 1-hour ozone SIP in 2003 included updated emissions inventories

<sup>1</sup> 56 FR 56694.

along with new commitments to achieve nitrogen oxides (NOx) and volatile organic compounds (VOCs) reductions.

In 2009, the U.S. EPA approved certain elements of the 2003 SIP but disapproved the attainment demonstration, largely because CARB withdrew emission reduction commitments in 2008 rendering the plan insufficient to demonstrate attainment. The U.S. EPA concluded that consequences<sup>2</sup> for a disapproved plan were initially not triggered because the U.S. EPA determined that the approved SIP already contained an approved 1-hour attainment demonstration meeting CAA requirements, which was all that was necessary regarding the now revoked 1-hour standard.<sup>3</sup> Litigation on this issue resulted in the Court stating in 2012 that “the U.S. EPA should have ordered California to submit a revised attainment plan for the South Coast after it disapproved the 2003 Attainment Plan.”<sup>4</sup> In response to the U.S. EPA “SIP call” that same year, a plan containing a demonstration of attainment of the 1-hour ozone NAAQS was included as part of the 2012 AQMP and approved by the U.S. EPA effective October 3, 2014. The 2016 AQMP provided an updated attainment demonstration with the latest NOx and VOC reduction commitments to ensure the 1-hour ozone NAAQS is met by December 31, 2022. In 2018, an updated attainment demonstration was submitted, with attainment strategy relying only on South Coast AQMD’s proposed control measures in the 2016 AQMP. The U.S. EPA has approved the 2018 SIP update in 2019.<sup>5</sup>

In July 1997, the U.S. EPA promulgated a more stringent 8-hour ozone standard to replace the 1-hour ozone standard. The 8-hour ozone standard established by the U.S. EPA was challenged, and eventually upheld in March 2002. The 1997 8-hour ozone standard was set at 80 ppb (0.08 parts per million or ppm), calculated as the annual fourth-highest daily maximum 8-hour concentration, averaged over three years. The U.S. EPA finalized Phase 1 of the ozone implementation rule in April 2004. This rule set forth the classifications for nonattainment areas and continued obligations with respect to the existing 1-hour ozone requirements even though the 1-hour ozone standard was revoked. As described by the Phase 1 rule, the Basin was classified as “severe-17” with an attainment date of June 2021, while the portion of the SSAB under South Coast AQMD’s jurisdiction (Coachella Valley Planning Area) was classified as “serious,” with an attainment date of June 2013. In May 2010, the U.S. EPA granted the State’s request to (1) reclassify the Basin as an “extreme” nonattainment area with an attainment date of 2024 and (2) designate the Coachella Valley as “severe-15” with an attainment date of 2019.<sup>6</sup> As higher ozone levels were experienced throughout California including in Coachella Valley in 2017 and 2018, resulting in levels higher than the 1997 8-hour ozone standard, a request to reclassify the Coachella Valley from “severe-15” to “extreme” nonattainment was submitted to the U.S. EPA in 2019. Effective July 10, 2019, the U.S. EPA approved the voluntary “bump-up” request<sup>7</sup> and the Coachella Valley is currently an “extreme”

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<sup>2</sup> Consequences include highways sanctions, increased offset ratio (NSR), and a Federal Implementation Plan (FIP) (CAA, Title I, Part D, Subpart 1, Section 179 and Part A, Section 110(c)).

<sup>3</sup> Even though U.S. EPA revoked the standard, the underlying SIP obligations are still in place.

<sup>4</sup> 77 FR 58072.

<sup>5</sup> 84 FR 52005.

<sup>6</sup> 75 FR 24409.

<sup>7</sup> 84 FR 32841.

nonattainment area for the 1997 8-hour ozone standard with an attainment date of 2024. The federal 1-hour ozone standard was revoked, effective June 15, 2005, but “anti-backsliding” measures,<sup>8</sup> including implementation of an approved attainment plan, remain in effect for areas that have not yet attained these standards.

On March 12, 2008, the U.S. EPA lowered the NAAQS for ground-level ozone to a level of 75 ppb (0.075 ppm) from the previous standard of 80 ppb, set in 1997. The U.S. EPA designated the Basin as “extreme” nonattainment and the Coachella Valley as “severe-15” nonattainment effective July 20, 2012, and pursuant to the CAA Section 181(a)(1), the U.S. EPA requires that all areas with an “extreme” classification meet the 2008 8-hour ozone standard as expeditiously as practicable but no later than 20 years from the effective date of designation, or July 20, 2032 and all areas with an “severe-15” classification meet the 2008 ozone standard by July 20, 2027.<sup>9</sup> It should be noted that since the attainment deadline falls mid-year, emission reductions need to be in place by January 1, 2031 for the Basin and by January 1, 2026 for the Coachella Valley, so that emission reductions can be realized in the full previous calendar of 2031 and 2026, respectively. The 1997 ozone standard was subsequently revoked on April 6, 2015, but as with the revoked 1-hour standard areas are still subject to anti-backsliding provisions.

On October 1, 2015, U.S. EPA revised the NAAQS for ground-level ozone to a level of 70 ppb (0.070 ppm) from the previous standard of 75 ppb, and the Basin is designated as “extreme” nonattainment with an attainment date of August 3, 2038 and the Coachella Valley is designated as “severe” nonattainment with an attainment date of August 3, 2033.<sup>10</sup> The Basin’s ozone attainment date is August 3, 2038, which is 20 years from the designation as “extreme” nonattainment areas. 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. 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. In December 2018, U.S. EPA finalized the “Implementation of the 2015 National Ambient Air Quality Standards for Ozone: Nonattainment Area State Implementation Plan Requirements.”<sup>11</sup> This final rule addressed a range of nonattainment area SIP requirements for the 2015 ozone NAAQS, and served as a guideline for the development of the 2022 AQMP. The 2022 AQMP provides the pathway to attain the 2015 8-hour ozone NAAQS by the attainment year of 2037 for the Basin and 2032 for Coachella Valley, respectively. Figure 6-2 summarizes the U.S. EPA’s ozone standards to date. Figures 6-3 and 6-4 provides a timeline for the implementation of the ozone standards for the Basin and Coachella Valley, respectively.

