

Staff Report
**CARB Review of the Mammoth Lakes Second
10-Year PM10 Maintenance Plan**

September 25, 2023



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Executive Summary

This report presents the California Air Resources Board (CARB or Board) staff assessment of the 2023 Town of Mammoth Lakes PM10 Planning Area Second 10-Year Maintenance Plan¹ (Second PM10 Plan or Plan) developed by the Great Basin Unified Air Pollution Control District (District). The Plan identifies the conditions under which the Mammoth Lakes Planning Area (Mammoth Lakes or Planning Area) has demonstrated continued attainment of the 150 µg/m³ 24-hour PM10 National Ambient Air Quality Standard (NAAQS or standard) since 1993 and commits to actions designed to maintain the standard. The Second PM10 Plan is the air quality maintenance plan required under federal Clean Air Act (Act) Section 175A(b) for the second 10-year period following attainment of the standard. The contents of a Second PM10 Plan are prescribed in a U.S. Environmental Protection Agency (U.S. EPA) memo dated September 4, 1992.²

The District adopted the 2014 Update to the Air Quality Maintenance Plan and Redesignation Request for the Town of Mammoth Lakes (2014 PM10 Plan) on May 5, 2014, and was approved by U.S. EPA effective November 4, 2015.³ The 2014 PM10 Plan focused primarily on continued maintenance of the PM10 standard based on a winter emissions inventory that projected emissions of PM10 in 2030 to be about 19% higher than those in 2012, incorporating the effects of emissions growth and control.⁴ Subsequent to Plan adoption, the District recorded occasional exceedances of the PM10 standard that the District addressed by issuance of control orders, and pursued Exceptional Event determinations by the United States Environmental Protection Agency (U.S. EPA) for exceedances resulting from wildfire smoke and windblown dust. These actions facilitated maintenance of the PM10 standard since 1993.

CARB staff has concluded that the Plan satisfies the SIP planning requirements of the Act for maintenance plans, including an attainment emissions inventory, maintenance demonstration, continued air quality monitoring, commitment for verification of continued attainment, transportation conformity budgets, and a contingency plan to promptly correct any violation of the PM10 standard.

¹ Great Basin Unified APCD, *Town of Mammoth Lakes PM10 Planning Area Second 10-Year Maintenance Plan* (Second PM10 Plan), 2023

² U.S. EPA, Memorandum from John Calcagni, Director, Air Quality Management Division to U.S. EPA Regional Directors, "*Procedures for Processing Requests to Redesignate Areas to Attainment*" September 4, 1992.

