



BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT

BOARD OF DIRECTORS  
ADVISORY COUNCIL

COMMITTEE MEMBERS

Dr. Linda Rudolph (Co-Chair), MD, Center for Climate Change and Health  
Dr. Gina Solomon (Co-Chair), MD, University of California San Francisco  
Dr. Danny Cullenward, PhD, JD, CarbonPlan  
Dr. Adrienne L. Hollis, PhD, JD, Hollis Environmental Consulting, LLC  
Dr. Michael Kleinman, PhD, University of California Irvine  
Dr. Pallavi Phartiyal, PhD, Rainforest Action Network  
Garima Raheja, PhD candidate, Columbia University  
David Haubert, Air District Board of Directors Liaison

**THIS MEETING WILL BE CONDUCTED UNDER PROCEDURES AUTHORIZED BY ASSEMBLY BILL 361 (RIVAS 2021) ALLOWING REMOTE MEETINGS. THIS MEETING WILL BE ACCESSIBLE VIA WEBCAST, TELECONFERENCE, AND ZOOM. A ZOOM PANELIST LINK WILL BE SENT SEPARATELY TO COMMITTEE OR BOARD MEMBERS**

- **THE PUBLIC MAY OBSERVE THIS MEETING THROUGH THE WEBCAST BY CLICKING THE LINK AVAILABLE ON THE AIR DISTRICT'S AGENDA WEBPAGE AT**

**<https://www.baaqmd.gov/about-the-air-district/advisory-council/agendasreports>**

- **THE PUBLIC MAY PARTICIPATE REMOTELY VIA ZOOM AT THE FOLLOWING LINK OR BY PHONE**

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**(669) 900-6833 or (408) 638-0968**

**WEBINAR ID: 869 3242 9398**

- **THOSE PARTICIPATING BY PHONE WHO WOULD LIKE TO MAKE A COMMENT CAN USE THE "RAISE HAND" FEATURE BY DIALING "\*9". IN ORDER TO RECEIVE THE FULL ZOOM EXPERIENCE, PLEASE MAKE SURE YOUR APPLICATION IS UP TO DATE**

# ADVISORY COUNCIL MEETING AGENDA

**MONDAY, APRIL 11, 2022**

**8:30 AM**

1. **Call to Order - Roll Call**

2. **Public Meeting Procedure**

*The Council Chair shall call the meeting to order and the Clerk of the Boards shall take roll of the Council members.*

***Public Comment on Agenda Items:** The public may comment on each item on the agenda as the item is taken up. Members of the public who wish to speak on matters on the agenda for the meeting, will have three minutes each to address the Council. No speaker who has already spoken on that item will be entitled to speak to that item again.*

**REGULAR AGENDA (Items 3 - 7)**

3. Approval of the Minutes of February 14, 2022

*The Council will consider approving the attached draft minutes of the Advisory Council meeting of February 14, 2022.*

4. Building Appliance Rules: Exposure and Equity Assessment

*The Advisory Council will receive an overview of the results of a modeling-based evaluation quantifying the exposure reduction and equity benefits that could be realized by eliminating air pollution emissions from natural gas-fired space heaters, water heaters, and boilers.*

5. Fine Particulate Matter Local Risk Methodology: Key Questions

*The Advisory Council will receive a review and update on the Air District's efforts to develop a PM<sup>2.5</sup> local risk methodology and consider key questions to help guide those efforts.*

6. Combustion Analysis Report Proposal

*This item is an informational item only and will be presented by Greg Nudd, Deputy Air Pollution Control Officer.*

7. Implementation of Advisory Council Particulate Matter Recommendations

*This is an information item only and will be presented by Greg Nudd, Deputy Air Pollution Control Officer.*

**OTHER BUSINESS**

8. Report of the Executive Officer/APCO

9. Public Comment on Non-Agenda Matters

*Pursuant to Government Code Section 54954.3*

*Members of the public who wish to speak on matters not on the agenda for the meeting, will have three minutes each to address the Council.*

10. Council Member Comments / Other Business

*Council members may make a brief announcement, provide a reference to staff about factual information, or ask questions about subsequent meetings.*

11. Time and Place of Next Meeting

*At the Call of the Chair.*

12. Adjournment

*The Council meeting shall be adjourned by the Chair.*

**CONTACT:**

**MANAGER, EXECUTIVE OPERATIONS**  
**375 BEALE STREET, SAN FRANCISCO, CA 94105**  
[vjohnson@baaqmd.gov](mailto:vjohnson@baaqmd.gov)

**(415) 749-4941**  
**FAX: (415) 928-8560**  
**BAAQMD homepage:**  
[www.baaqmd.gov](http://www.baaqmd.gov)

- Any writing relating to an open session item on this Agenda that is distributed to all, or a majority of all, members of the body to which this Agenda relates shall be made available at the Air District's offices at 375 Beale Street, Suite 600, San Francisco, CA 94105, at the time such writing is made available to all, or a majority of all, members of that body.

**Accessibility and Non-Discrimination Policy**

The Bay Area Air Quality Management District (Air District) does not discriminate on the basis of race, national origin, ethnic group identification, ancestry, religion, age, sex, sexual orientation, gender identity, gender expression, color, genetic information, medical condition, or mental or physical disability, or any other attribute or belief protected by law.

It is the Air District's policy to provide fair and equal access to the benefits of a program or activity administered by Air District. The Air District will not tolerate discrimination against any person(s) seeking to participate in, or receive the benefits of, any program or activity offered or conducted by the Air District. Members of the public who believe they or others were unlawfully denied full and equal access to an Air District program or activity may file a discrimination complaint under this policy. This non-discrimination policy also applies to other people or entities affiliated with Air District, including contractors or grantees that the Air District utilizes to provide benefits and services to members of the public.

Auxiliary aids and services including, for example, qualified interpreters and/or listening devices, to individuals who are deaf or hard of hearing, and to other individuals as necessary to ensure effective communication or an equal opportunity to participate fully in the benefits, activities, programs and services will be provided by the Air District in a timely manner and in such a way as to protect the privacy and independence of the individual. Please contact the Non-Discrimination Coordinator identified below at least three days in advance of a meeting so that arrangements can be made accordingly.

If you believe discrimination has occurred with respect to an Air District program or activity, you may contact the Non-Discrimination Coordinator identified below or visit our website at [www.baaqmd.gov/accessibility](http://www.baaqmd.gov/accessibility) to learn how and where to file a complaint of discrimination.

Questions regarding this Policy should be directed to the Air District's Non-Discrimination Coordinator, Suma Peesapati, at (415) 749-4967 or by email at [speesapati@baaqmd.gov](mailto:speesapati@baaqmd.gov).