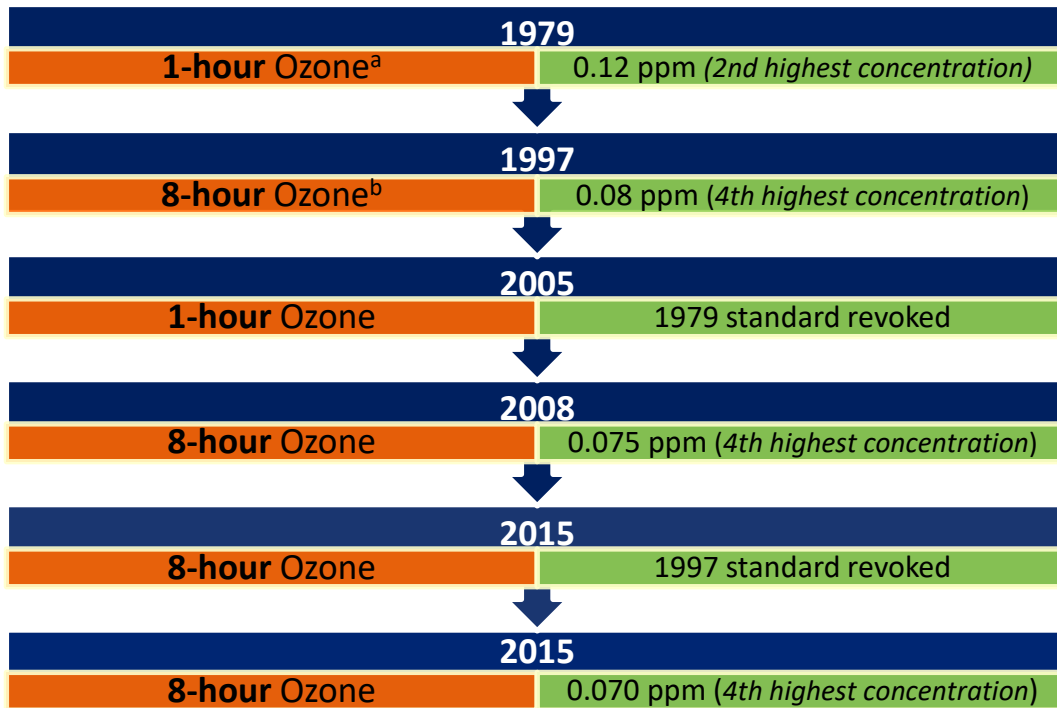
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<sup>8</sup> Section 172(e) of the CAA (“anti-backsliding” provision) requires U.S. EPA to develop regulations to ensure that controls are “not less stringent” than those which applied to areas designated nonattainment prior to relaxing a standard where U.S. EPA has revised a NAAQS to make it less stringent.

<sup>9</sup> 80 FR 12264.

<sup>10</sup> 83 FR 25776.

<sup>11</sup> 83 FR 62998.

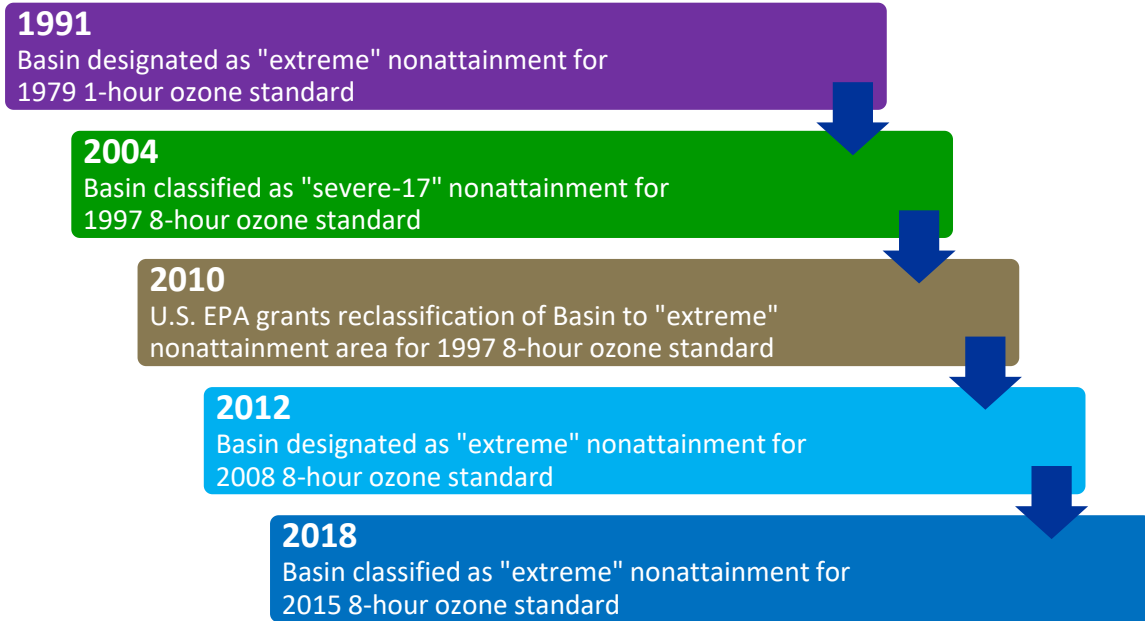


<sup>a</sup> 1-hour standard allows three exceedances in three years, so the 4<sup>th</sup> highest during the three year is compared to the standard

