GUIDE TO THE PARTICULATE MATTER REDUCTION STRATEGY REPORT

PARTICULATE MATTER REDUCTION STRATEGY REPORT

This main section of the report contains the Advisory Council’s findings and recommendations on reducing exposure to particulate matter (PM) in the Bay Area, preceded by a statement from the Air District’s Executive Officer and a brief introduction describing the purpose and timeline of the PM Symposium Series. The Advisory Council’s report is organized into three sets of messages:

- **Particulate Matter Reduction Statements** reflects the Advisory Council’s findings upon review of the presentations and public comments received during the PM Symposium Series.
- **Framework for Evaluating Particulate Matter Reduction Strategies** reflects the Advisory Council’s suggested guiding principles for PM projects and rule development.
- **Recommended Actions** contains specific recommended actions for the Air District.


APPENDIX A: ANNOTATED BIBLIOGRAPHY FOR PARTICULATE MATTER REDUCTION STATEMENTS AND FRAMEWORK

The Annotated Bibliography is also provided as a list of references with citations specified in table form.

APPENDIX B: SUMMARY OF ADVISORY COUNCIL DELIBERATIONS


APPENDIX C: SYMPOSIUM SUMMARIES AND PRESENTATIONS

Appendix C contains records of the PM symposia that took place from October 2019 through July 2020. Summaries are provided for the events that were held in-person (prior to meeting restrictions due to the coronavirus pandemic). Presentation slides are provided for presenters, who included scientific and policy experts, Air District staff, industry representatives, and community organization leaders.

APPENDIX D: ADVISORY COUNCIL INFORMATION

In addition to biographies of the Advisory Council members who contributed to this report, Appendix D provides information on accessing webcast recordings, meeting minutes, and presentations from all meetings of the Advisory Council and in the PM Symposium Series.
AGENDA: 2B

Advisory Council
Particulate Matter (PM) Reduction Strategy Report

Joint Meeting of the Board of Directors and Advisory Council
December 16, 2020

Stan Hayes
Advisory Council Chair
Particulate Matter Symposium Series

TIMELINE

28 October
State of the Science: Health Impacts and Exposure and Risk

Air District update on PM activities and Advisory Council Deliberation

27 February
Community PM Discussion

Community presentations and Technical/Policy Discussion

31 July
Industry presentations and Air District modeling-based assessment presentation
Beginning of deliberations

Deliberations and discussion of final report


16 December
Joint meeting of the Board of Directors and Advisory Council

Board of Directors & Advisory Council Joint Meeting
December 16, 2020
Particulate Matter Symposium Series (cont.)

OCTOBER 28, 2019 SYMPOSIUM

• 300+ registrants; many participated online
• Two panels:
  o PM Health Effects
  o PM Exposure & Risk
• 9 leading experts
PM COMMUNITY DESIGN TEAM MEMBERS

Ms. Pat Dodson, South Vallejo Resident
Katherine Funes, New Voices Are Rising/Rose Foundation
Richard Gray, 350 Bay Area
Jed Holtzman, 350 Bay Area
Dr. Ashley McClure, California Climate Health Now
Steve Nadel, Sunflower Alliance
Ken Szutu, Vallejo Citizen Air Monitoring Network
Dr. Raymond Tompkins, Bay View Hunters Point Resident
LaDonna Williams, All Positives Possible
Particulate Matter Symposium Series (cont.)

FEBRUARY 27, 2020 COMMUNITY PARTICULATE MATTER DISCUSSION

• Air District and PM Design Team co-led Community PM Discussion
• 30 attendees from local organizations
• Presentations on PM sources, emissions and policy approaches to reducing PM
• Community members shared concerns regarding PM and its health effects
Particulate Matter Symposium Series (cont.)

COMMUNITY AND INDUSTRY PRESENTATIONS TO THE COUNCIL

**May 12, 2020**
Community presentations from Jed Holtzman, MEM, 350 Bay Area and LaDonna Williams, All Positives Possible

**July 31, 2020**
Regulated Industry presentations from Frances Keeler, CCEEB and Dr. Julie E. Goodman on behalf of WSPA
PM Reduction Strategy Report

OVERVIEW OF THE CONTENTS

• PM Reduction Statements
• Framework for Evaluating PM Reduction Strategies
• Recommended Actions to Reduce PM
• Annotated Bibliography
• Extensive appendices
PM Reduction Statements

ADVISORY COUNCIL FINDINGS

- Council gathered evidence on current state of science on health impacts and risks from PM exposure
- Ten (10) statements
- Together, ground future PM reduction initiatives in science and interest of public health
PM Reduction Statements (cont.)

