Staff Report

CARB Review of the Portola Fine Particulate Matter (PM2.5) Serious State Implementation Plan

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CALIFORNIA
AIR RESOURCES BOARD

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Executive Summary

This report presents the California Air Resources Board (CARB) staff assessment of the Northern Sierra Air Quality Management District (District) *Portola Fine Particulate Matter (PM2.5) Serious State Implementation Plan* (Portola Serious Plan). The Portola Serious Plan sets forth a strategy to attain the 2012 annual fine particulate matter (PM2.5) National Ambient Air Quality Standard (NAAQS or standard) of 12 micrograms per cubic meter ($\mu g/m^3$) by the serious attainment deadline of December 31, 2025.

The Clean Air Act (Act) establishes planning requirements for the areas that exceed the health-based NAAQS. These areas, known as nonattainment areas, must develop a State Implementation Plan (SIP or Plan) that demonstrates that they will attain the standard by specified dates and address other Act requirements. Effective April 15, 2015, U.S. Environmental Protection Agency (U.S. EPA) designated the City of Portola (City) and surrounding areas of Plumas County (County), California as moderate nonattainment for the 12 $\mu g/m^3$ annual PM2.5 standard. The area is officially referred to as the Plumas County PM2.5 Nonattainment Area (Portola Nonattainment Area or Nonattainment Area). The Portola Nonattainment Area failed to meet the moderate attainment deadline of December 31, 2021, and effective January 30, 2023, was reclassified to a serious nonattainment area.

Based on air quality modeling, the Portola Serious Plan demonstrates that the Portola Nonattainment Area will attain the 12 $\mu g/m^3$ annual PM2.5 standard by the December 31, 2025 serious attainment deadline by implementing the control measures intended to reduce emissions from residential wood burning. The air quality modeling uses an emissions baseline year of 2021 to be consistent with using the 2021 PM2.5 annual average design value as the starting point while the base year for the emissions inventory is 2020. In this Staff Report, CARB staff are providing technical clarifications related to the 2020 base year emissions inventory. In 2021, the Portola-420 Gulling Street monitoring site (Portola site), after excluding atypical events[1], had a PM2.5 design value (3-year average of annual average PM2.5 levels) of 12.6 $\mu g/m^3$. After implementation of the Portola Serious Plan strategy, the Portola site is projected to have a 2025 attainment year annual design value of 11.8 $\mu g/m^3$, which is below the annual PM2.5 standard of 12.0 $\mu g/m^3$.

The Portola Serious Plan, developed by the District in accordance with U.S. EPA guidance, includes elements required in a serious area PM2.5 SIP, including comprehensive emissions inventories for directly emitted PM2.5 and PM2.5 precursors; an attainment demonstration; a reasonable further progress (RFP) demonstration and quantitative milestones; an assessment of best available control measures (BACM) and best available control technologies (BACT); motor vehicle transportation conformity budgets reflecting the latest

[1]Data points that are not typical or not expected to recur in the future as defined in: U.S. EPA Memorandum, Additional Methods, Determinations, and Analyses to Modify Air Quality Data Beyond Exceptional Events. April 4, 2019: https://www.epa.gov/air-quality-analysis/clarification-memo-additional- methods-determinations-and-analyses-modify-air

planning assumptions; and identification of contingency measures for attainment, quantitative milestones, and RFP. The strategy for reducing emissions relies exclusively on an incentive program that provides financial assistance for replacing uncertified, inefficient wood stoves with less polluting home heaters. The Portola Serious Plan demonstrates that the emissions reductions resulting from the wood stove replacement program met U.S. EPA's integrity elements for SIP-credible emissions reductions by being enforceable, quantifiable, surplus, and permanent.

CARB staff has reviewed the Portola Serious Plan and has concluded that, together with this Staff Report, it meets the requirements of the Act for the 12 μg/m^3 annual PM2.5 standard for a serious nonattainment area, including attainment demonstration, emissions inventories, BACM/BACT demonstration, RFP demonstration, quantitative milestones, contingency measures, and transportation conformity budgets.

The District Governing Board adopted the Portola Serious Plan on November 25, 2024. CARB will submit the Portola Serious Plan to U.S. EPA as a revision to the California SIP.

Background

Exposure to PM2.5 is associated with increased risk of hospitalization for lung and heart related illnesses and premature mortality, especially in children, the elderly, and people with existing health problems. The Act requires U.S. EPA to establish national ambient air quality standards to protect public health and regularly update them to reflect new health information. U.S. EPA first established a PM2.5 standard in 1997, consisting of a 24-hour standard of 65 μg/m^3 and an annual standard of 15 μg/m^3. Based on an extensive assessment and scientific review of the health impacts of PM2.5 pollution, U.S. EPA strengthened the 24-hour PM2.5 standard to 35 μg/m^3 in 2006, and the annual standard to 12 μg/m^3 in 2012.

Per subpart 4 of the Act, each PM2.5 nonattainment area begins with a moderate classification and is required to submit a SIP within 18 months after designations to evaluate whether the standard can be met within 6 years of the initial designation. If attainment within 6 years cannot be demonstrated, U.S. EPA classifies the area as serious and establishes requirements for a second SIP submittal that must show attainment within 10 years. To provide further guidance on the SIP requirements, U.S. EPA promulgated the 2016 Fine Particulate Matter National Ambient Air Quality Standard State Implementation Plan Requirements Rule (Implementation Rule). [2]

Effective April 2015, U.S. EPA designated the City of Portola and the surrounding communities as the Portola Nonattainment Area with a moderate classification for the 12 μg/m^3 annual PM2.5 standard. The District adopted the Portola Fine Particulate Matter (PM2.5) Attainment Plan (Portola Moderate Plan) for the Portola Nonattainment Area in

[2] 81 Federal Register (FR) 58010 *https://www.gpo.gov/fdsys/pkg/FR-2016-08-24/pdf/2016-18768.pdf*

January of 2017 and submitted it to CARB. CARB approved the Portola Moderate Plan on February 16, 2017, and on February 28, 2017, submitted it to the U.S. EPA for approval. U.S.EPA approved most of the elements of the Portola Moderate Plan effective April 24, 2019[3], while other elements were approved effective May 2, 2018[4] and April 2, 2021[5].