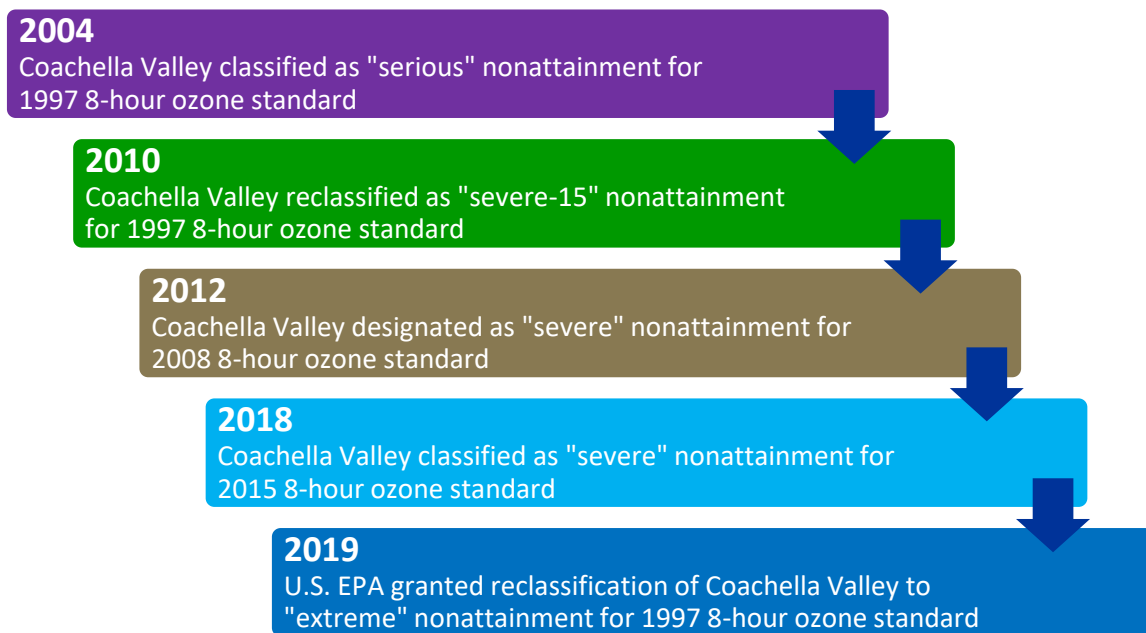
<sup>b</sup> Design value is average of the 4<sup>th</sup> highest of a year averaged over three years and compared with the standard

**FIGURE 6-2**  
**U.S. EPA'S OZONE STANDARDS<sup>12</sup>**

<sup>12</sup> The 1997 ozone standard was revoked on April 6, 2015 (80 FR 12264).



**FIGURE 6-3**  
**TIMELINE FOR THE IMPLEMENTATION OF OZONE NAAQS IN THE BASIN**



**FIGURE 6-4**  
**TIMELINE FOR THE IMPLEMENTATION OF OZONE NAAQS IN THE COACHELLA VALLEY<sup>13</sup>**

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<sup>13</sup> Coachella Valley attained the 1979 1-hour ozone standard in 2013.



# Federal Clean Air Act Requirements for Nonattainment Areas

## Subpart 1

For ozone nonattainment areas, such as the South Coast Air Basin, Section 172 of Subpart 1 of the CAA applies. Section 172(c)(1) of the CAA requires nonattainment areas to provide for implementation of all Reasonably Available Control Measures (RACM) as expeditiously as possible, including the adoption of Reasonably Available Control Technology (RACT). Section 172(c)(2) requires that nonattainment areas demonstrate Reasonable Further Progress (RFP). A comprehensive emission inventory is required under Section 172(c)(3). Nonattainment area SIPs must include control strategies (Section 172(c)(6)), RFP (Section 172(c)(2)), and attainment contingency measures (Section 172(c)(9)). However, according to the U.S. EPA's latest Ozone Implementation Rule released in December 2018,<sup>14</sup> "extreme" nonattainment areas with approved Section 182(e)(5) commitments only have to submit attainment contingency measures three years before the attainment date.

## Subpart 2

Subpart 2 provides additional provisions for ozone nonattainment areas. An attainment demonstration is required under Section 182(c)(2)(A) for areas classified as "serious" or above. Areas classified as "severe" or "extreme" nonattainment are required to demonstrate that sufficient transportation control strategies and transportation control measures have been identified to offset growth in emissions due to growth in vehicle miles traveled (VMT) under Section 182(d)(1)(A). Section 182(g) requires that each nonattainment area (other than an area classified as "marginal" or "moderate") achieve specific emission reduction targets in the applicable milestone years.

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<sup>14</sup> 83 FR 25776.

**TABLE 6-1**  
**FEDERAL CLEAN AIR ACT REQUIREMENTS APPLICABLE FOR 2015 8-HOUR OZONE NAAQS**

Requirement	Federal CAA Section	2022 AQMP
Emission Inventory	Subpart 1 §172(c)(3) Subpart 2 182(a)(1)	Chapter 3 & Appendix III <sup>15</sup>
Reasonably Available Control Technology (RACT)	Subpart 1 §172(c)(1) Subpart 2 182(b)(2)	Submitted to the U.S. EPA in 2020 <sup>16</sup>
Reasonably Available Control Measures (RACM)	Subpart 1 §172(c)(1) Subpart 2 182(b)(2)	Appendix VI-A
Control Strategy & Other Measures	Subpart 1 §172(c)(6)	Chapter 4, Appendix IV & Appendix VI
Attainment Demonstration	Subpart 2 §182(c)(2)(A) & 182(e)	Chapter 5, Chapter 7 & Appendix V
Reasonable Further Progress (RFP) & Milestones	Subpart 1 §172(c)(2) Subpart 2 §182(c)(2)(B) & §182(g)	Appendix VI-B and Chapter 7
Contingency Measures & Contingency Measures Associated with Areas Utilizing CAA §182(e)(5)	Subpart 1 §172(c)(9) Subpart 2 §182(e)(5)	Chapter 4
Transportation Conformity	Subpart 1 §176(c)	Appendix VI-C
Vehicle Miles Traveled (VMT) Offset	Subpart 2 §182(d)(1)(A)	Submitted to the U.S. EPA in 2020 <sup>17</sup>

<sup>15</sup> <https://ww2.arb.ca.gov/resources/documents/2017-baseline-inventory-and-vehicle-miles-traveled-offset-demonstration-2015-70>.

<sup>16</sup> <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2020/2020-Jun5-028.pdf?sfvrsn=8>.

<sup>17</sup> <https://ww2.arb.ca.gov/resources/documents/2017-baseline-inventory-and-vehicle-miles-traveled-offset-demonstration-2015-70>.