# BAY AREA AIR QUALITY MANAGEMENT DISTRICT

375 BEALE STREET, SAN FRANCISCO, CA 94105

FOR QUESTIONS PLEASE CALL (415) 749-4941

## EXECUTIVE OFFICE:

### MONTHLY CALENDAR OF AIR DISTRICT MEETINGS

#### APRIL 2022

<u>TYPE OF MEETING</u>	<u>DAY</u>	<u>DATE</u>	<u>TIME</u>	<u>ROOM</u>
Advisory Council Meeting	Monday	11	8:30 a.m.	Webcast only pursuant to Assembly Bill 361
Board of Directors Legislative Committee	Monday	11	1:00 p.m.	Webcast only pursuant to Assembly Bill 361
Board of Directors Stationary Source and Climate Impacts Committee	Monday	18	9:00 a.m.	Webcast only pursuant to Assembly Bill 361
Board of Directors Meeting	Wednesday	20	9:00 a.m.	1 <sup>st</sup> Floor, Board Room (In person option available) and <u>REMOTE</u> pursuant to Assembly Bill 361
Board of Directors Administration Committee	Wednesday	20	11:00 a.m.	Webcast only pursuant to Assembly Bill 361
Path to Clean Air Community Emissions Reduction Plan Steering Committee	Monday	25	5:30 p.m.	Webcast only pursuant to Assembly Bill 361
Board of Directors Budget and Finance Committee	Wednesday	27	9:30 a.m.	Webcast only pursuant to Assembly Bill 361
Board of Directors Mobile Source and Climate Impacts Committee	Thursday	28	9:30 a.m.	Webcast only pursuant to Assembly Bill 361

## MAY 2022

<u>TYPE OF MEETING</u>	<u>DAY</u>	<u>DATE</u>	<u>TIME</u>	<u>ROOM</u>
Board of Directors Special Meeting Budget Hearing	Wednesday	4	8:30 a.m.	1 <sup>st</sup> Floor, Board Room (In person option available) <u>and REMOTE</u> pursuant to Assembly Bill 361
Board of Directors Meeting	Wednesday	4	9:00 a.m.	1 <sup>st</sup> Floor, Board Room (In person option available) <u>and REMOTE</u> pursuant to Assembly Bill 361
Board of Directors Community Equity, Health and Justice Committee	Thursday	5	9:30 a.m.	Webcast only pursuant to Assembly Bill 361
Board of Directors Legislative Committee	Monday	9	1:00 p.m.	Webcast only pursuant to Assembly Bill 361
Technology Implementation Office (TIO) Steering Committee	Friday	13	1:00 p.m.	Webcast only pursuant to Assembly Bill 361
Board of Directors Stationary Source and Climate Impacts Committee	Monday	16	9:00 a.m.	Webcast only pursuant to Assembly Bill 361
Path to Clean Air Community Emissions Reduction Plan Steering Committee	Monday	16	5:30 p.m.	Webcast only pursuant to Assembly Bill 361
Board of Directors Meeting	Wednesday	18	9:00 a.m.	1 <sup>st</sup> Floor, Board Room (In person option available) <u>and REMOTE</u> pursuant to Assembly Bill 361
Board of Directors Administration Committee	Wednesday	18	11:00 a.m.	Webcast only pursuant to Assembly Bill 361
Board of Directors Budget and Finance Committee	Wednesday	25	9:30 a.m.	Webcast only pursuant to Assembly Bill 361
Board of Directors Mobile Source and Climate Impacts Committee	Thursday	26	9:30 a.m.	Webcast only pursuant to Assembly Bill 361

HL 4/7/2022 – 2:05 P.M.

G/Board/Executive Office/Moncal

**BAY AREA AIR QUALITY MANAGEMENT DISTRICT**  
Memorandum

To: Chairpersons Linda Rudolph and Gina Solomon, and Members  
of the Advisory Council

From: Alexander Crockett  
Interim Acting Executive Officer/APCO

Date: April 11, 2022

Re: Approval of the Minutes of February 14, 2022

RECOMMENDED ACTION

Approve the attached draft minutes of the Advisory Council meeting of February 14, 2022.

BACKGROUND

None.

DISCUSSION

Attached for your review and approval are the draft minutes of the Advisory Council meeting of February 14, 2022.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Alexander Crockett  
Interim Acting Executive Officer/APCO

Prepared by: Marcy Hiratzka  
Reviewed by: Vanessa Johnson

ATTACHMENTS:

1. Draft Minutes of the Advisory Council Meeting of February 14, 2022



Bay Area Air Quality Management District  
375 Beale Street, Suite 600  
San Francisco, CA 94105  
(415) 749-5073

Advisory Council Meeting  
Monday, February 14, 2022

### **DRAFT MINUTES**

*Note: Audio recordings of the meeting are available on the website of the Bay Area Air Quality Management District at [www.baaqmd.gov/bodagendas](http://www.baaqmd.gov/bodagendas)*

**This meeting was conducted under procedures in accordance with Assembly Bill 361. Members of the Advisory Council participated by teleconference.**

#### **CALL TO ORDER**

1. **Opening Comments:** Advisory Council (Council) Co-Chairperson, Dr. Gina Solomon, called the meeting to order at 8:33 a.m.

#### **Roll Call:**

Present: Council Co-Chairpersons Linda Rudolph and Gina Solomon; Vice Chairperson Michael Kleinman; Members Danny Cullenward, Adrienne Hollis, Pallavi Phartiyal, Garima Raheja; and Board Liaison David Haubert.

Absent: None.

2. **APPROVAL OF THE MINUTES OF DECEMBER 13, 2021 (OUT OF ORDER, ITEM 3)**

#### **Public Comments**

No requests submitted.

#### **Council Comments**

None.

Council Action

Co-Chair Rudolph made a motion, seconded by Vice Chair Kleinman, to **approve** Minutes of December 13, 2021; and the motion **carried** by the following vote of the Council:

AYES: Cullenward, Haubert, Hollis, Kleinman, Phartiyal, Raheja, Rudolph, Solomon.  
NOES: None.  
ABSTAIN: None.  
ABSENT: None.

3. **PUBLIC MEETING PROCEDURE (ITEM 2)**

4. **BUILDING APPLIANCE RULES: BENEFITS TO OUTDOOR AIR QUALITY AND HEALTH**

Dr. Phil Martien, Director of Assessment, Inventory & Modeling, gave the staff presentation *Building Appliance Rules: Benefits to Outdoor Air Quality and Health*, including: overview; study purpose; scope – what is included; this study – Bay Area; prior studies – United States and California; methods overview; model inputs - nitrogen oxide (NOx) emissions; modeled impact (nitrogen oxide concentrations and secondary and total Particulate Matter [PM]<sub>2.5</sub>); estimated health impacts and valuations; summary; and next steps.

Public Comments

Public comments were given by Jed Holtzman, San Francisco resident; and Dr. Stephen Rosenblum, Palo Alto resident.

Council Comments

The Council and staff discussed whether the Air District plans to focus on reducing methane emissions from natural gas residential appliances; the suggestion of disaggregating modeled exposures by building type and socioeconomic status (besides race/ethnicity); Assembly Bill (AB) 617 (Community Air Protection Program); the amount of emissions from natural gas consumption (residential and commercial) from outdoor appliances, such as firepits and outdoor space heaters; the types of work products that are anticipated to be produced by the Council; concerns about how staffing limitations have been affecting the Air District’s strategy to address combustion sources, and the suggestion of accelerating the proposed timeline of this strategy; whether the Air District gathers ancillary measurements on ozone reduction; the need for more accurate and detailed asthma metric/valuations that include as many costs projections as possible (including people's lived experiences); whether the Air District will conduct *cost* modeling, in addition to benefit modeling; whether it would still be beneficial for the Air District to pursue reducing building NOx emissions if the State was to pursue aggressive emission reductions in all categories (on road and off road sources); the amount of NOx emissions produced by appliances in multi-unit housing, and whether the Air District would be interested pursuing rulemaking on that issue; whether the Air District includes emissions from natural gas fireplaces and firepits when conducting modeling-based evaluations; the anticipated timeline of the Regulation 9-4 and 9-6 rulemakings, and whether the Air District plans to study the benefits of those regulations after they are adopted, over time; whether the Regulation 9-4 and 9-6 low and zero-NOx requirements will apply to new construction only, and whether the benefits analysis accounts for

replacements in existing buildings; the anticipated timeline of the phasing out of gas-powered appliances in the Bay Area, the projected amount of time it will take to phase them out completely, and whether the Air District’s valuations are based on the current Bay Area population (versus projections); whether the Air District assumes that benefit changes will occur in the areas that currently have high levels of emissions; whether Regulations 9-4 and 9-6 rules contain incentive components that might influence consumers’ behavior; and the financial challenges of replacing appliances for low-income households.