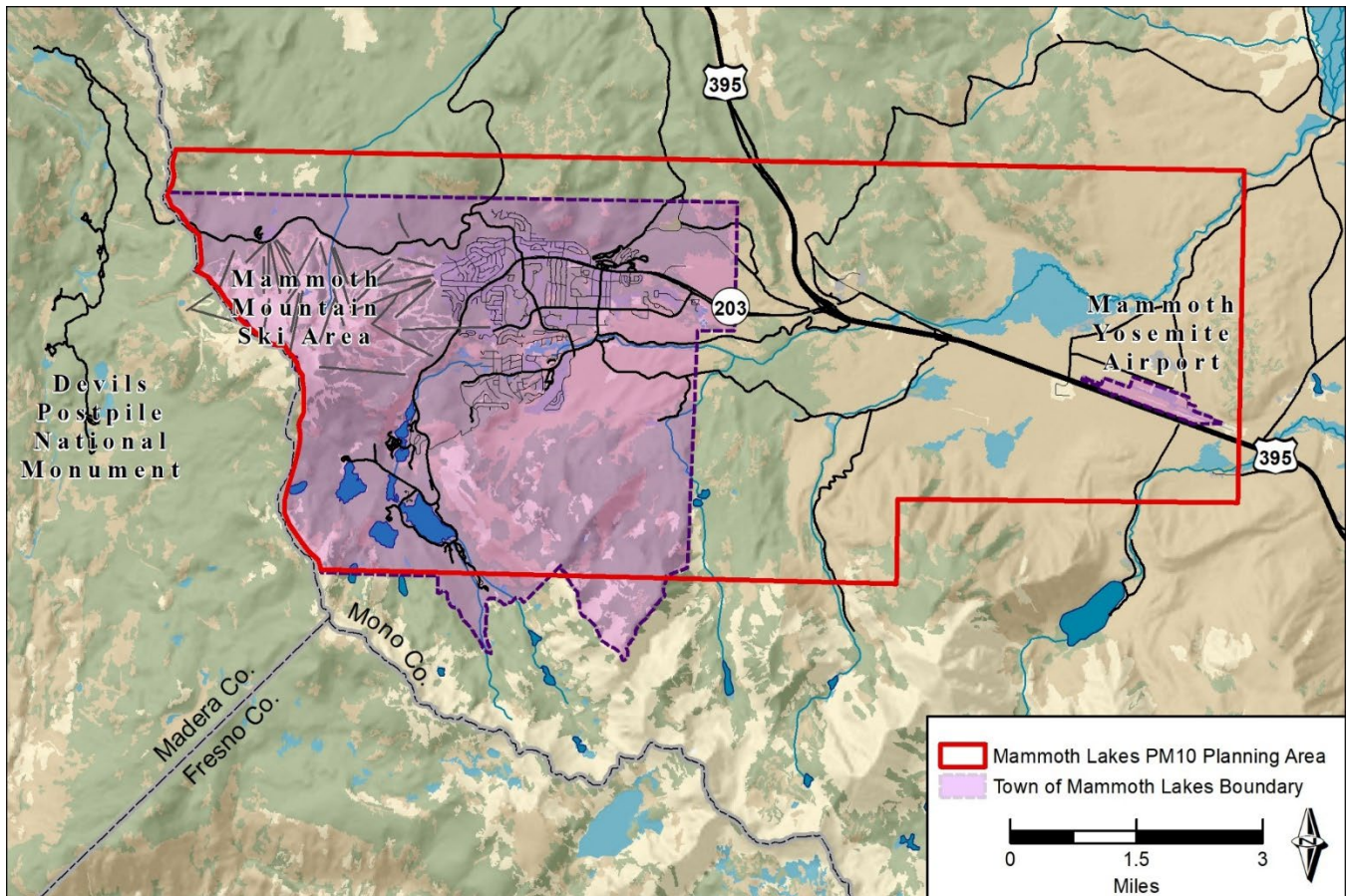
³ *80 Fed. Reg 60049* (October 5, 2015)

⁴ Great Basin Unified APCD, *Air Quality Maintenance Plan and Redesignation Request for the Town of Mammoth Lakes, 2014 Update*, Table 8-1, p.37

Background

The Mammoth Lakes PM10 Planning Area, shown on a map in Figure 1, covers approximately 68 square miles located on the eastern slopes of the Sierra Nevada mountains in the southwest corner of Mono County. The Town of Mammoth Lakes has grown from a population of almost 3,800 in 1990 to slightly more than 7,000 in 2020. The area is a popular tourist destination with the Mammoth Mountain ski area within the Planning Area boundaries, with over two million visitors a year, primarily during the winter ski season. The Mammoth Mountain Ski Resort is included in the nonattainment area.

Figure 1 - Mammoth Lakes PM10 Planning Area⁵



The Planning Area was designated by the U.S. EPA as a moderate nonattainment area for the 24-hour PM10 standard on November 15, 1990.

⁵ Great Basin Unified APCD, *Town of Mammoth Lakes PM10 Planning Area Second 10-Year Maintenance Plan*, 2023, Figure 1, p.5

On November 4, 2015, U.S. EPA redesignated the Mammoth Lakes PM10 Planning Area as attainment for the PM10 NAAQS. Concurrent with this redesignation, the U.S. EPA approved the first 10-year maintenance plan, which expires in 2025.