TABLE 6-1 (CONTINUED)

## FEDERAL CLEAN AIR ACT REQUIREMENTS APPLICABLE FOR 2015 8-HOUR OZONE NAAQS

Requirement	Federal CAA Section	2022 AQMP
New Source Review (NSR)	Subpart 1 §172(c)(5) & §173; §182(e)(1&2)	Submitted to the U.S. EPA in 2021 <sup>18</sup>
Emissions Statements	Subpart 2 §182(a)(3)(B)	Submitted to the U.S. EPA in 2020 <sup>19</sup>
Vehicle Inspection / Maintenance Programs	Subpart 2 §182(b)(4) & Subpart 2 §182(c)(3)	Appendix IV-B
Clean Fuels Fleet Program	Subpart 2 §182(c)(4)	Submitted to the U.S. EPA in 2022 <sup>20</sup>
Clean Fuels for Boilers	Subpart 2 §182(e)(3)	Submitted in 2021 <sup>21</sup>
Transportation Control Measures during Heavy Traffic Hours	Subpart 2 §182(e)(4)	Appendix IV-C
Enhanced (Ambient) Monitoring	Subpart 2 §182(c)(1)	2021 Annual Air Quality Monitoring Network Plan, <sup>22</sup> Chapter 2 & Appendix II
Transportation Controls	Subpart 2 §182(c)(5)	Appendix IV-B, Appendix IV-C & Appendix VI
NOx Requirements	Subpart 2 §182(f)	Appendix III, Appendix IV & Appendix VI
Penalty Fee Program Requirements	Subpart 2 §185	Due in 2028; <sup>23</sup> To be determined

Table 6-2 provides the explanation of the different requirements and conclusions as to how the requirements are satisfied.

<sup>18</sup> <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-june4-033.pdf?sfvrsn=2>.

<sup>19</sup> <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2020/2020-Jun5-028.pdf?sfvrsn=8>.

<sup>20</sup> <https://ww2.arb.ca.gov/70ppb-clean-fuels-fleet-certification>.

<sup>21</sup> <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-june4-033.pdf?sfvrsn=2>.

<sup>22</sup> <http://www.aqmd.gov/home/air-quality/clean-air-plans/monitoring-network-plan>.

<sup>23</sup> This SIP requirement is due 10 years from the effective date of designation. For the 2015 8-hour ozone standard, the due date is August 3, 2028.

**TABLE 6-2**  
**REQUIREMENTS AND COMPLIANCE CONCLUSIONS**

Requirement	Clean Air Act Title I Part D Definition	Analysis
Emission Inventory	A comprehensive, accurate, current inventory of actual emissions from all sources of the relevant pollutants in such area.	Annual average and summer planning emissions for VOCs and NOx from point, area, and mobile sources are provided in Chapter 3 and Appendix III for base year (2018), RFP milestone years and attainment year. <sup>24</sup>
Reasonably Available Control Measures (RACM)	Lowest emissions met with reasonably available (technical and economic feasibility) technology for mobile, area, and point sources, that can collectively advance the attainment date by at least one year. Does not include unenforceable or impractical measures.	Appendix VI-A contains analyses of potential control measures for emission reduction opportunities, as well as economic and technological feasibility. The analyses concluded that South Coast AQMD's rules and regulations were in general equivalent to, or more stringent than rules and regulations in other areas. For areas where improvements are possible, they are included as plan commitments or have been targeted for further evaluation.
Control Strategy & Other Measures	Further emission reductions achieved from actions such as requiring air pollution control technologies and emission reduction programs.	Chapter 4 and Appendix IV provide the comprehensive control strategy that includes South Coast AQMD stationary and mobile measures, CARB mobile source and consumer product emission reductions, and required federal actions.
Attainment Demonstration	Apply the proposed control strategy implemented as "expeditiously as practicable" to demonstrate attainment of standards based on photochemical transport modeling pursuant to the U.S. EPA guidance.	Chapter 5 and Appendix V provide the attainment demonstration by the statutory deadline with the implementation of the proposed control strategy.
Reasonable Further Progress (RFP) & Milestones	Annual incremental reductions in emissions of relevant air pollutant(s) generally linear to the attainment year.	As shown in Appendix VI-B, baseline VOC emissions result in a shortfall of RFP, but substitution of baseline NOx reductions makes up the shortfall.

<sup>24</sup> <https://ww2.arb.ca.gov/resources/documents/2017-baseline-inventory-and-vehicle-miles-traveled-offset-demonstration-2015-70>.

**TABLE 6-2 (CONTINUED)**  
**REQUIREMENTS AND COMPLIANCE CONCLUSIONS**

Requirement	Clean Air Act Title I Part D Definition	Analysis
Contingency Measures and Contingency Measures Associated with Areas Utilizing CAA §182(e)(5)	Additional measure to be implemented if area fails to meet RFP milestones or attainment date based on one-year's worth of reductions. Must be fully adopted and ready to implement. If relied on §182(e)(5), commitments to develop and adopt contingency measures three years prior to attainment.	Attainment contingency measures rely on §182(e)(5). More details can be found in Chapter 4.
General Conformity	Federal action should not cause or contribute to any new violation of a standard, increase the frequency or severity of any existing violation, or delay the timely attainment of the air quality standards.	General conformity budgets are eliminated and rulemaking will be initiated to develop a process to accommodate projects using mechanisms other than the current set-aside account. More details can be found in control measure EGM-02.
Transportation Conformity	Transportation plans and programs should not cause or contribute to any new violation of a standard, increase the frequency or severity of any existing violation, or delay the timely attainment of the air quality standards.	Motor vehicle emissions budgets have been established for the purpose of ensuring the conformity of transportation plans and programs. The budgets can be found in Appendix VI.
Vehicle Miles Traveled (VMT) Offset	Requires offset of emission increases due to VMT. U.S. EPA allows vehicle technology improvements, motor vehicle fuels, and other transportation-related strategies to offset VMT.	A 2020 SIP submittal demonstrates that emission increases from VMT growth is adequately offset by technology improvements and transportation strategies.
New Source Review (NSR)	A permitting requirement for new and modified major stationary sources.	A 2021 SIP submittal demonstrates South Coast AQMD's NSR program complies with ozone non-attainment requirements.
Emissions Statements	Owner or operator of each stationary source of NO <sub>x</sub> or VOCs provides statement for classes or categories of sources, showing the actual emissions of NO <sub>x</sub> and VOCs from that source.	A 2020 SIP submittal demonstrates that South Coast AQMD satisfies this requirement through the approved South Coast AQMD Rule 301 paragraph (e)(2) that requires emission reporting from all major stationary sources of NO <sub>x</sub> and VOCs greater than or equal to four tons per year.