The main source causing the Portola Nonattainment Area to violate the 12 µg/m^3 annual PM2.5 standard is wood smoke from residential home heating. Wood burning is responsible for 76% of PM2.5 mass annually and 86% on a typical exceedance day. Wood heating is very popular in the area due to the lack of natural gas and the availability of cheap, or even free, wood. Voluntary change-out programs aim to reduce PM2.5 emissions by providing incentives for the replacement of older, more polluting wood-burning devices with cleaner and more efficient alternatives. The District began implementation of the Greater Portola Woodstove Change-out Program (Portola Change-out Program or Program) in 2016. The Program serves the Portola Nonattainment Area and was initially funded with a U.S. EPA 2015 Targeted Airshed Grant (TAG). Since that first grant, the Portola Change-out Program received additional TAG funding in fiscal years 2018 and 2020. The objective of the Portola Change-out Program is to reduce PM2.5 emissions from residential wood heating to attain the 12 µg/m^3 annual PM2.5 NAAQS. Replacing 416 old wood burning devices with less- polluting and more efficient alternatives between 2015 and 2020 led to a 15% decrease in the annual average PM2.5 design value between 2015 and 2021. However, the decrease in concentrations was not sufficient to attain the 12 µg/m^3 annual PM2.5 standard by the moderate attainment date of December 31, 2021. Effective January 30, 2023, U.S. EPA redesignated the Portola Nonattainment Area to a serious nonattainment area for the 12 µg/m^3 annual PM2.5 standard.

Following the serious classification, the area was required to submit an updated SIP by July 30, 2024. The District developed the Portola Serious Plan to address serious area requirements for the 12 µg/m^3 annual PM2.5 standard and demonstrate attainment of the standard by the serious deadline of December 31, 2025.

Nature of the PM2.5 Problem in the Portola PM2.5 Nonattainment Area

PM2.5 is a complex mixture of many different species generated from a wide array of emissions sources. PM2.5 may be emitted directly into the air in the form of soot, smoke, or dust, or can be formed in the atmosphere as secondary particles from the reactions of precursor gases, including nitrous oxides (NOx), sulfur oxides (SOx), reactive organic gases

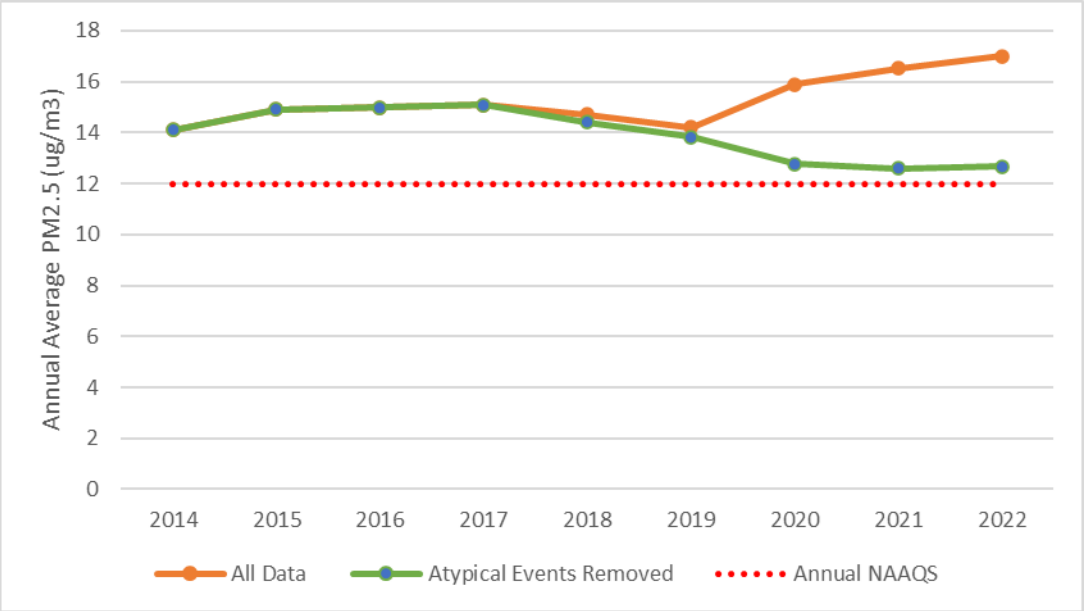
[3] 84 FR 11208-11210 *https://www.govinfo.gov/content/pkg/FR-2019-03-25/pdf/2019-05163.pdf*
[4] 83 FR 13871-13872 *https://www.govinfo.gov/content/pkg/FR-2018-04-02/pdf/2018-06538.pdf*
[5] 86 FR 12263-12265 https://www.govinfo.gov/content/pkg/FR-2021-03-03/pdf/2021-04351.pdf

(ROG), and ammonia. The relative mixture of these constituents in a region drives the nature of the needed control strategy.

The Portola PM2.5 Nonattainment Area includes the City of Portola and the nearby communities of Iron Horse, Delleker, C-Road, Mohawk Vista, Plumas-Eureka, Blairsden-Graeagle, Gold Mountain, Whitehawk, Clio, Johnsville, and portions of Lake Davis. The Nonattainment Area is in an intermountain basin isolated by rugged mountains, which affect the climate of Portola and surrounding communities. The area's topography, combined with the inversion-prone meteorology of the region, restricts airflow and favors the accumulation of pollutants.