Section 175A(b) of the Clean Air Act requires the submittal to U.S. EPA of a second 10-year maintenance plan succeeding the first 10-year plan in order to retain an attainment designation for the affected standard. On September 7, 2023, the District Board adopted the Second PM10 Plan to satisfy this requirement. Analysis of air quality data accessed through U.S. EPA's Air Quality System shows that the number of exceedances per year during the 2020-2022 averaging period to be less than 1.0, the federal threshold for nonattainment of the PM10 standard. Exceptional events that occurred in 2020 due to smoke from the Creek Fire and the SQF (Sequoia) Complex Fires were documented and are being submitted to U.S. EPA for exclusion from design value calculations pursuant to EPA's Exceptional Events Rule.⁶

Designation Requirements

The Act authorizes the U.S. EPA to retain the designation of an area as a maintenance area if a number of requirements are satisfied. These requirements, as listed in Section 107(d)(3)(E) of the Act, are:

1. The area continues to attain the standard;
2. The applicable implementation plan for the area is fully approved under Section 110(k) of the Act;
3. The improvements in air quality are due to permanent and enforceable emissions reductions resulting from implementation of the applicable implementation plan;
4. The area has a fully approved maintenance plan satisfying the requirements of Section 175A of the Act; and
5. The state in which the area is located has met all applicable requirements under Section 110 and Part D of the Act.

U.S. EPA guidance also enumerates the required elements of approvable maintenance plans.⁷ Each PM10 maintenance plan must provide for continued maintenance of the PM10 standard for twenty years after redesignation from nonattainment to attainment and include the following components:

1. Attainment emissions inventory;

⁶ *81 Fed. Reg. 68,216*, (October 3, 2016)

⁷ U.S. EPA, *Procedures for Processing Requests to Redesignate Areas to Attainment* (Calcagni Memo), September 4, 1992

2. Maintenance demonstration;
3. Commitment to continued operation of the monitoring network;
4. Commitment to verification of continued attainment; and
5. Contingency plan to promptly correct any violation of the PM10 standard that occurs after the area has been redesignated.

Evaluation of the Second PM10 Plan

Based on review of the Second PM10 Plan and supporting technical analysis, CARB staff concurs that the Second PM10 Plan meets the Act's requirements. The following sections summarize CARB staff findings and conclusions with respect to the required elements of the Second PM10 Plan.

Attainment of the Standard

PM10 air quality has remained below the standard since redesignation of Mammoth Lakes to attainment effective November 2015, with the only exceptions being exceedances caused by wildfire smoke. The District has requested exclusion of monitoring exceedances of the standard under U.S. EPA's Exceptional Event Rule. These exceedances occurred during September and October of 2020 when the Mammoth Lakes area was severely impacted by smoke from wildfires. A few exceedance days also occurred in 2018, when an exceptional event was attributed to smoke primarily from the Ferguson and Lions Fires to the east of the monitor. This event was not requested for exclusion as it did not affect any regulatory determination at that time.

Table 1 lists PM10 monitoring data for the Federal Reference Method (FRM) monitor (POC 5), and Table 2 lists PM10 monitoring data for the Federal Equivalent Method (FEM) monitor (POC 6). These tables show several metrics for tracking PM10 air quality year by year, including the highest 24-hour average PM10 concentration recorded during each year, the estimated number of exceedance days per year and per three-year average (design value) for the 24-hour PM10 standard, and the number of expected exceedance days excluding exceptional events. The 24-hour PM10 standard is met when the estimated number of exceedance days recorded over a three-year period average one or less per year.

PM10 monitoring has been conducted in Mammoth Lakes since 1980 and at the Gateway Center site since 1988. The FRM monitor (POC 5) has a 1-in-3 day sampling frequency; a continuous FEM monitor was collocated on the site in 2008. In 2018, the FEM monitor, which operated as part of the SLAMS network, was replaced by a Special Purpose Monitor (SPM), a FEM Teledyne API T640x. This monitor was found to report values at a level two to three times that of the FRM filter monitor and has subsequently been removed and replaced with the original FEM monitor. Because the Teledyne T640x was operated as an SPM past

the 24-month requirement, the data is considered regulatory, even though the values reported are substantially higher at times than the FRM.