Council Action

None; receive and file.

**5. REGULATORY TOOLBOX AND PM HEALTH IMPACTS METHODOLOGY**

Greg Nudd, Deputy Air Pollution Control Officer of Policy, and David Holstius, Senior Advanced Projects Advisor, gave the staff presentation *Regulatory Toolbox and PM Health Impacts Methodology*, including: PM<sub>2.5</sub> and health risk; tools for regulating stationary sources; New Source Review permitting; regulations for existing sources; point-of-sale rules; criteria for using regulatory "tools"; regulatory criteria examples; considerations for new or strengthened rules; PM<sub>2.5</sub> local risk methodology; and initial key questions about the PM<sub>2.5</sub> local risk methodology.

Public Comments

Public comments were given by Jed Holtzman, San Francisco resident; Dr. Stephen Rosenblum, Palo Alto resident; and Tony Fisher, Coalition for Clean Air.

Council Comments

The Council and staff discussed whether the Air District’s definition of "risk difference" refers to attributable or absolute risk; whether the Air District tracks associations between Covid mortality and PM<sub>2.5</sub>; why the Air District deems “health and equity impacts of a rule” an *optional* consideration when attempting to strengthen its regulations; the fact that baselines for various health endpoints in impacted communities may be higher than those in a larger regional area, and how this consideration might impact cost effectiveness; the Air District’s definition of “undifferentiated PM” and the suggestion of identifying a more nuanced definition; the desire to see adverse reproductive outcomes, impacts on cognitive development in children, cognitive decline, and health impacts of climate change be incorporated into the analysis of PM risk; support in favor of quantifying the localized health impacts of PM<sub>2.5</sub> at neighborhood levels; and the difference between “relative risk” and “risk difference.”

Council Action

None; receive and file.

**6. 2022 ADVISORY COUNCIL WORK PLAN DISCUSSION**

Co-Chair Rudolph introduced Mr. Nudd, who gave the staff presentation *2022 Advisory Council Work Plan Review*, including: Work Plan components; and 2022 AC Work Plan.

### Public Comments

Public comments were given by Jed Holtzman, San Francisco resident; and Dr. Stephen Rosenblum, Palo Alto resident.

### Council Comments

The Council and staff discussed the desire to learn more about the Board’s involvement with Assembly Bill (AB) 617 (Community Air Protection Program); the amount of emissions from natural gas consumption (residential and commercial) from outdoor appliances, such as firepits and outdoor space heaters; the types of work products that are anticipated to be produced by the Council; concerns about how staffing limitations from the have been affecting the Air District’s strategy to address combustion sources, and the suggestion of accelerating the proposed timeline of this strategy; the benefits of regulating short- lived climate pollutants, such as methane; ways in which the Council can interact with the Air District’s new Community Advisory Committee; the opinion that the proposed Work Plan is not consistent with the findings from the Council’s *Particulate Matter Reduction Strategy Report* from 2020, and the suggestion of basing the Air District’s combustion strategy on that report; and whether the Air District plans to pursue legislation to combat the provision of AB 398 (E. Garcia, 2017) that prohibits air districts from adopting or implementing emission reduction rules for carbon dioxide from stationary sources that are also subject to a specified market-based compliance mechanism (until January 1, 2031).

### Council Action

None; receive and file.

## **OTHER BUSINESS**

### **7. REPORT OF THE EXECUTIVE OFFICER/AIR POLLUTION CONTROL OFFICER**

Veronica Eady, Senior Deputy Executive Officer of Policy & Equity, made this report, which included:

- The Board appointed new officers for 2022, and Director David Haubert was appointed Advisory Council Liaison to the Board.
- The Air District’s Community Advisory Council had its first mtg on January 13, 2022. There are 17 members. The next meeting will be in March and officers, or co-chairs will be selected by the members.
- On February 10, 2022, the California Air Resources Board’s Governing Board selected the community of East Oakland to be the next Bay Area community to develop a community emissions reduction program.
- The Air District will be requesting approval of an abatement order with the agency’s independent Hearing Board to end a significant excess emissions violation by Valero Refining Co. at its Benicia refinery. The hearing is scheduled for March 15 at 9:30 a.m., via Zoom. Prior to the hearing, the Air District will be giving a virtual community briefing on Air District actions regarding the Valero enforcement case at 6:00 p.m., and a presentation at the Benicia City Council meeting of March 1, 2022.

**8. PUBLIC COMMENTS ON NON-AGENDA MATTERS**

Public comments were given by Jan Warren, Interfaith Climate Action Network of Contra Costa County.

**9. COUNCIL MEMBER COMMENTS/OTHER BUSINESS**

None.

**10. TIME AND PLACE OF NEXT MEETING**

The time and place of the next meeting was originally at the Call of the Chair. After the meeting adjourned, the next meeting was scheduled for Monday, April 11, 2022, at 8:30 a.m., under procedures in accordance with Assembly Bill 361.

**11. Adjournment**

The meeting adjourned at 11:28 a.m.

Marcy Hiratzka  
Clerk of the Boards

**BAY AREA AIR QUALITY MANAGEMENT DISTRICT**

## Memorandum

To: Chairpersons Linda Rudolph and Gina Solomon, and Members  
of the Advisory Council

From: Alexander Crockett  
Interim Acting Executive Officer/APCO

Date: April 11, 2022

Re: Building Appliance Rules: Exposure and Equity Assessment

**RECOMMENDED ACTION**

None; receive and file.

**BACKGROUND**

Air District staff recently crafted draft amendments to Regulation 9, Rule 4: Nitrogen Oxides from Fan Type Residential Central Furnaces (“Rule 9-4”) and Regulation 9, Rule 6: Nitrogen Oxides Emissions from Natural Gas-Fired Boilers and Water Heaters (“Rule 9-6”). As supplemental information to support the development of Rules 9-4 and 9-6, Air District staff have conducted a model-based evaluation of the impacts of natural gas combustion from residential and commercial space and water heating appliances.

This part of the overall assessment quantifies the magnitude and the relative distribution of exposure reductions that could be realized from the elimination of nitrogen oxide (NO<sub>x</sub>) and fine particulate matter (PM<sub>2.5</sub>) emissions from those sources. Focusing on PM<sub>2.5</sub> impacts attributable to those emissions, this agenda item evaluates the distribution of impacts across four major racial/ethnic groups: white, Asian/Pacific Islander, African-American/Black, and Hispanic/Latino.

**DISCUSSION**

Air District staff applied its regional air quality modeling system to estimate air pollution levels in a baseline emissions scenario and a control emissions scenario, with reductions in the control scenario matching emission estimates from natural gas-fired building appliances covered under Rules 9-4 and 9-6. Annual average exposures were computed using weighted averages of 1-km gridded PM<sub>2.5</sub> concentrations, with a modeled 2020 residential population serving as the weights. Under baseline conditions, the annual average PM<sub>2.5</sub> exposure per capita was found to be 8.7 micrograms per cubic meter (µg/m<sup>3</sup>). Approximately 0.14 µg/m<sup>3</sup>, or 2% of that 8.7 µg/m<sup>3</sup>

baseline, was found to be attributable to PM<sub>2.5</sub> and NO<sub>x</sub> emissions from the combustion of natural gas by residential and commercial space and water heating appliances.