The design value (DV) is the metric used for assessing compliance with the annual standard and represents the average of three consecutive annual average concentrations. Figure 1 illustrates the annual PM2.5 design values at Portola between 2014 and 2022 with and without atypical events. The technical demonstration for excluding atypical events is included in Appendix J of the Portola Serious Plan and summarized in Atypical Events Section on Page 12. With atypical events excluded, the annual DV at Portola shows a decreasing trend since 2017, with annual DVs from 2020 to 2022 approaching the 12 $\mu g/m^3$ standard. Understanding this decreasing trend is important for evaluating the impact of the Portola Changeout Program. The first home heating device funded by the Portola Changeout Program was installed on May 10, 2016. By December 31, 2020, 416 home heating devices in the Portola Nonattainment Area were replaced with cleaner burning and more efficient alternatives. Upgrading home heating devices to better technology was only one aspect of the comprehensive strategy designed to reduce emissions from home heating. Chapter IV of the Portola Serious Plan describes the Portola Changeout Program in more detail. Since the inception of the Portola Changeout Program, annual DVs decreased 15%.

Figure 1. Trends in Annual PM2.5 Design Value in Portola



To understand the nature of PM2.5 in the Nonattainment Area and identify contributing sources, CARB and District staff conducted several analyses. These included examining seasonal and diurnal patterns, and the chemical composition of PM2.5. Figure 2 shows the seasonal pattern of FRM PM2.5 concentrations at Portola based on 2018-2022 monthly data. The highest concentrations occur during the winter months, with the highest levels between November and February. CARB staff analyzed the diurnal patterns of hourly data for the four winter months of 2019-2021 as shown in Figure 3, together with the summer months and the rest of the year. The hourly pattern indicates strong diurnal variability during winter, with the highest concentrations during the nighttime. Figure 4 shows the Portola 2018-2021 annual average PM2.5 chemical composition. Carbonaceous aerosols, including organic matter and elemental carbon, are responsible for 86% of PM2.5 mass. On days with PM2.5 daily concentrations over the 35 $\mu g/m^3$ 24-hour standard, the carbonaceous aerosols contribution increases to 94%. Elevated wintertime concentrations that occur predominantly during evening hours and consist largely of carbonaceous particles are all indicative of wood burning as an emissions source.

Figure 2. Monthly Average PM2.5 Concentrations in Portola (2018-2022)

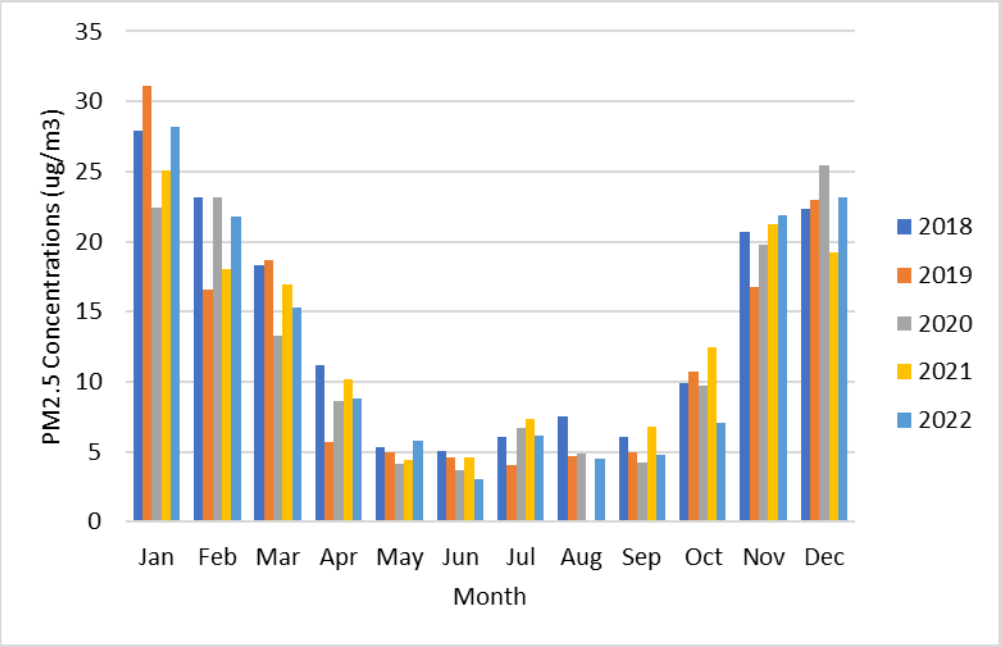


Figure 3. Diurnal Patterns in PM2.5 Concentrations in Portola (2019-2021)