Table 1. POC 5 Peak 24-Hour Average PM10 Per Year and Estimated PM10 Exceedance Days Per Year and Per Three-Year Average (Design Value)

Year	Peak 24-Hour PM10 Concentration (µg/m3)	Expected Exceedance Days Per Year*	Expected Exceedance Days Per Three-Year Average (Design Value)	Expected Design Value (excluding exceptional events requested for exclusion)
2022	68	0	7.4	0
2021	84	0	7.4	0
2020	334	22.1	8.4	1.1
2019	75	0	1.1	1.1
2018	239	3.2	1.1	1.1
2017	87	0	0	0
2016	98	0	0	0
2015	66	0	0	0

*Based on 1-in-3 day monitoring schedule for POC 5 (Partisol: 2015-2022)

Table 2. POC 6 Peak 24-Hour Average PM10 Per Year and Estimated PM10 Exceedance Days Per Year and Per Three-Year Average (Design Value)

Year	Peak 24-Hour PM10 Concentration (µg/m ³)	Expected Exceedance Days Per Year*	Expected Exceedance Days Per Three-Year Average (Design Value)	Expected Design Value (excluding exceptional events requested for exclusion)
2022	60	0	13.0	0.6
2021	124	0	13.0	0.6
2020	1146	39	14.8	0.6
2019	118	0	1.8	1.8
2018	308	5.5	1.8	1.8
2017	86	0	0	0
2016	123	0	0	0
2015	85	0	0.7	0.7

*Based on continuous daily monitoring for POC 6 (R&P TEOM: 2015-2018, 2022; Teledyne T640x: 2018-2022)

Fully Approved SIP

The 2014 PM10 Plan is a fully approved portion of the California SIP. The 2014 PM10 Plan was submitted to U.S. EPA by CARB on October 21, 2014. In a Final Rule Notice published in the October 5, 2015, Federal Register, U.S. EPA fully approved the 2014 PM10 Plan.⁸

⁸ 80 Fed. Reg 60049 (October 5, 2015)

Attainment Results from Permanent and Enforceable Emission Reductions

Nonattainment of the 24-hour PM10 standard in the Mammoth Lakes Planning Area was demonstrated to be primarily due to residential wood-burning emissions and road dust and cinders in the winter season.⁹ In conjunction with the adoption of the 2014 PM10 Plan, the District revised District Rule 431, which controls the emissions of particulate matter in the Planning Area. These revisions have also been adopted by the Town of Mammoth Lakes as part of the municipal code.¹⁰

New stationary sources are subject to existing District new source review rules and permitting requirements and federal permitting requirements if considered a major source. Other sources of PM10 in the Planning Area, such as forest management burning, conservation management practices, and fugitive dust emissions from unpaved roads and properties are subject to existing District rules.¹¹

Maintenance Plan Provides for Continuing Attainment

Section 175A of the Act establishes the required elements of a maintenance plan for areas seeking redesignation from nonattainment to attainment. Using an attainment year inventory and future inventory projections, plans must demonstrate continued attainment through the first and second 10-year maintenance periods. Few PM10 sources exist within the Mammoth Lakes Planning Area, and emissions from these sources are expected to remain fairly constant over the duration of the Second PM10 Plan. Emissions inventories were developed in this Second PM10 Plan through the duration of the second 10-year maintenance period (2025-2035).

Attainment Year Emissions Inventory

As the standard being addressed in the Second PM10 Plan is the 24-hour PM10 standard, and as all historical violations of this standard occurred during the winter months, the emissions inventories contained in this Plan all report peak winter day PM10 emissions. The PM10 emissions inventory was updated to cover the 10-year maintenance period (2025-2035) with the Second PM10 Plan as well as summarizing the inventories from the previous 2014 PM10 Plan and the 2017 Triennial Progress Report (2017 Report).¹²

⁹ Great Basin Unified APCD, *2014 Air Quality Maintenance Plan and Redesignation Request for the Town of Mammoth Lakes* (2014 Plan), May 2014

¹⁰ Ibid., p.19

¹¹ Ibid. Table 4, p.21

¹² Great Basin Unified APCD, *2014-2016 Triennial Progress Report*, December 2017.

The Mammoth Lakes PM10 emissions inventories for both the Town of Mammoth Lakes (Town) and the Planning Area, which contains the Town boundaries, indicate that the Planning Area has slightly higher emissions, due in large part to traffic on the roadways outside of the Town, along with some additional industrial sources. The emissions in the Planning Area are forecast to increase in the second maintenance period due primarily to increases in the residential wood combustion and the road dust and cinders categories.