**TABLE 6-2 (CONTINUED)**  
**REQUIREMENTS AND COMPLIANCE CONCLUSIONS**

Requirement	Clean Air Act Title I Part D Definition	Analysis
Vehicle Inspection/Maintenance (I/M) Program	The I/M regulations establish minimum performance standards for “basic” and “enhanced” I/M programs as well as various testing requirements.	Under California law, the Bureau of Automotive Repair (BAR) is responsible for developing and implementing the smog check program. On July 1, 2010, EPA approved California’s inspection and maintenance program as meeting the requirements of the CAA (75 FR 38023). Details about proposed control measure of the smog check program can be found in Appendix IV-B.
Clean Fuels Fleet Program	Under Clean-Fuel Fleet (CFF) program, a specified percentage of vehicles purchased by fleet operators for covered fleets shall be clean-fuel vehicles and shall use clean alternative fuels when operating in the covered area.	CARB submitted its Low Emission Vehicle (LEV) program with enhancements as part of its 1994 ozone SIP on November 15, 1994. EPA approved the substitution of the LEV program for a Clean Fuel Fleet program into the California SIP on August 27, 1999 (64 FR 46849).
Clean Fuels for Boilers	Each new, modified, and existing electric utility and industrial and commercial boiler that emits more than 25 tons per year (tpy) of NOX to either burn as its primary fuel natural gas, methanol, or ethanol (or a comparably low polluting fuel), or use advanced control technology (such as catalytic control technology or other comparably effective control methods).	A 2021 SIP submittal <sup>25</sup> demonstrates South Coast AQMD Rule 1146 and South Coast AQMD NOx RECLAIM program (Rules 2002 and 2004) satisfy the requirements of CAA section 182(e)(3). Under South Coast AQMD Rule 1303, new or modified boiler emitting at least 10 tpy of NOx or VOCs is required to employ Best Available Control Technology, which must be at least as stringent as the Lowest Achievable Emissions Rate (LAER) as defined in CAA section 171(3).
Transportation Control Measures during Heavy Traffic Hours	Provisions establishing traffic control measures applicable during heavy traffic hours to reduce the use of high polluting vehicles or heavy-duty vehicles.	This is optional. Control measures regarding transportation control measure can be found in Appendix IV-C.

<sup>25</sup> <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-june4-033.pdf?sfvrsn=2>.

**TABLE 6-2 (CONCLUDED)**  
**REQUIREMENTS AND COMPLIANCE CONCLUSIONS**

Requirement	Clean Air Act Title I Part D Definition	Analysis
Transportation Controls	Submit a demonstration as to whether current aggregate vehicle mileage, aggregate vehicle emissions, congestion levels, and other relevant parameters are consistent with those used for the area's demonstration of attainment.	Transportation controls can be found in Appendix IV-B and Appendix IV-C. Transportation conformity can be found in Appendix VI.
Enhanced (Ambient) Monitoring	Enhanced monitoring of ozone, oxides of nitrogen, and volatile organic compounds.	The South Coast AQMD's 2021 Annual Air Quality Monitoring Network Plan describes the steps taken to address the requirements of section 182(c)(1). It includes descriptions of the Photochemical Assessment Monitoring stations (PAMS) program. Monitoring data used for attainment demonstration and air quality modeling can be found in Chapter 2 and Appendix II.
NOx Requirements	Major stationary sources of NOx are subject to the provisions in Subpart 2 §182 (c), (d) & (e).	Emission inventory and control strategy for major stationary sources of NOx can be found in Appendix III and Appendix IV, respectively. Other requirements such as RACM demonstration and NSR can be found in Appendix VI.
Penalty Fee Program Requirements	Section 185 requires each major stationary source of VOCs and NOx to pay an annual fee for emissions in excess of 80 percent of the emissions baseline if an area fails to attain the ozone standards by its applicable attainment date.	To be determined

## California Clean Air Act Requirements

The Basin is designated as nonattainment with the State ambient air quality standards for PM<sub>10</sub>, PM<sub>2.5</sub> and ozone, while the Coachella Valley is designated as nonattainment with the State air quality standards for PM<sub>10</sub> and ozone. The CCAA requires that a plan for attaining the ozone standard be reviewed, and revised as necessary, every three years (Health & Safety Code § 40925).<sup>26</sup> This triennial update requirement will be satisfied in the 2022 AQMP. The CCAA established a number of legal mandates to facilitate achieving health-based state air quality standards at the earliest practicable date. The following CCAA requirements are directed at ozone as described in the remainder of this chapter:

- (1) Attainment by the earliest practicable date (Health & Safety Code § 40913);
- (2) Reduce each nonattainment pollutant or its precursors at a rate of 5 percent per year, or include all feasible measures and an expeditious adoption schedule (Health & Safety Code § 40914);
- (3) Reduce population exposure to “severe” nonattainment pollutants according to a prescribed schedule (Health & Safety Code § 40920(c)); and
- (4) Rank control measures by cost-effectiveness (Health & Safety Code § 40922).