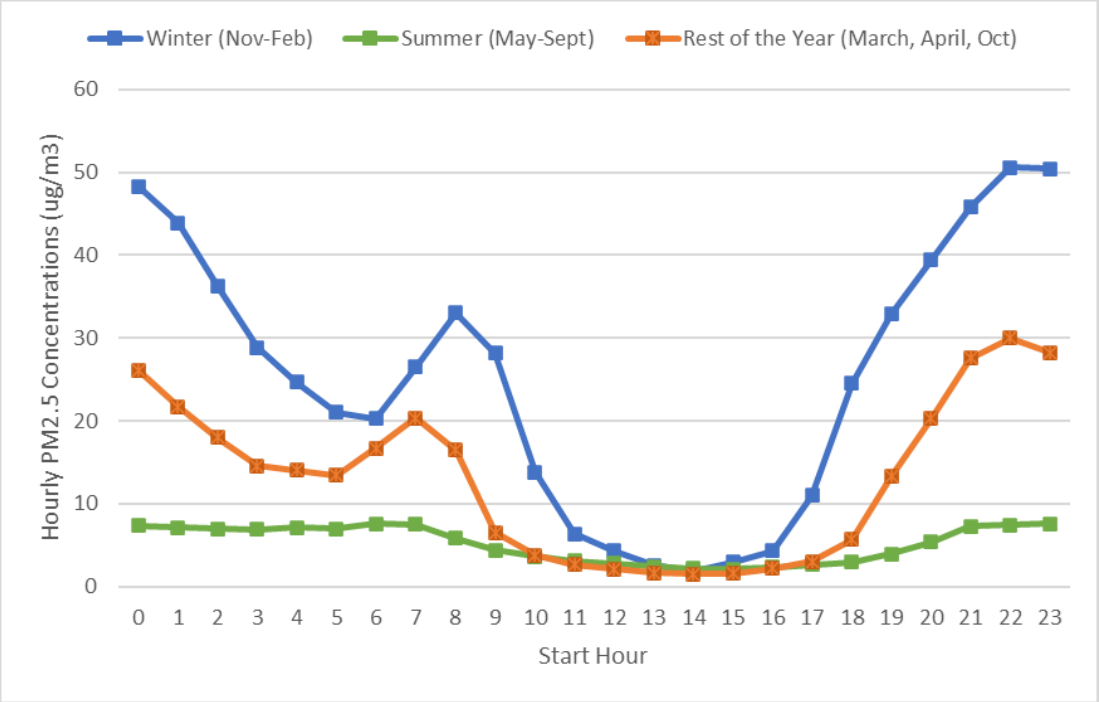
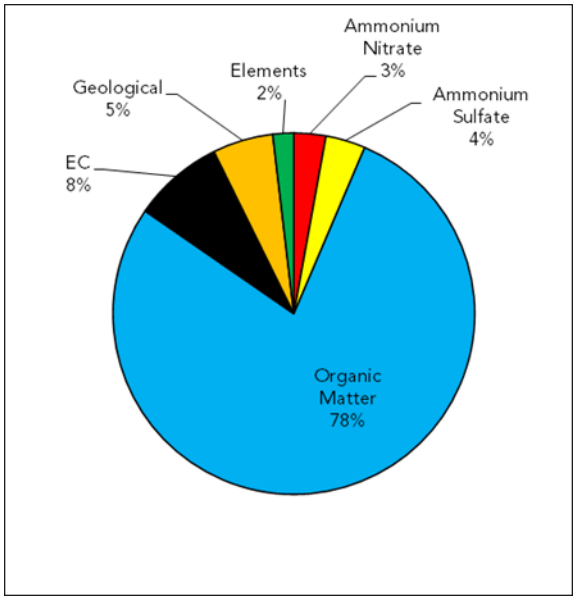


Figure 4. Portola 2018-2021 Annual Average PM2.5 Composition



To provide further source identification, staff conducted positive matrix factorization (PMF) modeling based on the 2011-2015 chemical composition data collected at Portola. Figure 5 illustrates the potential sources of PM2.5 identified via PMF modeling. Wood burning was identified as a major source of PM2.5, contributing 76% of the mass annually and 86% on days with PM2.5 daily concentrations over 35 µg/m. Additionally, levoglucosan, a molecular marker of wood smoke, is measured at the Portola site. Figure 6 shows that elevated PM2.5 concentrations and levoglucosan are highly correlated indicating that wood burning is likely the source of the elevated PM2.5 levels.

Figure 5. 2011-2015 Annual Average Source Contribution

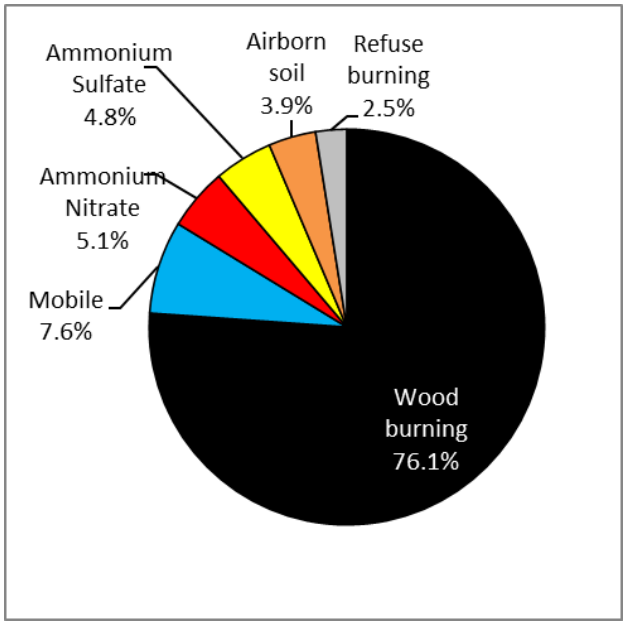
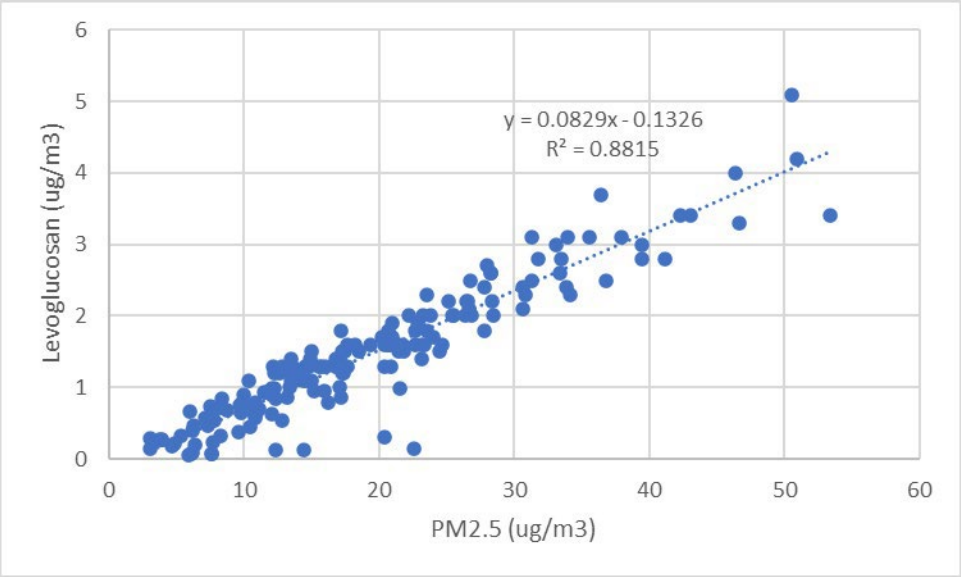


Figure 6. Correlation Between PM2.5 Mass and Levoglucosan (2017-2022)



Because natural gas is not available in the area and the use of propane and electricity is costly, wood burning is the primary source of home heating for many residents. The high poverty rate in Portola, 21.1% compared to 12.0% statewide in 2022[6], further increases popularity of wood as a heating fuel.