The drastic decrease in the road dust and cinders category from 2014 and 2017 to 2025 is due to a revision of the silt loading factor used in the calculations. Developed for the 1990 Air Quality Management Plan (1990 AQMP) and used in the 2014 Plan and the 2017 Report, the original silt loading emission factor (8.7 g/m²) was determined to be significantly higher than the CARB paved road dust methodology emission factor (0.32 g/m²) deemed to be more accurate and up-to-date. The Second PM10 Plan uses the CARB emission factor for the maintenance period years (2025 and 2035), with Table 3 illustrating the difference compared to the 2014 and 2017 inventories which utilized the older factor.

As noted in the CARB staff report for the 2014 Plan,¹³ residential wood combustion and road sanding accounted for the majority of ambient PM10 in both 1990 and 2012 and these two sources are still dominant in the most recent emissions inventories. Residential wood combustion estimates have increased by almost 5%, although residential wood heating devices in the nonattainment area increased by 9.5%.¹⁴

The Second PM10 Plan emissions inventory was also updated to include emissions from forest management practices, not required for the 2014 Plan or the 2017 Report. These emissions are not expected to increase during the second maintenance period.

The attainment demonstration for Mammoth Lakes is primarily based on emissions of these directly-emitted PM10, and does not include an analysis of the possible contributions from secondary PM, which is not considered significant.

¹³ CARB, *Staff Report: Town of Mammoth Lakes PM10 Maintenance Plan and Redesignation Request*, 2014.

¹⁴ Great Basin Unified APCD, 2014 Plan, Appendix B, Table 1-1, p.42

Table 3. Planning Area (Town of Mammoth Lakes) Peak 24-hour PM10 Emissions (lb/day)

Source Category	2014	2017	2025	2035
Residential Wood Combustion	1,874 (1,874)	1,677 (1,677)	1,719 (1,719)	2,137 (2,137)
Road Dust and Cinders	7,729 (5,560)	8,384 (5,893)	622 (599)	722 (696)
Tailpipe, Tire & Brake Wear	25 (20)	30 (21)	16 (11)	15 (11)
Industrial Sources	18 (9)	17 (9)	15 (7)	15 (7)
Forest Management	-- (--)	-- (--)	295 (--)	295 (--)
TOTAL	9,645 (7,463)	10,108 (7,601)	2,667 (2,336)	3,184 (2,851)

Maintenance Demonstration

In order to demonstrate continued maintenance of the PM10 24-hour standard through the year 2035, the District compiled an emissions inventory that formulated projections for the final 10-year period of the 20-year maintenance period (2025-2035). The projected inventories were compared to the 2014 and 2017 inventories and represent winter emissions which reflect the nature of the PM10 problem in the area. The Second PM10 Plan states that residential wood combustion and resuspended road dust comprise almost all of the PM10 emissions during winter days.

PM10 Monitoring Network

The PM10 monitoring network in the Mammoth Lakes Planning Area consists of the single station located in Mammoth Lakes at the intersection of Old Mammoth Road and Highway 203. The District commits in the Second PM10 Plan to maintain continuous PM10 monitoring for the ten-year term as required.

Verification of Continued Attainment

The District commits in the Second PM10 Plan to verify continued attainment through the maintenance of the current monitoring system as well as periodic evaluations of emissions sources and air quality trends. The District also commits to an annual assessment of the calculated three-year design value in addition to the quarterly evaluation that is part of the contingency trigger assessment outlined in the Second PM10 Plan. The District further

commits to transmitting an updated emissions inventory to CARB and assessing the monitoring needs in the annual network plan submitted to U.S. EPA.

Contingency Plan

The Act requires a maintenance plan include contingency provisions for prompt correction of any PM10 standard violation that might occur after the area has been redesignated to attainment. If a violation of the standard occurs, the District will evaluate the cause of the exceedance and take appropriate action within 18 months after completing the initial analysis or after determination by U.S. EPA that the contingency plan was triggered. If the violation was due to a controllable source, the District will determine whether measures exist to reduce emissions not already used in demonstrating maintenance of the standard. The District will complete its analysis of any exceedance and available contingency measures within six months of the determination that a contingency measure was triggered. During the subsequent 12-month period, the District will adopt and implement applicable contingency measures.

Motor Vehicle Emission Budgets

The Act requires that transportation plans, programs, and projects receiving federal funding or requiring federal approval must be found to be fully consistent with the applicable SIP. The federal Transportation Conformity Rule requires SIPs to specify on-road motor vehicle emission budgets (transportation conformity budgets) that are consistent with the attainment and maintenance demonstrations in the SIP. The conformity regulation requires transportation agencies to demonstrate that emissions from applicable portions of regional transportation plans and programs do not exceed these emissions budgets.