### Plan Effectiveness

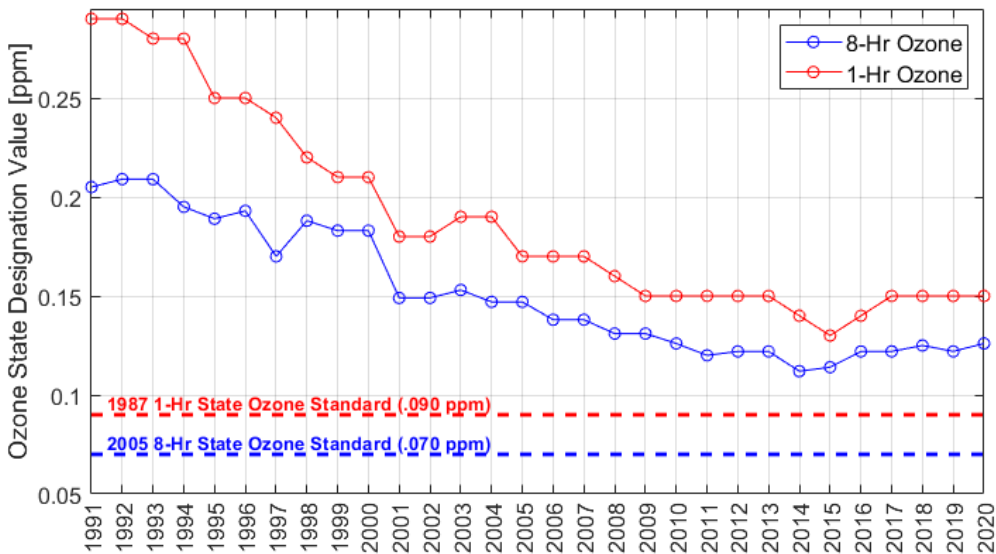
Beginning in 1994 the CCAA requires that South Coast AQMD assess its progress toward attainment of the State Ambient Air Quality Standards [Health & Safety Code § 40924(b)] and that this assessment be incorporated into South Coast AQMD’s triennial plan revision. To demonstrate the effectiveness of South Coast AQMD’s program, ozone air quality trends since 1991 depicting the California Ambient Air Quality Standards (CAAQS) 1-hour and 8-hour ozone designation values are provided for the South Coast Air Basin and the Coachella Valley in Figures 6-5 and 6-6, respectively. NAAQS attainment strategy assists the Coachella Valley to progress toward meeting the CAAQS as shown in Figure 6-6.

In both the South Coast Air Basin and the Coachella Valley, 8-hour and 1-hour ozone State designation values have decreased significantly from values recorded in the 1990s and 2000s, but have remained relatively constant in the past decade.

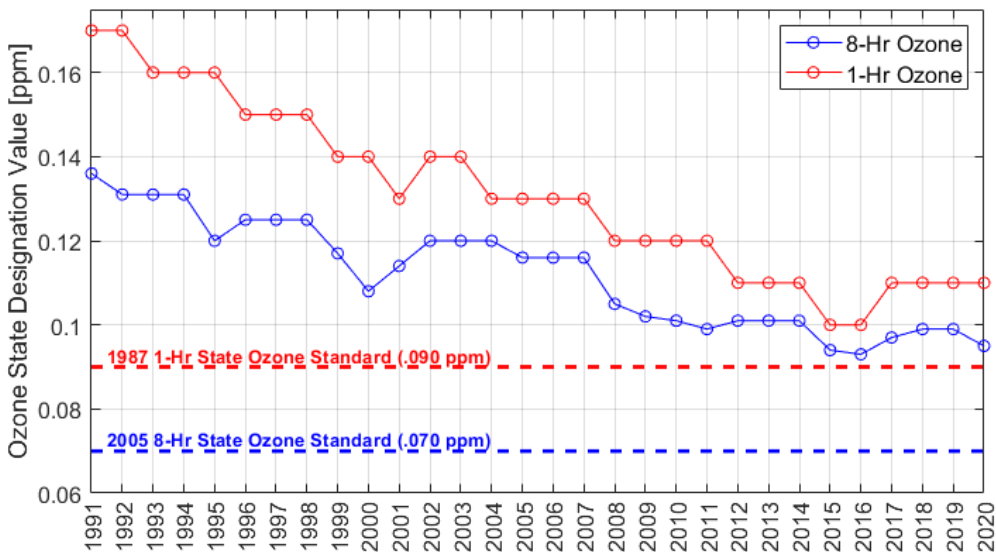
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<sup>26</sup> [https://leginfo.legislature.ca.gov/faces/codes\\_displaySection.xhtml?sectionNum=40925.&lawCode=HSC](https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=40925.&lawCode=HSC).





**FIGURE 6-5**  
**OZONE STATE DESIGNATION VALUES FOR THE SOUTH COAST AIR BASIN**



**FIGURE 6-6**  
**OZONE STATE DESIGNATION VALUES FOR THE COACHELLA VALLEY**

Nitrogen Dioxide (NO<sub>2</sub>) and Carbon Monoxide (CO) air quality have also improved substantially since 1990. NO<sub>2</sub> and CO metrics are not shown here since the Basin currently meets all state and federal NO<sub>2</sub> and CO standards. A comprehensive discussion of air quality trends was discussed in Chapter 2 and also can be found in Appendix II – Current Air Quality.

## Attainment by the Earliest Practicable Date

CAAQS are distinct from NAAQS. The current 8-hour and 1-hour ozone CAAQS are 70 ppb and 90 ppb, respectively. CAAQS are based on designation values, while NAAQS are based on design values. Due to the stringency of the CAAQS designation values, attainment is not anticipated in 2037 for either the state 8-hour or 1-hour standard. Further emission reductions and additional time will be required to attain the CAAQS. A detailed analysis is presented in Appendix V.

## Emission Reductions

The CCAA requires that each district plan be designed to achieve 5 percent or more cumulative emission reductions per year in each separate nonattainment area – the Basin and Coachella Valley – for each covered nonattainment pollutant or its precursors, averaged every consecutive three-year period (Health & Safety Code § 40914). If this cannot be achieved, a plan may instead show that it has implemented all feasible measures as expeditiously as possible (Health & Safety Code § 40914(b)).

The baseline NO<sub>x</sub> emissions meet the 5 percent averaged every consecutive 3-year average reductions up to 2026 (see Appendix III for emission inventory values). As the NO<sub>x</sub> reduction strategy is being implemented, corresponding VOC emissions are also expected to be reduced. As discussed in the RACM/RACT analysis in Appendix VI, this Plan implements all available feasible measures as expeditiously as possible.