Under the modeled control scenario, the largest reductions would accrue to the Bay Area’s communities of color, and specifically to the Asian/Pacific Islander population. This is true in both absolute and relative terms, and for all modeled pollutants (NO<sub>x</sub>, primary PM<sub>2.5</sub>, secondary PM<sub>2.5</sub>, and total PM<sub>2.5</sub>). For total PM<sub>2.5</sub>, the reduction for Asian/Pacific Islander residents would be 9% more than average; for Hispanic/Latino residents, 2% more; for African-American/Black residents, 3% less; and for white residents, 7% less. This reflects the distribution of current impacts from modeled appliances at the regional level. At the county level, a different pattern was observed. African-American/Black and Hispanic/Latino residents were consistently identified as the most impacted within every county but one.

For this item, staff will explain the above findings and address Advisory Council questions. Staff will seek Advisory Council guidance on ideas for refining equity assessments, for enhancing presentation materials, and for identifying productive next steps. Upcoming Air District studies of exposures and equity are likely to borrow from, or extend, the methods applied in this analysis. As such, the Council’s guidance and feedback may find broader application in that future work.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Alexander Crockett  
Interim Acting Executive Officer/APCO

Prepared by: David Holsitus and Phil Martien  
Reviewed by: Greg Nudd

ATTACHMENTS:

None

**BAY AREA AIR QUALITY MANAGEMENT DISTRICT**

## Memorandum

To: Chairpersons Linda Rudolph and Gina Solomon, and Members of the Advisory Council

From: Alexander Crockett  
Interim Acting Executive Officer/APCO

Date: April 11, 2022

Re: Fine Particulate Matter Local Risk Methodology: Key Questions

RECOMMENDED ACTION

None; receive and file.

BACKGROUND

One challenge of implementing the Advisory Council's 2020 *Particulate Matter Reduction Strategy Report* is that current law regulates fine particulate matter (PM<sub>2.5</sub>) as a regional pollutant. While a regional regulatory framework has been successful in reducing PM<sub>2.5</sub> exposures for the Bay Area population overall, an expanded toolset is warranted to accelerate exposure reductions for the most impacted communities and populations.

A specific and relevant recommendation in the *PM Reduction Strategy Report* calls for the treatment of PM<sub>2.5</sub> as a toxic air contaminant. In response, Air District staff have assembled a draft methodology for use in managing health risks posed by specific sources of PM<sub>2.5</sub> at a local level. In the development of this methodology, staff are working with the Office of Environmental Health Hazard Assessment, the California Air Resources Board, and the US Environmental Protection Agency.

At the Advisory Council Meeting on February 14, 2022, Agenda Item 5 ("Regulatory Toolbox and PM Health Impacts Methodology") discussed the draft methodology and considerations related to its implementation. A draft document detailing a framework for estimating the impacts from long-term exposure to undifferentiated local PM<sub>2.5</sub> on adult mortality was included as part of that meeting's agenda packet. This agenda item continues that earlier discussion, provides a review and update on Air District staff's work related to this effort, and poses additional questions to the Advisory Council.



## DISCUSSION

To guide the development of the methodology, it is important to understand the regulatory context and the envisioned applications. This agenda item will situate the proposed methodology within the broader regulatory framework, illustrating the gap it is intended to fill. This agenda item will also discuss relevant contexts, as well as examples of source types likely to be covered. Likely applications of this approach are permitting for new and/or modified sources, new or amended rules for existing sources, and project environmental review under the California Environmental Quality Act (CEQA). Source types for which the methodology may apply include aggregate processing facilities; concrete batch plants; short-term projects, such as construction sites; and combustion sources, such as power co-generation facilities.

Key questions about the development of a PM<sub>2.5</sub> local risk methodology for the Advisory Council's consideration center on trade-offs between simplicity versus complexity. Simplicity promotes quicker and broader adoption, ease of implementation, and greater transparency. However, some benefits may also be realized from a more complex methodology. Air District staff will provide a detailed presentation and request the Advisory Council's input and feedback.

## BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Alexander Crockett  
Interim Acting Executive Officer/APCO

Prepared by: Phil Martien and David Holstius  
Reviewed by: Greg Nudd

## ATTACHMENTS:

None

**BAY AREA AIR QUALITY MANAGEMENT DISTRICT**

Memorandum

To: Chairpersons Linda Rudolph and Gina Solomon, and Members of the Advisory Council

From: Alexander Crockett  
Interim Acting Executive Officer/APCO

Date: April 11, 2022

Re: Combustion Analysis Report Proposal

RECOMMENDED ACTION

None; receive and file.

BACKGROUND

The Air District first initiated the idea of a combustion strategy in the 2017 Clean Air Plan. A “basin-wide” combustion strategy was proposed to reduce energy use in industry, develop measures to promote energy efficiency in new and existing buildings, and to develop measures to reduce transportation emissions by decreasing motor vehicle travel and improving the fuel efficiency of the vehicle fleet. This strategy recognized that particulate matter is a major driver of health risks from Bay Area air pollution. The Air District and its Advisory Council further explored issues of PM and combustion when it convened the Particulate Matter Symposium Series in 2019. The goal of the series was to understand how to best improve air quality conditions for communities that are most at risk from PM emissions and exposure.

A key outcome from the symposium series was the Advisory Council’s Particulate Matter Reduction Strategy Report, completed in December 2020. The report contains 28 recommended actions, many of which deal directly with combustion sources of PM.

Air District propose to further explore the role of combustion sources in PM emissions and exposures. We propose a detailed analysis of all combustion sources to ascertain which contribute most to health and other impacts from PM.

DISCUSSION

The Air District proposes to conduct an analysis of all combustion sources. The report would explore health, equity, and possibly climate impacts of combustion. The analysis would also track particulate matter concentrations back to individual source categories of PM.

The methodology Air District staff proposes involves the use of two different, yet compatible, models. First, the Intervention Model for Air Pollution (InMAP) would be applied as a screening step. InMAP is a reduced-complexity air quality model, well suited for both regional- and community-scale PM<sub>2.5</sub> source apportionment, with the capacity to investigate equity issues and with faster turnaround, compared to traditional chemistry transport models. The InMAP model is new, therefore Air District staff is partnering with academic experts to implement it. The advantage of InMAP over our traditional modeling platforms is the relative ease with which sources can be apportioned. This means we can better determine the percentage contribution to PM exposure for many source categories (e.g., various types of permitted stationary sources, classes of on-road vehicles, and categories of off-road equipment).

Second, staff would apply the Air District's traditional, regulatory-grade, full chemistry model and US EPA's Benefits Mapping and Analysis Program (BenMAP) to evaluate concentrations and health impacts from selected source categories. For example, work is underway now to assess the impacts of wood smoke and residential natural gas combustion. Woodsmoke is known to be the largest contributor to wintertime particulate matter. Natural gas combustion comprises over 25 percent of the stationary source nitrogen oxide emissions and for which there are zero-emissions alternatives. Other source categories of emissions would be evaluated based on the prioritizations suggested by the InMAP results, the Air District's rule-making schedule, and community concerns.

#### *Next Steps*

If there is support for moving forward with the proposal to complete a combustion analysis and report, in the coming year, the Air District will begin working on the analysis and draft the report. The analysis and associated report will inform our PM reduction efforts. Specifically, the analysis will inform source evaluation and prioritization.

- **Source Evaluation** - Evaluate PM sources identified in inventory and as key community by community advocates to determine which sources within our regulatory authority are most important to control to protect public health and reduce inequity.
- **Source Prioritization** - Identify sources for policy intervention based on community-informed source evaluation results and impact analysis. Determine if further statutory authority is needed.

#### BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Alexander Crockett  
Interim Acting Executive Officer/APCO

Prepared by: Christy Riviere  
Reviewed by: Phil Martien and Greg Nudd

ATTACHMENTS:

None

**BAY AREA AIR QUALITY MANAGEMENT DISTRICT**

Memorandum

To: Chairpersons Linda Rudolph and Gina Solomon, and Members of the Advisory Council

From: Alexander Crockett  
Interim Acting Executive Officer/APCO

Date: April 11, 2022

Re: Implementation of Advisory Council Particulate Matter Recommendations

RECOMMENDED ACTION

None; receive and file.

BACKGROUND

In 2019, recognizing that particulate matter is a major driver of health risks from Bay Area air pollution, the Bay Area Air Quality Management District and its Advisory Council convened the Particulate Matter Symposium Series. The goal of the series was to understand how to best improve air quality conditions for communities that are most at risk from PM emissions and exposure.

A key outcome from the symposium series was the Advisory Council's *Particulate Matter Reduction Strategy Report*, completed in December 2020. The report contains 28 recommended actions. Recommendations are based on input from scientific experts from around the country, including state and Air District air quality experts, community and environmental activists, and industry representatives. The council's recommendations are grouped into four broad categories: health protective targets, impacted communities, wildfires and regional PM.

Air District staff has prepared a *Particulate Matter Strategy Progress Report* to showcase progress on implementing the Advisory Council's recommendations. The progress report presents the Air District's approach to responding to the Advisory Council recommendations, highlights recently completed work and current efforts related to PM. We also describe specific Air District efforts that respond to the Advisory Council recommendations and next steps.

DISCUSSION

Given limited resources, the Air District is approaching its response to the Advisory Council's recommended actions largely through the lens of its regulatory framework. Though incentives, planning and advocacy are certainly part of our approach, the emphasis is on stationary sources: enforcement, permitting, and rules.

Regulatory efforts are prioritized against the following criteria:

- **Community Priorities** – Sources identified in community actions plans, such as in West Oakland’s *Owning Our Air* community emission reduction plan, and through direct community input.
- **Health impacts** – Sources that have the greatest health impacts, i.e., evaluate health impacts from major PM source categories, such as refineries, woodsmoke and residential natural gas use.
- **Drivers of PM** – Sources that are the major drivers of PM emissions and exposure.

### *Highlights*

Below are recent accomplishments to advance the Advisory Council’s recommendations:

- **PM from Refineries** - Reduced PM emissions from largest PM sources at refineries by the maximum extent feasible. Given estimated operating costs of \$80 million per year, the costs to refineries will be extensive. Advisory Council’s report was essential to making the case for moving forward with this controversial rule.
- **Source Priority Criteria** - Developed prioritization framework for policy interventions to reduce emissions and exposure from stationary sources. PM emissions and sources in overburdened communities are key criteria, largely due to the Advisory Council’s *Particulate Matter Reduction Strategy Report*.
- **PM Modeling** - Updated regulatory-grade, regional, PM modeling platform. Improved ammonia emissions data will allow for better secondary PM calculations, as well as improved wood smoke and restaurant emissions data.
- **Community Action Plans** - Implementing the West Oakland community action plan, *Owning Our Air*. Developing the Richmond-North Richmond-San Pablo action plan, which will include PM strategies. East Oakland recently designated by the California Air Resources Board to develop a community action plan. All plans include community health assessments and source apportionments to inform strategies.

The Air District is currently undertaking a wide range of actions to further advance the Advisory Council’s recommendations, some of which are highlighted below:

- **Residential Sources** - Quantifying health and equity impacts of major residential sources, such as furnaces, water heaters and woodsmoke. Working on a rule to reduce emissions from residential furnaces and water heaters. Natural gas combustion from these sources contribute up to 26 percent of nitrogen oxide emissions from all stationary sources. Nitrogen oxide is a precursor to PM<sub>2.5</sub>.
- **PM Health Impacts** – Working on a methodology to quantify PM health impacts from new and/or modified facilities.
- **PM Monitoring** - Developing insights from PM measurement data, including data from low-cost sensors and regulatory monitoring.
- **Community Data** - Developing detailed source apportionment for PM and toxics in Richmond-North Richmond-San Pablo to better understand which facilities in the

community contribute most to PM and health impacts.

- **Mobile Source Incentives** - Distributing mobile source incentives to reduce emissions from cars, trucks, and off-road sources. In 2021, distributed over \$76 million for a reduction of over 68 tons per year of PM<sub>10</sub> and nearly 217 tons per year of nitrogen oxide, a particulate matter precursor.

### *Next Steps*

In the coming year, the Air District will continue working on the many efforts identified in this progress report. To ensure resources are appropriately prioritized and that there is a clear structure for tracking and reporting progress, we will organize our work into objectives and key results. In other words, we will be selecting a limited number of high-level goals and key milestones and deliverables to achieve these goals. We will report out our progress on these goals to the Air District Board on a regular basis.

- **Source Evaluation** - Evaluate PM sources identified in inventory and as key community by community advocates to determine which sources within our regulatory authority are most important to control to protect public health and reduce inequity.
- **Changes to Permitting Rules** - Consider further changes to permitting rules to address local PM impacts.
- **Source Prioritization** - Identify sources for policy intervention based on community-informed source evaluation results and health impact analysis.

### BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Alexander Crockett  
Interim Acting Executive Officer/APCO

Prepared by: Christy Riviere  
Reviewed by: Greg Nudd

### ATTACHMENTS:

1. 2022 Particulate Matter Strategy Progress Report

2022

# **PARTICULATE MATTER STRATEGY PROGRESS REPORT**





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# INTRODUCTION

In 2019, recognizing that particulate matter is a major driver of health risks from Bay Area air pollution, the Bay Area Air Quality Management District and its Advisory Council convened the Particulate Matter Symposium Series. The goal of the series was to understand how to best improve air quality conditions for communities that are most at risk from PM emissions and exposure.

A key outcome from the symposium series was the Advisory Council's *Particulate Matter Reduction Strategy Report*, completed in December 2020. The report contains 28 recommended actions. Recommendations are based on input from scientific experts from around the country, including state and Air District air quality experts, community and environmental activists, and industry representatives.

This **2022 Particulate Matter Strategy Progress Report** presents progress on implementing the Advisory Council's recommendations. We present the Air District's approach to responding to the Advisory Council recommendations, highlight recently completed work and current efforts related to PM. We also describe specific Air District efforts that respond to the Advisory Council recommendations and next steps.



# APPROACH

Given limited resources, the Air District is approaching its response to the Advisory Council's recommended actions largely through the lens of its regulatory framework. Though incentives, planning and advocacy are certainly part of our approach, the emphasis is on stationary sources: enforcement, permitting, and rules. Regulatory efforts are prioritized against the following criteria:



**Community Priorities** – Sources identified in community actions plans, such as in West Oakland's *Owning Our Air* community emission reduction plan, and through direct community input.



**Health impacts** – Sources that have the greatest health impacts, i.e., evaluate health impacts from major PM source categories, such as refineries, woodsmoke and residential natural gas use.



**Drivers of PM** – Sources that are the major drivers of PM emissions and exposure.

## Challenges

- Limited staffing and other resources.
- Existing law treats PM as regional pollutant.
- Fugitive dust emissions and exposures are not well quantified.
- Short duration and localized exposure not completely addressed in research and air quality standards.

# SUCCESS HIGHLIGHTS

**PM from Refineries** - Reduced PM emissions from largest PM sources at refineries by the maximum extent feasible. Given estimated annual costs of \$80 million, the costs to refineries will be extensive. The Advisory Council's *Particulate Matter Reduction Strategy* report was essential to making the case for moving forward with this controversial rule.