Section II.C of the Portola Serious Plan includes a detailed description of the nature of the PM2.5 problem in the Portola Nonattainment Area.

Attainment Demonstration

Demonstrating attainment is a cornerstone of the SIP. In the attainment demonstration section of the Portola Serious Plan, the District describes how the chosen control strategies provide the emissions reductions needed to bring the area into attainment by the serious attainment date, December 31, 2025.

All attainment demonstrations must project air quality at or below the standard using approved modeling techniques. The Portola Serious Plan uses a traditional rollback model as the basis for projecting future design values and the effect of control strategies in the Portola Nonattainment Area. The District and CARB followed U.S. EPA Precursor Demonstration Guidance[7] to perform a comprehensive analysis of emissions, precursor and sensitivity-based contributions to evaluate the impact of reducing emissions of different

[6] 2022 American Community Survey 5-Year Estimates https://data.census.gov/profile/Portola_city,_California?g=160XX00US0658352#income-and-poverty

[7] U.S. EPA. PM2.5 Precursor Demonstration Guidance. 30 May 2019. https://www.epa.gov/sites/default/files/2019-05/documents/transmittal_memo_and_pm25_precursor_demo_guidance_5_30_19.pdf

PM2.5 precursors on PM2.5 levels in the Portola Nonattainment Area. The District and CARB determined that emissions of nitrogen oxides (NOx), reactive organic gases (ROG), sulfur oxides (SOx), and ammonia contribute less than 0.2 μg/m^3 to PM2.5 levels that exceed the 12 μg/m^3 annual PM2.5 standard in the area. As this is below the threshold recommended by U.S. EPA, CARB has excluded these precursors from control requirements in the Portola Serious Plan because additional controls on precursors would not be effective in reducing PM2.5 concentrations and would lead to insignificant air quality changes. The Portola Serious Plan demonstrates that secondary formation is negligible compared with directly emitted PM2.5 and reductions in emissions of secondary PM2.5 precursors would not expedite attainment. The Portola Nonattainment Area will attain the standard by the end of 2025 by targeting directly emitted PM2.5.

The rollback model is an appropriate tool for demonstrating attainment in the Portola Nonattainment Area as described in Section V.L, Rollback Model, of the Portola Serious Plan. The rollback model demonstrates attainment of the 12 μg/m^3 annual PM2.5 standard by December 31, 2025. Residential wood burning is the dominant cause of elevated PM2.5 concentrations, and thus the key source to control for attainment of the annual standard. Wood heat is very popular in the area due to the lack of natural gas and the availability of cheap, or even free, wood. The District's strategy is therefore focused on providing financial incentives for homeowners to replace high polluting wood stoves and fireplaces with less polluting home heating devices. The attainment demonstration relies on the benefits of the Portola Changeout Program. The newer wood burning devices, when used properly, burn much cleaner and more efficiently than older devices. Replacing 100 uncertified wood burning devices with less polluting and more energy efficient home heating devices is estimated to reduce PM2.5 emissions by 0.025 tpd or 9% from the 2021 modeling baseline year emissions. These reductions are estimated to reduce the annual PM2.5 design value from 12.6 μg/m^3 in 2021 to 11.8 μg/m^3 in 2025.

For a more detailed description of rollback modeling and attainment demonstration see Section V of the Portola Serious Plan.

Atypical Events

While preparing data for calculating the 2021 baseline year annual PM2.5 design value, CARB staff identified 19 data points that are not typical or not expected to recur in the future. Of the 19 data points, 17 were impacted by wildfires and the remaining 2 were proven to be erroneous measurements. Since these events do not influence regulatory determinations, they fall outside of the scope of the Exceptional Events Rule[8] , and should instead be analyzed in accordance with U.S. EPA 2019 guidance, *Additional Methods,*

[8] U.S. EPA, Treatment of Air Quality Data Influenced by Exceptional Events, https://www.epa.gov/air-quality-analysis/treatment-air-quality-data-influenced-exceptional-events-homepage-exceptional

Determinations, and Analyses to Modify Air Quality Data[9] for handling air quality data that may have been influenced by atypical, extreme, or unrepresentative events outside of the realm of regulatory determination.

Under this guidance, modeling analyses used for estimating base and future year design values for PM2.5 attainment demonstrations may exclude atypical or unrepresentative monitoring data. Excluding data points from these 19 atypical events lowered the 2021 baseline year design value from 16.5 µg/m^3 to 12.6 µg/m^3, which more accurately represents Portola's air quality absent wildfires. Appendix J of the Portola Serious Plan includes an extensive event write-up demonstrating that the excluded data points were atypical or unrepresentative.

Control Strategy

The control strategy in the Portola Serious Plan describes the measures and actions that provide the emissions reductions needed to attain the standard by the serious attainment deadline. Since the high PM2.5 levels are overwhelmingly due to the impacts of smoke from residential wood burning devices, the only way to demonstrate attainment is by controlling emissions from these devices and educating the community about wood smoke pollution and how to engage in better wood burning practices. The attainment demonstration for the Portola Nonattainment Area relies fully on emission reductions projected to be achieved from a voluntary wood stove change-out program incentive measure (Woodstove Incentive Measure). The District is offering incentives, up to the full cost of purchase and installation, to qualified residents of the Portola Nonattainment Area using uncertified wood stoves or inserts as a primary source of heat. The Woodstove Incentive Measure is estimated to reduce PM2.5 emissions by 0.025 tons per day (tpd) by replacing 100 uncertified wood heaters with cleaner-burning and more energy efficient technology. This is the only measure for which emission reductions are factored into the attainment demonstration. More detailed discussion of control measures is included in Section IV of the Portola Serious Plan.