## Population Exposure

The CCAA also requires a reduction in overall population exposure to criteria pollutants. Reductions are to be calculated based on per-capita exposure and the severity of the exceedances. For the Basin and Coachella Valley, this provision is applicable to ozone [Health & Safety Code § 40920(c)]. The definition of exposure is the number of persons exposed to a specific pollutant concentration level above the state standard times the number of hours exposed. The per-capita exposure is the population exposure (units of parts per hundred million (pphm)-person-hours) divided by the total population. This requirement for the specific milestone years listed in the CCAA has been shown to have already been satisfied in previous AQMPs.

## Cost-Effectiveness Ranking

The CCAA requires that each plan revision include an assessment of the cost-effectiveness of available and proposed control measures and contain a list which ranks the control measures from the most cost-effective to the least cost-effective (Health & Safety Code § 40922). Tables 6-3 and 6-4 provide lists of South Coast AQMD stationary source and mobile source control measures, respectively, for the 2015 ozone standard ranked by cost-effectiveness presented in the Appendix IV-A of the AQMP and the Socioeconomic Report for the AQMP. Table 6-5 ranks CARB strategy measures. In developing an adoption and implementation schedule for a specific control measure, a district shall consider the relative cost-effectiveness of the measure as well as other factors including, but not limited to, technological feasibility, total emission reduction potential, the rate of reduction, public acceptability, and enforceability (Health & Safety Code § 40922). The ozone control strategy and implementation schedule are provided in Chapter 4.

TABLE 6-3

## COST-EFFECTIVENESS RANKING OF STATIONARY SOURCE CONTROL MEASURES FOR OZONE

Measure Number	Description	Dollars/Ton <sup>a,b,c,d,e</sup>	Ranking by Cost-Effectiveness
L-CMB-09	Incineration	\$1,500	1
L-CMB-01	NOx RECLAIM	\$19,000	2
CTS-01	Further Emission Reduction from Coatings, Solvents, Adhesives, and Sealants	\$27,600	3
FUG-01	Improved Leak Detection and Repair	\$50,400	4
L-CMB-07	Petroleum Refining	\$70,000	5
L-CMB-10	Miscellaneous Combustion	\$84,800	6
L-CMB-08	Landfills and POTWs	\$126,400	7
C-CMB-05	Miscellaneous Small Commercial Combustion Equipment (Non-permitted)	\$176,100	8
R-CMB-03	Residential Cooking	\$217,500	9
R-CMB-04	Residential Other Combustion	\$357,100	10
L-CMB-03	Large Internal Combustion Prime Engines	\$606,700	11
C-CMB-04	Small Internal Combustion Engines (Non-permitted)	\$744,000	12
L-CMB-04	Large Internal Combustion Emergency Standby Engines	\$1,027,200	13
C-CMB-03	Commercial Cooking	\$1,116,400	14
L-CMB-05	Large Turbines	\$1,158,300	15
L-CMB-02	Large Boilers and Process Heaters	\$2,078,800	16
L-CMB-06	Electric Generating Facilities	\$2,420,100	17
ECC-03	Additional Enhancements In Reducing Existing Residential Building Energy Use	TBD	18

TABLE 6-3 (CONTINUED)

## COST-EFFECTIVENESS RANKING OF STATIONARY SOURCE CONTROL MEASURES FOR OZONE

Measure Number	Description	Dollars/Ton <sup>a,b,c,d,e</sup>	Ranking by Cost-Effectiveness
<b>FUG-02</b>	Emissions Reductions from Industrial Cooling Towers [VOC]	TBD	<b>18</b>
<b>FLX-02</b>	Stationary Source VOC Incentives [VOC]	TBD	<b>18</b>
<b>BIO-01</b>	Assessing Emissions from Urban Vegetation [VOC]	TBD	<b>18</b>
<b>MCS-01</b>	Application of All Feasible Measures [All Pollutants]	TBD	<b>18</b>
<b>MCS-02</b>	Wildfire Prevention [NOx, PM]	TBD	<b>18</b>
<b>ECC-01</b>	Co-Benefits From Existing and Future Greenhouse Gas Programs, Policies, and Incentives [NOx]	N/A	<b>24</b>
<b>ECC-02</b>	Co-Benefits from Existing and Future Residential and Commercial Building Energy Efficiency Measures [NOx, VOCs]	N/A	<b>24</b>
<b>FLX-01</b>	Improved Education and Public Outreach [All Pollutants]	N/A	<b>24</b>

<sup>a</sup> Where a range exists, the ranking was done based on the high end of the range

<sup>b</sup> TBD – emission reductions and costs to be determined once the inventory and control approach are identified

<sup>c</sup> N/A – emission reductions and costs cannot be quantified due to the nature of the measure (e.g., outreach) or the early stage in development

<sup>d</sup> Emission reductions and costs updated based on additional socioeconomic analysis conducted for the 2022 AQMP; see Socioeconomic Report for more details.

<sup>e</sup> Cost-Effectiveness is determined using the Modified Levelized Cash Flow Method (2021\$/ton): annual average amortized costs, divided by annual average emission reductions over the period of 2023-2037.