**Source Priority Criteria** - Developed prioritization framework for policy interventions to reduce emissions and exposure from stationary sources. PM emissions and sources in overburdened communities are key criteria, largely due to the Advisory Council's *Particulate Matter Reduction Strategy Report*.

**PM Modeling** - Updated regulatory-grade, regional, PM modeling platform. Improved ammonia emissions data will allow for better secondary PM calculations, as well as improved wood smoke and restaurant emissions data.

**Community Action Plans** - Adopted and now implementing the West Oakland community action plan, *Owning Our Air*. Developing the Richmond-North Richmond-San Pablo action plan, which will include PM strategies. East Oakland recently designated by the California Air Resources Board to develop a community action plan. All plans include or will include community health assessments and source apportionments to inform strategies.

## Reducing PM from Refineries

The Air District's Rule 6-5 minimizes particulate matter emissions from Fluidized Catalytic Cracking Units, or FCCUs. FCCUs are the largest single source of particulate matter emissions at refineries and some of the largest individual sources of particulate matter in the Bay Area. Rule 6-5 imposes the strictest feasible FCCU control requirements to reduce health-threatening air pollution.

Recent amendments to Rule 6-5 are anticipated to reduce PM by 493 tons per year.

# CURRENT WORK HIGHLIGHTS

**Residential Sources** - Quantifying health and equity impacts of major residential sources, such as furnaces, water heaters and woodsmoke. Working on a rule to reduce emissions from residential furnaces and water heaters. Natural gas combustion from these sources contribute up to 26 percent of nitrogen oxide emissions from all stationary sources. Nitrogen oxide is a precursor to PM<sub>2.5</sub>.

**PM Health Impacts** - Working on a methodology to quantify PM health impacts from new and/or modified facilities.

**PM Monitoring** - Developing insights from PM measurement data, including data from low-cost sensors and regulatory monitoring.

**Community Data** - Developing detailed source apportionment for PM and toxics in Richmond-North Richmond-San Pablo to better understand which facilities in the community contribute most to PM and health impacts.

**Incentives** - Distributing mobile source incentives to reduce emissions from cars, trucks, and off-road sources. In 2021, distributed over \$76 million, 86 percent went to high pollution, disadvantaged or low- income communities. Reduced over 68 tons per year of PM<sub>10</sub> and nearly 217 tons per year of nitrogen oxide, a particulate matter precursor.

## Better Understanding PM in Communities

Through a joint effort with the University of Washington and the University of California Berkeley, we are using Intervention Model for Air Pollution (InMap) to evaluate inequalities in PM<sub>2.5</sub> exposure and estimate the impacts of policy interventions.

InMap is a relatively simplified model that tracks sources to concentrations. The model is also linked to demographic information.

InMap can be used to do community and regional source apportionment and equity analysis. The community scale is relatively refined, with 1-kilometer grids.

# PRIORITY ACTIONS

This section presents the specific 28 recommended actions in the Advisory Council's *Particulate Matter Reduction Strategy Report* and the Air District's efforts to implement each. The Advisory Council's recommendations were developed in the context of particulate matter statements and a policy framework. The statements are a series of findings based on scientific evidence gathered by the Advisory Council. The framework encourages the Air District to evaluate and prioritize strategies that reduce particulate matter in communities most heavily impacted. The council's recommendations are grouped into four broad categories: health protective targets, impacted communities, wildfires and regional PM.



## **Group 1 – Health Protective Targets**

Three recommendations to establish more stringent, health protective PM targets. Recommendations address establishing PM<sub>2.5</sub> concentration targets and standards based on scientific evidence.



## **Group 2 – Impacted Communities**

Fourteen recommendations regarding community actions plans, assessments of health impacts and community-level exposure to PM. Better enforcement, new and improved rules and electrification of sources in impacted communities and improved permitting of facilities.



## **Group 3 – Wildfires**

One recommendation to further develop and implement strategies and health protective measures to protect people's health during wildfire episodes, especially those living in impacted communities.



## **Group 4 – Regional PM**

Thirteen recommendations to improve PM air quality data and access to PM emissions data. Reduce PM from vehicles, road dust, buildings, commercial cooking and residential wood burning.

# MEASURING PROGRESS

The Air District pursues and has completed a multitude of efforts that directly address the Advisory Council's recommendations. To assess progress on recommended actions, the Air District evaluated nearly 100 separate, and sometimes related, efforts to reduce particulate matter. Each of these efforts were placed into a spreadsheet, detailing the effort, next steps and progress status, e.g., completed, started, ongoing or not started.

Air District work efforts were then aligned with the Advisory Council recommendations. The status indication of the Air District efforts offered some insight into progress on the Advisory Council recommended actions. That progress is indicated in this report.

Even though the Air District has completed much, the broad nature of the recommendations means continuous effort is required. Many actions also overlap, and/or encompass multiple Air District efforts. In addition, not all Air District efforts fit neatly into a single recommendation, as some efforts could fall under more than one Advisory Council recommendation.

Given these constraints, we did our best to match up and assess or work with the Advisory Council recommendations and use that data to present our progress.

*The Air District pursues and has completed a multitude of work efforts that directly address the Advisory Council recommendations*

# Targets

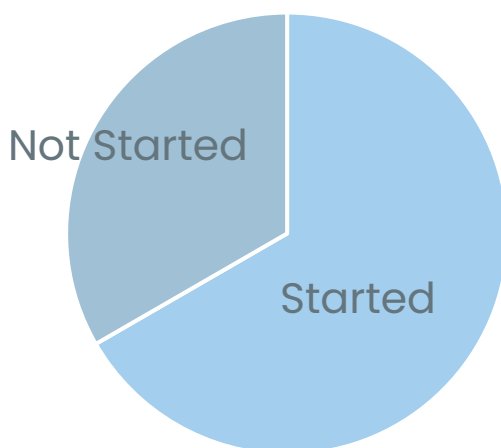


Three Advisory Council recommended actions relate to establishing more **health protective PM targets**. Specific efforts the Air District is undertaking, or are planning to take, are described below.

**Targets:** The Air District will request that the recently seated Community Advisory Council take up the issue of equity-focused particulate matter targets. We do not believe that regional targets would be helpful at this time.

**PM Standards:** The Air District has requested US EPA set more stringent air quality standards for particulate matter. US EPA is expected to propose more stringent standards, via a rule, for which the Air District will provide comments. The federal standards are likely to be more stringent than current California standards.

**Fine PM as TAC:** Air District staff is working with the Office of Environmental Health Hazard Assessment, CARB and US EPA to develop a method to assess the risk from exposure to local sources of particulate matter.



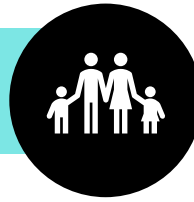
**75% of Target Actions Started**

## Advisory Council Recommendations

- Establish PM<sub>2.5</sub> targets consistent with findings based on scientific evidence.
- Advocate to establish more stringent PM standards.
- Designate fine PM as a toxic air contaminant.



# Impacted Communities



Of the fourteen Advisory Council recommended actions to reduce PM emissions and exposures in impacted communities, three relate to **community action plans**. Below is summary of Air District actions to reduce PM emissions and exposure via community action plans.

**Plans:** Via the implementation of AB 617, one community action plan is adopted, and two are underway. Working with West Oakland Environmental Indicators Project, the Air District Board of Directors adopted *Owning Our Air* in 2018, a community emission reduction plan for the West Oakland community. The plan includes over 80 strategies to reduce emissions and exposure, including from particulate matter. The Air District is now working with the Richmond-North Richmond-San Pablo community to develop its action plan. East Oakland was just designated by the state to develop an action plan. Additionally, the West Oakland plan contains PM targets; future plans are expected to contain similar targets.