The District began implementation of the Portola Change-out Program in 2016. The Program serves the Portola Nonattainment Area and was initially funded with U.S. EPA 2015 TAG. Since that first grant, the Portola Change-out Program received additional TAG funding in fiscal years 2018 and 2020. The District has about $5 million remaining in the 2018 and 2020 TAG Funding to implement a multi-faceted program focused on reducing emissions from wood burning home heating devices by providing incentives for replacing older wood heating devices, installing woodsheds, offering vouchers for chimney cleaning, and educating the public about device operation and the benefits of using properly seasoned wood. Effective public communication is essential to reducing PM2.5 emissions from wood home heating devices. The District has developed a robust public outreach and

[9] U.S. EPA Memorandum, Additional Methods, Determinations, and Analyses to Modify Air Quality Data Beyond Exceptional Events. April 4, 2019: https://www.epa.gov/air-quality-analysis/clarification-memo-additional- methods-determinations-and-analyses-modify-air

education program and continues to develop new approaches to reach different segments of population.

To satisfy the Act emissions reduction requirements, the District must demonstrate that the reductions achieved from discretionary incentive programs are real, enforceable, quantifiable, surplus, and permanent. Only then can these emissions reductions be relied on to demonstrate attainment. As outlined in U.S. EPA guidance*, Incorporating Emerging and Voluntary Measures in a State Implementation Plan (SIP)*[10], the following elements are required as part of this demonstration:

1. Integrity
2. Commitment (Federal Enforceability)
3. Technical Analyses
4. Funding
5. Resources
6. Outreach and Public Disclosure
7. Legal Authority

Details regarding each of these elements are included in Appendix C of the Portola Serious Plan. The Portola Change-out Program guidelines developed to ensure that the Program satisfied these elements are included in Appendix F.

CARB staff has concluded that the Portola Serious Plan demonstrates that the emissions reductions from the Portola Change-out Program are real, enforceable, quantifiable, surplus, and permanent as required by U.S. EPA guidance and are projected to bring the area into attainment by the serious attainment deadline.

To ensure that healthy air will be maintained well past the 2025 attainment date, as part of the BACM analysis, the District committed to enacting a District wood burning rule. Unlike the Portola City Ordinance 359, which applies only within the Portola City limit, the rule will apply to Zone 1 of the Portola Nonattainment Area. The rule will expand the curtailment program and other wood burning restrictions to Zone 1 and include a contingency provision to lower the curtailment threshold if contingency is triggered. It will also include provisions for accelerating transition to cleaner heating devices, by restricting the types of devices allowed to be installed in new housing units and requiring replacement of uncertified wood stoves at the point of real property sale.

CARB concluded that adopting the proposed District rule commitment will further reduce woodsmoke emissions past 2025 attainment deadline. See Chapter IV.E of the Portola Serious Plan for a discussion of District rule development.

[10] https://www.epa.gov/sites/default/files/2016-05/documents/voluntarycontrolmeasurespolicyepa.pdf

Other Clean Air Act Requirements

To satisfy the Act requirements, the Portola Serious Plan contains the following elements in addition to the attainment demonstration and control strategy:

- An emissions inventory for manmade and natural or biogenic sources of PM2.5 air pollution in the nonattainment area;
- Demonstration that BACM are in place;
- Demonstration of RFP towards attainment;
- Quantitative milestones;
- Contingency measures in the event the area fails to meet RFP or attainment; and
- Transportation conformity emissions budgets to ensure transportation plans and projects are consistent with the SIP.

Emissions Inventory

PM2.5 SIPs must contain base year inventories of directly emitted PM2.5, NOx, SOx, ROG and ammonia, as well as future year forecasts. An emissions inventory consists of a systematic listing of sources of air pollutants with an estimate of the amount of pollutant emissions from each source category over a period of time.

CARB and District staff worked jointly to prepare an updated annual average emissions inventory for the Portola Serious Plan. The base year inventory is 2020, one of the three years that was part of the 2021 design value where U.S. EPA determined that the Portola Nonattainment Area did not meet the 12 μg/m^3 annual PM2.5 standard by the moderate attainment deadline. The 2020 base year inventory includes both man-made and natural sources of PM2.5, NOx, SOx, ROG, and ammonia. The inventory includes a category-by-category review and update using the most recent information available on emissions-generating activities and anticipated population and economic growth in the region. The sources of directly emitted PM2.5, the primary contributor to measured PM2.5 levels, are summarized in Table 1. Wood burning emissions from home heating devices constitute more than 70% of the PM2.5 inventory. Additional information on the emissions inventory methodologies and resulting base and future year emissions can be found in Section III and Appendix B of the Portola Serious Plan.

Table 1. Nonattainment Area 2020 PM2.5 Annual Average Tons Per Day Emissions

Category	2020 Emissions (tpd)
Residential Fuel Combustion	0.267
Managed Burning and Disposal	0.003
Cooking	0.008
Dust	0.078
Mobile Sources	0.014
Stationary Sources	0.006
Total PM2.5	0.376

Best Available Control Technology/Measures Analysis

The Act requires that the control strategy for a serious nonattainment area not only provides for attainment through emissions reductions, but also meets the obligations of BACM and BACT. BACM needs to provide the maximum degree of emissions reductions achievable from a source or source category considering technological feasibility, cost-effectiveness, and energy, economic, and environmental impacts. U.S. EPA interprets BACM/BACT as "generally independent" of attainment[11], meaning that a control strategy demonstrating attainment is not sufficient alone to meet BACM/BACT requirements. Section 189(b)(2) of the Act indicates that states submit BACM provisions 18 months following reclassification to serious.