TABLE 6-4

## COST-EFFECTIVENESS RANKING OF MOBILE SOURCE CONTROL MEASURES FOR OZONE

Measure Number	Description	Dollars/Ton <sup>a, b, c, d</sup>	Ranking by Cost-Effectiveness
<b>MOB-11</b>	Emission Reductions from Incentive Programs [NOx, PM]	\$87,000	<b>1</b>
<b>MOB-05</b>	Accelerated Retirement of Older Light-Duty and Medium Duty Vehicles [NOx, VOCs, CO, PM]	\$334,300	<b>2</b>
<b>MOB-01</b>	Emission Reductions at Commercial Marine Ports [NOx, SOx, PM]	TBD	<b>3</b>
<b>MOB-02A</b>	Emission Reductions at New Rail Yards and Intermodal Facilities [NOx, PM]	TBD	<b>3</b>
<b>MOB-02B</b>	Emission Reductions at Existing Rail Yards and Intermodal Facilities [NOx, PM]	TBD	<b>3</b>
<b>MOB-03</b>	Emission Reductions at Warehouse Distribution Centers [NOx]	TBD	<b>3</b>
<b>MOB-04</b>	Emissions Reductions at Commercial Airports [All Pollutants]	TBD	<b>3</b>
<b>MOB-06</b>	Accelerated Retirement of Older On-Road Heavy-Duty Vehicles [NOx, PM]	TBD	<b>3</b>
<b>MOB-07</b>	On-Road Mobile Source Emission Reduction Credit Generation Program [NOx, PM]	TBD	<b>3</b>
<b>MOB-08</b>	Small Off-Road Engine Equipment Exchange Program [NOx, VOCs, PM]	TBD	<b>3</b>
<b>MOB-09</b>	Future Emission Reductions from Passenger Locomotives [NOx, PM]	TBD	<b>3</b>
<b>MOB-10</b>	Off-Road Mobile Source Emission Reduction Credit Generation Program [NOx, PM]	TBD	<b>3</b>
<b>MOB-12</b>	Pacific Rim Initiative for Maritime Emission Reductions [NOx]	TBD	<b>3</b>
<b>MOB-13</b>	Fugitive VOC Emissions from Tanker Vessels [VOCs]	TBD	<b>3</b>
<b>MOB-14</b>	Rule 2202- On-Road Motor Vehicle Mitigation Options [NOx, VOCs, CO]	TBD	<b>3</b>
<b>MOB-15</b>	Zero Emission Infrastructure for Mobile Sources [All Pollutants]	TBD	<b>3</b>
<b>EGM-01</b>	Emission Growth Management from New Development and Redevelopment [All Pollutants]	TBD	<b>3</b>
<b>EGM-02</b>	Emission Reductions from Projects Subject to General Conformity Requirements [All Pollutants]	TBD	<b>3</b>
<b>EGM-03</b>	Emission Reductions from Clean Construction Policy [All Pollutants]	TBD	<b>3</b>

<sup>a</sup> TBD – emission reductions and costs to be determined once the inventory and control approach are identified

<sup>b</sup> Emission reductions and costs may be updated as additional socioeconomic analysis is conducted for the 2022 AQMP

<sup>c</sup> Cost-Effectiveness is determined using the Modified Levelized Cash Flow Method (MLCF) in 2021\$/ton: annual average amortized costs, divided by annual average emission reductions over the period of 2023-2037. Cost-Effectiveness values using the MLCF are consistent with the MLCF values provided in Appendix IV-A.

<sup>d</sup> Emission reductions and costs will be determined after projects are identified and implemented. See Appendix IV-A for information for specific measures

TABLE 6-5

## COST-EFFECTIVENESS RANKING OF CARB MOBILE SOURCE CONTROL MEASURES FOR OZONE

CARB's Measure Description	Dollars/Ton a,b,c	Ranking by Cost- Effectiveness <sup>a</sup>
Clean Miles Standard	-\$2,590,000	1
Consumer Products Standards	\$6,200	2
On-Road Heavy-Duty Vehicle Low NOx Engine Standards	\$8,200	3
Spark-Ignition Marine Engine Standards	\$14,200	4
Tier 5 Off-Road Vehicles and Equipment	\$30,600	5
Off-Road Equipment Tier 5 Standard for Preempted Engines	\$34,300	6
In-Use Locomotive Regulation	\$47,600	7
On-Road Motorcycle New Emissions Standards	\$51,500	8
Commercial Harbor Craft Amendments	\$52,700	9
Transport Refrigeration Unit Regulation Part 2	\$77,300	10
Off-Road Equipment Zero Emission Standards Where Feasible	\$77,300	11
Cleaner Fuel and Visit Requirements for Aviation	\$84,200	12
Airport Aviation Emissions Cap	\$84,200	13
More Stringent NOx and PM Standards for Ocean-Going Vessels	\$84,200	14
Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation	\$87,900	15
Cleaner Fuel and Vessel Requirements for Ocean-Going Vessels	\$95,900	16
Advanced Clean Fleets Regulation	\$194,800	17
Zero Emissions Trucks Measure	\$194,800	18
Zero Emission Standard for Space and Water Heaters	\$496,600	19
Cargo Handling Equipment Amendments	\$621,800	20
Address Unlimited Locomotives Remanufacturing	TBD	21
Clean Off-Road Fleet Recognition Program	TBD	21
Enhanced Regional Emission Analysis in State Implementation Plans	TBD	21
Future Measures for Aviation Emissions Reductions	TBD	21

TABLE 6-5 (CONTINUED)

## COST-EFFECTIVENESS RANKING OF CARB MOBILE SOURCE CONTROL MEASURES FOR OZONE

CARB's Measure Description	Dollars/Ton a,b,c	Ranking by Cost- Effectiveness <sup>a</sup>
Future Measures for Ocean-Going Vessel Emissions Reductions	TBD	21
More Stringent Aviation Engine Standards	TBD	21
More Stringent National Locomotive Emission Standards	TBD	21
Off-Road Zero Emission Targeted Manufacturer Rule	TBD	21
On-Road Heavy-Duty Vehicle Zero Emission Requirements	TBD	21
Pesticides: 1,3-Dichloropropene Health Risk Mitigation	TBD	21
Zero Emission On-Ground Operation Requirements at Airports	TBD	21
Zero Emission Standards for Locomotives	TBD	21

<sup>a</sup> Negative number denotes cost savings

<sup>b</sup> Cost-Effectiveness is determined using the Modified Levelized Cash Flow Method (2021\$/ton): annual average amortized costs, divided by annual average emission reductions over the period of 2023-2037.

<sup>c</sup> TBD – emission reductions and costs to be determined once the inventory and control approach are identified

## Conclusion

As provided in Table 6-2, all federal CAA requirements are addressed and demonstrated in the 2022 AQMP with the exception of RFP contingency measures, which will be developed in a parallel process. Many of the details showing compliance are provided in Appendix VI of this Plan and are listed in both Tables 6-1 and 6-2.