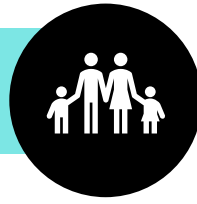
**Best Available Methods:** Air District staff is reviewing sources of PM emissions in the West Oakland action plan, i.e., dust and backup generators, to determine best methods for reducing PM from these sources. Similar efforts will take place in Richmond-North Richmond-San Pablo and East Oakland, once plans are adopted for those communities.

**Community Exposure/Health Assessments:** Air District staff has completed source apportionment and exposure assessments from sources in West Oakland. Similar work is underway in Richmond-North Richmond-San Pablo and will begin soon in East Oakland. The InMAP project will provide source apportionment, exposure, and equity assessments for all overburdened communities at a 1-kilometer grid scale.

## Advisory Council Recommendations

- Develop action plans for impacted communities that include actions to reach lower PM targets.
- Ensure plans include best available methods for reducing PM emissions and exposures.
- Conduct community-level exposure and health impact assessments.

# Impacted Communities



Four of the Advisory Council recommendations regarding impacted communities are about **permitting and the implementation and enforcement** of programs and rules.

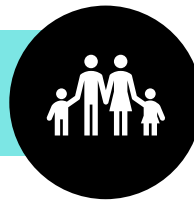
**Implementation/Enforcement:** Enforcement and notice of violation fact sheets and targeted inspections are set to begin in designated AB 617 communities, e.g., West Oakland and Richmond-North Richmond-San Pablo. The Air District is working with communities to determine specific information and inspection needs.

**Permitting:** In 2021, the Air District modified its permitting regulations to require greater public notice and to impose stricter limits on health impacts in overburdened communities. Health risk assessments include all related projects, dating back 5 years, and include total toxic emissions, rather than incremental. Additionally, with the completion of the PM local health impacts methodology, the Air District will develop additional amendments to permitting regulations to improve protectiveness.

## Advisory Council Recommendations

- Evaluate and strengthen implementation and enforcement of programs and rules.
- Develop strategies to consider cumulative community PM impacts in permitting processes.
- Modify Air District permitting regulations to address hot-spots and cumulative PM health risks.
- Evaluate current efforts to prevent “piecemealing” in the permitting process and take actions as needed.

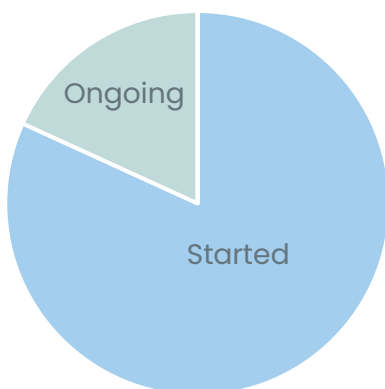
# Impacted Communities



Of the Advisory Council recommended actions to reduce PM emissions and exposures in impacted communities, four relate to **specific sources**: refineries, magnet sources, road dust, and buildings.

**Refineries:** The Air District's Rule 6-5 minimizes particulate matter emissions from Fluidized Catalytic Cracking Units, or FCCUs, which are the largest single source of particulate matter emissions at refineries, and some of the largest individual sources of particulate matter in the Bay Area.

**Magnet Sources:** The Air District has sponsored bills in two legislative sessions to clarify our authority to regulate magnet sources. The South Coast Air Quality Management District has adopted an Indirect Source Rule and we are looking to that rule as a model.



**80% of Impacted Communities Actions Started**

## Advisory Council Recommendations

- Identify and further reduce significant sources of PM from refineries.
- Seek Air District authority for magnet sources of PM emissions.
- Strengthen rules limiting emissions and trackout of road dust to reduce PM in overburdened communities.
- Seek federal funding for electrification infrastructure, especially in disadvantaged communities.

**Road Dust:** Air District Rules 6-1 and 6-6 pertain to dust, including from construction and track out. Staff has drafted a white paper to determine path forward. Amendments to rules are pending community input on prioritization.

**Buildings:** The Air District advocated for funding in the federal budget bill, to no avail. However, there is \$800 million in proposed funding in current state budget bill for building electrification.

# Wildfires



The Advisory Council recommended one action to reduce PM emissions and exposures from **wildfires**. The one action contains seven subparts. Air District efforts to respond to the Advisory Council's wildfire recommendations are summarized below.

**Public Education:** Completed a multitude of public outreach efforts: wildfire safety video series, over 300 media interviews, social media coverage, press conferences, webpages, public booths at community events, posters, and partnerships with others on messaging and public health information. Public education efforts are ongoing.

**Monitoring and Forecasting:** Limited staff resources have prevented progress on efforts to improve real-time monitoring and forecasting of wildfires.

**Research:** There are ongoing nation- and statewide research efforts to study health impacts from wildfire smoke. The Air District tracks this research and periodically reports on current findings.

**Forest Management:** The Air District does not generally work in the area of forest management. However, the Air District's Wildfire Prevention Chipping Program provides funding for individual homeowners to remove forest debris from property.

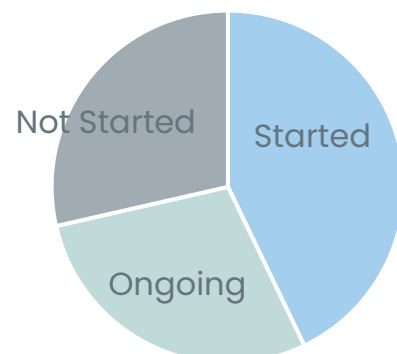
**Clean Air Shelters:** The Air District received \$3 million for grants to counties to improve air filtration in public buildings that can act as clean air shelters.

**HEPA Filters:** The Clean Air Filtration Program improves access to high efficiency air filtration for those most vulnerable to wildfire smoke and air pollution.

## Advisory Council Recommendations

- Wildfire strategies and guidance: public education; real-time monitoring and forecasting; research to assess health impacts; forest management; clean air shelters; mobile clean air shelters; HEPA filters for high-risk individuals.

### 70% of Wildfire Actions Started or Ongoing



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PM Strategy Progress Report 2022

# Regional PM



The Advisory Council recommended thirteen actions related to regional PM. Three relate directly to **particulate matter measurement data**. Air District efforts to implement data-related recommendations are summarized below.

**Accessible & Timely PM Data:** Analyze air monitoring data to assess patterns and trends of PM. Ongoing work to develop resources to effectively communicate PM data summaries and insights, how to access and use available PM data. Plans to develop community-specific air quality fact sheets sharing insights from available PM monitoring data.

**PM Monitoring:** Begin evaluating Air District measurements that improve understanding of PM in communities and throughout the Bay Area, including speciation and ultrafine PM..

**PM Speciation and Ultrafine PM:** Plans to verify and compile speciation data and upload to the Air Quality System (US EPA's ambient air pollution database). Ongoing work with other agencies to improve national PM monitoring requirements that track the levels and characteristics of PM, including speciation and ultrafine PM.

## Advisory Council Recommendations

- Make air quality data for PM accessible and timely.
- Make current PM speciation data more available. Advocate for U.S. EPA national monitoring guidance and requirements to increase PM speciation.
- Advocate for increased, broader, national monitoring, exposure, and health impact studies of ultrafine PM.

# Regional PM



Of the thirteen Advisory Council recommended actions related regional PM, six relate to PM from **mobile sources**. Air District efforts to implement mobile source actions are summarized below.

**UFP Filtration:** Work has yet to begun on this effort.

**Tire, Brake and Road Dust:** The Air District is participating in inter-agency collaborative project with Caltrans to research and review road dust emissions methodology and data improvement.