Implementation of BACT/BACM is required four years after reclassification to serious per section189(b)(1)(B) of the Act. U.S. EPA published the final rule reclassifying Portola Nonattainment Area to serious for the 12 µg/m^3 annual PM2.5 NAAQS on December 29, 2022, with an effective date of January 30, 2023[12]. The BACM implementation deadline is January 30, 2027.

The Nonattainment Area does not have any sources subject to BACT. The Portola Serious Plan contains analyses demonstrating that the BACMs adopted by the District are in compliance with the requirements of the Act. The District will implement BACM level of

[11] 59 FR 42011 (August 16, 1994)
[12] 87 FR 80076 (December 29, 2022)

control for multiple sources with the main ones being residential fuel combustion, and managed burning and disposal. The BACM to control emissions from residential fuel combustion is to continue the requirement of the replacement of uncertified wood stoves at the point of real property sale, providing robust incentives to accelerate replacement of old wood burning stoves and fireplaces with less polluting and more efficient home heaters, and curtailing the use of uncertified woodstoves during periods of high PM2.5 concentrations. The District is also requiring the use of seasoned wood to reduce emissions and increase energy efficiency. The District will be controlling open burning in the Portola Nonattainment Area at a BACM level by updating open burning rules. The Portola Serious Plan contains analyses demonstrating that measures adopted by CARB and the District are BACM/BACT in compliance with the requirements of the Act. The District control measure evaluation is provided in Section VI.C of the Portola Serious Plan.

Reasonable Further Progress Demonstration

The Act requires attainment plans to demonstrate reasonable further progress (RFP). RFP is the steady progress in emissions reductions between the base year emissions inventory and the attainment year and ensures that nonattainment areas will begin reducing the emissions causing air pollution in a timely manner and not delay implementation of control programs until immediately before the attainment deadline. Analyses for this plan demonstrate that 2025 is the most expeditious attainment date practicable for the Portola Nonattainment Area. The base year emissions inventory is 2020 and the first quantitative milestone year submitted with the moderate plan was 2022. The serious milestone year is 2025 and the post-attainment milestone year is 2028.

The Portola Serious Plan is unusual because all emissions reductions necessary for demonstrating attainment come from the Portola Change-out Program. The ongoing implementation of the Program will achieve reductions of direct PM2.5 emissions to meet target emissions levels in RFP milestone years, satisfying Act requirements.

For the 12 $\mu g/m^3$ annual PM2.5 standard, the emissions that must demonstrate RFP include direct PM2.5 and applicable precursors. As discussed above, CARB determined that NOx, SOx, ROG, and ammonia do not contribute significantly to PM2.5 levels in Portola Nonattainment Area; as such, they are excluded from the RFP demonstration. For direct PM2.5, a demonstration is required showing that emissions will be decreased in a linear manner from the base year emissions to the attainment inventory.

The Portola Serious Plan addressed RFP using the baseline emissions inventory year, 2021, from the attainment demonstration instead of the base year emission inventory, 2020. The Implementation Rule requires using the base year emission inventory in the RFP demonstration. CARB considered the impact of using 2020 instead of 2021 on RFP. As illustrated in Table 2, using 2020 base year emission inventory instead of the 2021 baseline year has negligible impact on estimating RFP emission target and excess emissions reductions. The ongoing Woodstove Change-out Program is estimated to bring a steady decrease in directly emitted PM2.5 between 2020 and 2025. By the first milestone, 2025,

the strategy is expected to reduce directly emitted PM2.5 by 0.025 tpd. Using 2020 in RFP calculations still results in excess emissions reduction in both milestone years, 2025 and 2028.

While the impact on the RFP emissions target is minimal, CARB staff plan to update the RFP emissions target using a 2020 base year emissions inventory. This update does not impact the area's ability to meet RFP.

Table 1. Impact of Base Year vs. Baseline Year Directly Emitted PM2.5 Annual Emissions on RFP (tpd)

Category	With 2021 Baseline Emissions			With 2020 Base Year Emissions		
	2021	2025	2028	2020	2025	2028
Baseline PM2.5 Emissions	0.370	0.368	0.367	0.369	0.368	0.367
Subtract Wood Stove Change-out	0.000	0.025	0.025	0.000	0.025	0.025
PM2.5 Emissions After Plan Control Strategy	0.370	0.343	0.342	0.369	0.343	0.342
RFP Emissions Target		0.345	0.345		0.344	0.344
Excess Emissions Reductions		0.002	0.003		0.001	0.003

The RFP discussion and demonstrations can be found in Chapter VI.A of the Portola Serious Plan.

Quantitative Milestones

The Act requires that PM2.5 SIPs include quantitative milestones to demonstrate that reasonable further progress has been made towards attaining the PM2.5 standard. In the Portola Serious Plan, milestone years for the 12 $\mu g/m^3$ annual PM2.5 standard are 2025 and 2028. For each of these years, CARB and the District will report on progress made implementing measures in the Portola Serious Plan. District and CARB are committing to report on implementation of the Woodstove Change-out Program, adoption of the District rule, and progress toward implementing BACM measures.

Detailed discussion of the quantitative milestones can be found in Chapter VI.A of the Portola Serious Plan.

Contingency Measures

Contingency measures are required for all federal PM2.5 standards. The Implementation Rule[13] specifies that contingency measures adopted as part of a PM2.5 attainment plan must take effect with minimal action by either the state or U.S. EPA following a determination that the nonattainment area has failed to: (1) meet any RFP requirement in an attainment plan; (2) meet any quantitative milestone in an attainment plan; (3) submit a quantitative milestone report; or (4) attain the applicable PM2.5 standard by the applicable attainment date.

The Implementation Rule[14] further specifies that contingency measures must meet the following requirements:

1. The contingency measures shall consist of control measures not otherwise included in the control strategy or that achieve emissions reductions not otherwise relied upon in the control strategy for the area;
2. Each contingency measure shall specify the timeframe within which its requirements become effective following a trigger; and
3. The SIP submission shall contain a description of the specific trigger mechanisms for the contingency measures and specify a schedule for implementation.