The transportation conformity budgets in PM10 SIPs must include emissions from several categories of sources that are integral components of on-road infrastructure construction, maintenance, and use. These source categories are identified in the Second PM10 Plan as vehicle exhaust, tire and brake wear (e.g., abrasive generation of particles from brake linings, tire surfaces, etc.), re-entrained road dust and traction agents. Unpaved, construction, and fugitive dust emissions are considered negligible due to winter weather conditions and subsequent snow cover.

Table 4 shows the District-adopted transportation conformity budgets for PM10 average day emissions for the Mammoth Lakes Planning Area. If U.S. EPA determines these budgets to be adequate, future transportation plan amendments and updates in the Mammoth Lakes Planning Area will need to conform to these budgets. The District and the Town of Mammoth Lakes must ensure that the aggregate annual average day transportation PM10 emissions in the Mammoth Lakes Planning Area do not exceed these levels when approving new transportation plans and transportation programs, even if the mix of projects changes

or growth increases. These budgets will remain in effect until other budgets are found adequate through approval by U.S. EPA.

Table 4. Incorporated Area (Unincorporated Area) PM10 Motor Vehicle Emissions Budgets (tons/day)¹⁵

Emissions	2025	2030	2035
Vehicular Exhaust and Tire and Brake Wear*	0.01 (0)	0.01 (0)	0.01 (0)
Re-Entrained Road Dust and Traction Agents**	0.30 (0.01)	0.32 (0.01)	0.35 (0.01)
Total PM10 Emissions	0.31 (0.01)	0.33 (0.1)	0.35 (0.02)
Total Motor Vehicle Emission Budget***	0.4 (0.1)	0.4 (0.1)	0.4 (0.1)

* includes running, idle, and start exhaust, as well as tire and brake wear. Also reflects the adjustment factor for HD I/M and ACCII

** unpaved, construction, and fugitive dust are negligible due to winter weather conditions and snow cover

*** Motor Vehicle Emissions Budgets calculated are rounded up to the nearest tenth of a ton per day

Environmental Analysis

The District filed a Notice of Exemption under the California Environmental Quality Act (CEQA) for the Second PM10 Plan. The Notice of Exemption reports that the adoption of the Second PM10 Plan is exempt from the requirements of CEQA as this action qualifies for a Categorical Exemption as a Class 8 action taken by a regulatory agency for the protection of the environment. The District filed the Notice of Exemption with Mono County on September 14, 2023.

CARB has determined that its review and approval of the Second PM10 Plan submitted by the District for inclusion in the SIP 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.)

¹⁵ Great Basin Unified APCD, Second PM10 Plan, Table 5, p. 25

CARB's review of the Second PM10 Plan is limited to determining if it meets all the requirements of the Act. CARB is prohibited from not approving it or changing it unless CARB finds that it does not comply with the Act (HSC § 41650 and 41652). Since CARB's review concludes that the Plan meets the requirements of the Act, CARB lacks authority to not adopt the plan, or modify it, in response to environmental concerns raised through the CEQA process. Therefore, CARB's action on the plan is ministerial for purposes of CEQA.

Staff Recommendation

CARB staff has reviewed the Second PM10 Plan for the Mammoth Lakes Planning Area and consulted with District staff during this review. CARB staff finds that the Second PM10 Plan meets all applicable Act requirements. The monitoring data shows that the area attained the 24 hour PM10 standard in 1994, and the maintenance demonstration shows that the standard will be maintained through 2035, the horizon year for the Second PM10 Plan.

Therefore, staff recommends that the Board adopt the Mammoth Lakes Planning Area Second 10-Year PM10 Maintenance Plan and submit the Second PM10 Plan to U.S. EPA for approval as a revision to the California State Implementation Plan (SIP), and direct the Executive Officer to work with the District and U.S. EPA and take appropriate action to resolve any completeness or approvability issues that may arise regarding the SIP submission. Additionally, staff recommends that the Board authorize the Executive Officer to include in the SIP submittal any technical corrections, clarifications, or additions that may be necessary to secure U.S. EPA approval.