**Reduce Driving:** The Air District undertakes a wide variety of effort to reduce vehicle miles traveled. The Cut the Commute Program is an ongoing effort to reduce driving, through employer pledges to reduce driving and amendments to the Commuter Benefits Program. Spare the Air is a well-known public information campaign to reduce driving.

**Electrification:** The Air District is advocating for increased state funding to support electrification. Ongoing mobile source incentives to reduce particulate matter from cars, trucks and off-road sources. Incentives efforts are highlighted on following page.

**Off-Road Rules:** The Air District is advocating for increased state funding for stricter regulations, e.g., letter writing, lobbying, etc.

## Advisory Council Recommendations

- Advocate for improved UFP filtration requirements for on-road vehicles.
- Advocate for improved emission estimation and control methods for emerging source categories (e.g., tires & brakes, road dust).
- Develop, fund, implement, and encourage strategies to reduce vehicle miles traveled.
- Support state efforts to electrify trucks and other vehicles.
- Assist local programs to control road dust.
- Seek stricter off-road mobile source rules from the state.

# Regional PM



*Of the over \$76 million in incentives, 86% have gone to high pollution, disadvantaged, and/or low-income communities.*

## Highlighting Mobile Source Incentives

In 2021, the Air District awarded over \$76 million in incentives to reduce emissions from cars, trucks, and off-road sources. Of these, 86 percent went to high pollution, disadvantaged or low-income communities. Over 359 tons per year of criteria pollutants were reduced, and over 11,800 tons per year of CO<sub>2</sub>. Criteria pollutant reductions include 68 tons per year of PM<sub>10</sub> and nearly 217 tons per year of nitrogen oxide, a particulate matter precursor. The 68 tons per year of PM<sub>10</sub> is equivalent to 43% of the anticipated PM reductions from Rule 6-5 amendments on FCCUs, i.e., PM emissions from the Chevron refinery in Richmond.

*Criteria pollutant reductions included 68 tons per year of PM<sub>10</sub> and nearly 217 tons per year of nitrogen oxide, a particulate matter precursor.*

# Regional PM



Of the thirteen Advisory Council recommended actions related regional PM, two relate to PM from **buildings** and encourage electrification. Air District efforts to implement building electrification to reduce PM are summarized below.

**Appliance Rules:** Considering amendments to Air District’s Rule 9-4 and 9-6. Rule 9-4 limits emissions of nitrogen oxides from natural-gas fired residential furnaces. Rule 9-4 limits emissions of nitrogen oxides from natural gas fired residential furnaces. Rule 9-6 limits emissions from natural gas water heaters and boilers. The amendments would require zero-emission units beginning in 2027. The rule amendments would impact point-of-sale for new and existing construction; benefits would accrue over time as appliances are replaced.

## Advisory Council Recommendations

- Adopt a rule requiring, and create a program incentivizing, all electric utilities in new construction.
- Adopt rules to improve the emissions performance of water heaters and space heaters and require newly-installed heaters and other appliances to be electric.



# Regional PM



Of the thirteen Advisory Council recommended actions related regional PM, two relate to PM from **commercial cooking and wood burning**. Air District efforts to reduce PM in these areas are summarized below.

**Cooking:** Amendments are being considered to existing rules to limit emissions from charbroilers and wood-fired ovens. Work has yet to begin on these efforts.

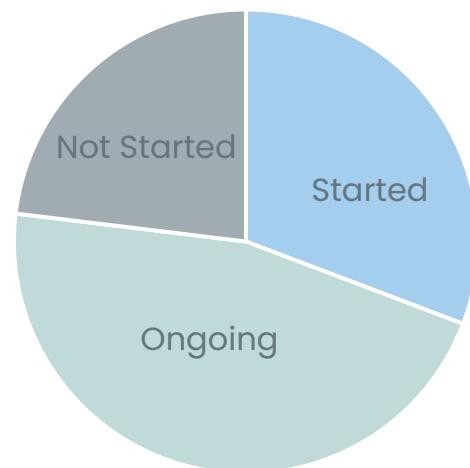
**Wood Burning:** The Air District recently amended Rule 6-3, which makes it illegal to use any wood-burning devices (such as fireplaces, woodstoves, or pellet stoves) when fine particulate pollution is forecasted to exceed federal health standards and a Spare the Air Alert is in effect. Beginning in 2020, the wood burning ban was extended to include any days year-round when a Spare the Air Alert is in effect. Amendments also limit excessive smoke when burning is allowed, ban burning of garbage, plastics, and other toxic materials, and require labeling on firewood and other solid fuels sold in the Bay Area.

In 2022, the Air District will be analyzing health and equity impacts of wood burning in the Bay Area. The analysis will provide insight into options and benefits of additional rulemaking.

## Advisory Council Recommendations

- Expand efforts to reduce emissions from commercial cooking equipment such as charbroilers and wood-fired ovens.
- Consider further restrictions on residential wood burning emissions.

### 80% of Regional PM Actions Started or Ongoing



# NEXT STEPS

In the coming year, the Air District will continue working on the many efforts identified in this progress report. To ensure resources are appropriately prioritized and that there is a clear structure for tracking and reporting progress, we will organize our work into objectives and key results. In other words, we will be selecting a limited number of high-level goals and key milestones and deliverables to achieve these goals. We will report out our progress on these goals to the Air District Board on a regular basis.



## **No. 01 – Objectives and Key Results**

Develop objectives and key results to guide the Air District's work to reduce PM emissions and exposure.



## **No. 02 – Evaluate Source Impacts**

Evaluate PM sources in the emissions inventory and as identified by community advocates to determine which sources within our regulatory authority are most important to control to protect public health and reduce inequity.



## **No. 03 – Changes to Permitting Rules**

Consider further changes to permitting rules to address local PM impacts.



## **No. 04 – Source Prioritization**

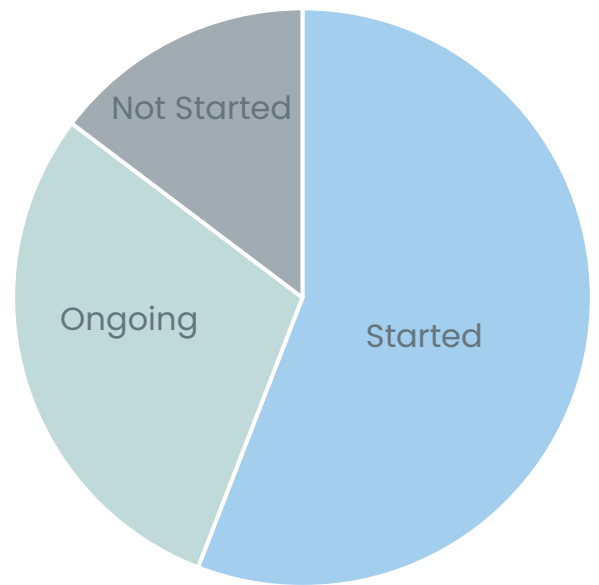
Identify sources for policy intervention based on community-informed source evaluation results and health impact analysis.

# CONCLUSION

Reducing particulate matter emissions and exposure is an ongoing Air District priority and commitment, especially in overburdened communities experiencing disproportionate exposure.

A multitude of Air District efforts address the Advisory Council's recommendations. Over 55 percent of the Advisory Council actions are underway. Nearly 30 percent are ongoing efforts, and 15 percent have yet to begin.

We have accomplished much, but there is still more to do. We look forward to continuing the important work of reducing harmful particulate matter from our air and improving community health.



**Progress on All Actions**