By the end of 2025, the District will adopt a rule to control wood burning in the Portola Nonattainment Area. For contingency measure purposes, the District rule would include a trigger that is effective 60 days after U.S. EPA final action that the Portola Nonattainment Area failed to attain the 12 µg/m^3 annual PM2.5 NAAQS, failed to meet RFP or a quantitative milestone or failed to submit a quantitative milestone report, imposing a lower residential wood burning curtailment level of 12 µg/m^3 in Zone 1. Households in Zone 1 would be prohibited from using an uncertified wood stove or fireplace on any day during woodburning curtailment season, September 1st through April 30th of the following year, when concentrations are forecast to exceed 12 µg/m^3.

As part of the process to determine whether contingency measures provide for adequate emission reductions, U.S. EPA guidance specifies that the SIP include a calculation of one year worth (OYW) of progress. The Portola Serious Plan used the baseline emission inventory year of 2021 instead of the 2020 base year emission inventory to estimate OYW of progress for the purpose of assessing the adequacy of the reductions provided by the submitted contingency measure. In this Staff report, CARB staff recalculated OYW of progress using the 2020 base year emissions. Using 2020 instead of 2021 reduces the OYW of progress from 0.006 tpd to 0.005 tpd. The Portola Serious Plan proposed contingency measure is estimated to reduce PM2.5 emissions by 0.0072 tpd. Estimating OYW of

[13] 81 Federal Register (FR) 58010 *https://www.gpo.gov/fdsys/pkg/FR-2016-08-24/pdf/2016-18768.pdf*
[14] 81 Federal Register (FR) 58010 *https://www.gpo.gov/fdsys/pkg/FR-2016-08-24/pdf/2016-18768.pdf*

progress using 2020 instead of 2021 results in the proposed contingency measure exceeding the OYW target by a larger margin, making the proposed contingency measure using the 2021 emission inventory year more conservative. Equation 1 and Equation 2 show OYW estimates with 2021 and 2020 as the base year, respectively.

Equation 1. OYW Calculation with 2021 baseline EI

$$\frac{(base\ year\ EI - attainment\ year\ EI)}{(attainment\ year - base\ year)} \div base\ year\ EI \times attainment\ year\ EI = OYW\ of\ Progress$$

$$\frac{(0.370\ tpd - 0.345\ tpd)}{(2025 - 2021)} \div 0.370\ tpd \times 0.345\ tpd = 0.006\ tpd$$

Equation 2. OYW Calculation with 2020 base year EI

$$\frac{(base\ year\ EI - attainment\ year\ EI)}{(attainment\ year - base\ year)} \div base\ year\ EI \times attainment\ year\ EI = OYW\ of\ Progress$$

$$\frac{(0.369\ tpd - 0.345\ tpd)}{(2025 - 2020)} \div 0.369\ tpd \times 0.345\ tpd = 0.005\ tpd$$

The contingency measure described in the Portola Serious Plan satisfies contingency measure requirements for the 12 µg/m3 annual PM2.5 standard. Detailed discussion of contingency measures is provided in Section VI.A of the Portola Serious Plan.

Transportation Conformity Budgets

Under section 176(c) of the Act, transportation plans, programs, and projects that receive federal funding or approval must be fully consistent with the SIP before being approved by a metropolitan planning organization (MPO). U.S. EPA's transportation conformity rule[15] details requirements for establishing motor vehicle emissions budgets (budgets) in SIPs for the purpose of ensuring the conformity of transportation plans and programs with the SIP.

An analysis of precursors and their influence for transportation conformity in the Nonattainment Area concludes that ROG, SOx, NOx, and ammonia are insignificant secondary PM2.5 precursors in the Nonattainment Area and, therefore, the Portola Serious Plan does not establish budgets for these pollutants. For directly emitted PM2.5 from vehicle exhaust (including brake/tire wear), paved and unpaved road dust, and road construction dust, the analysis concludes that although their contributions are very small, the control of this precursor is necessary to demonstrate attainment. Therefore, this Plan establishes motor vehicle emissions budgets for primary emissions of PM2.5 from vehicle

[15] 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 U.S. EPA in the August 15, 1997 Federal Register.

exhaust (including brake/tire wear), paved and unpaved road dust, and road construction dust.

The emissions budgets established in the Portola Serious Plan fulfill the requirements of the Act and U.S. EPA regulations to ensure that transportation projects will not interfere with progress and attainment of the annual PM2.5 standard. Additional details on the motor vehicle emissions budgets can be found in Section VI.B of the Portola Serious Plan.

Environmental Impacts

The District found that the Portola Serious Plan will not result in any potentially significant adverse effects on the environment and is exempt from the provisions of the California Environmental Quality Act (CEQA) under section 15061 (b)(3) (the general rule that CEQA only applies to projects which have the potential for causing a significant effect on the environment) and section 15308 (actions taken by a regulatory agency for protection of the environment) of the CEQA Guidelines.

CARB has determined that its review and approval of the Portola Serious Plan submitted by the District for inclusion in the California SIP does not alter the conclusion that the Portola Serious Plan is exempt from CEQA. Generally, CARB considers its review and approval of district plans for inclusion in the California SIP as a ministerial activity by CARB for purposes of CEQA (14 CCR § 15268). A "ministerial" decision is one that involves fixed standards or objective measurements where 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.)

Conclusion and Staff Recommendations

CARB staff has reviewed the Portola Serious Plan and has concluded that, together with the technical clarification provided in the Staff Report, it meets the requirements of the Act for the 12 $\mu g/m^3$ annual PM2.5 standard for a serious nonattainment area. CARB staff recommends that the Executive Officer authorizes submittal of the Portola Serious Plan and the CARB Staff Report to U.S. EPA as a revision to the California SIP. CARB staff is committed to working with U.S. EPA to resolve any completeness or approvability issues that may arise regarding the SIP submissions and provide any technical corrections, clarifications, or additions that may be necessary to secure U.S. EPA approval.