ADVISORY COUNCIL FINDINGS

• Overview:
  - PM is most important health risk driver in Bay Area air quality
  - Current PM standards not health protective
  - More stringent standards urgently needed; could save many lives in U.S. and Bay Area each year
  - No known threshold for harmful PM$_{2.5}$ health effects; so, further PM$_{2.5}$ reductions will have public health benefits
  - Air District guideline “target” below current PM$_{2.5}$ standards warranted to protect public health
PM Reduction Statements (cont.)

ADVISORY COUNCIL FINDINGS

• Overview (cont.):
  o **Wildfire PM is serious contributor** to PM health risk, and will increase due to climate change
  o **Some PM species may be more dangerous than others**, but none exonerated
  o **Ultrafine particles** pose health risk
GUIDING PRINCIPLES

- Evaluate PM reduction strategies using framework
- Seven (7) elements
- Particular priority for most heavily impacted communities
- Especially recognizing Board’s Resolution 2020-08 affirming commitment to diversity, equity, access and inclusion
Framework for Evaluation (cont.)

GUIDING PRINCIPLES

• Overview:
  o **Move as quickly as possible** to take maximal feasible action
  o **Prioritize those methods that are most effective in reducing exposure and improving public health and health equity** in most impacted areas
  o **Focus PM reduction in areas with elevated exposures, health vulnerability, increased impacts and sensitive populations**
  o **Address multiple source categories with wide range of emission reduction measures; no single universal solution**
Framework for Evaluation (cont.)

GUIDING PRINCIPLES

• Overview (cont.):
  o Consider that most effective PM reduction measures may differ across highly-impacted communities
  o Address cumulative impact of regional (Bay Area-wide), local (community-level), and localized hot-spot (block-level) sources in highly-impacted communities
  o Include both emission reduction measures for primary PM (directly emitted) and secondary PM (formed in air)
Recommended Actions

POTENTIAL NEXT STEPS TO REDUCE PM IN THE REGION

- 28 recommended actions
  - Establish More Health Protective Targets
  - Address Impacted Communities
  - Address Wildfires
  - Regional Recommendations
    - Data
    - Mobile Source
    - Electrification
    - Other

Board of Directors & Advisory Council Joint Meeting
December 16, 2020
Recommended Actions (cont.)

POTENTIAL NEXT STEPS TO REDUCE PM IN THE REGION

• Examples:
  ✓ More Protective Targets
    o More stringent air quality standards
    o Air District PM$_{2.5}$ targets
  ✓ Impacted Communities
    o PM strategic action plans
    o Best available methods
    o Expanded community exposure assessments
    o Strengthened implementation and enforcement
    o Cumulative PM impacts in permitting
Recommended Actions (cont.)

POTENTIAL NEXT STEPS TO REDUCE PM IN THE REGION

✓ Wildfires
  - Strategies to protect health during wildfire episodes
  - Health studies of smoke impacts
  - Clean air shelters, PPE, HEPA filters for high risk individuals

✓ Regional
  - Accessible PM air quality data
  - Reduce vehicle miles traveled
  - Active transportation, transit, land use, and telework
  - All electric utilities in new construction
  - Existing built environment to all electric
Discussion

ADVISORY COUNCIL MEMBERS

Chair Stan Hayes
Dr. Severin Borenstein
Dr. Michael Kleinman
Dr. Tim Lipman
Dr. Jane Long
Dr. Linda Rudolph
Dr. Gina Solomon
Advisory Council
Particulate Matter (PM)
Reduction Strategy Report: Next Steps

Joint Meeting of the Board of Directors and Advisory Council
December 16, 2020

Greg Nudd
Deputy Air Pollution Control Officer
PM Reduction Strategy Report

IMPORTANCE OF THE PM REDUCTION STRATEGY REPORT

• Advisory Council report provides scientific guidance and framework to utilize into the future
  o Current Federal standards are not adequately health protective
  o No known safe level of exposure
  o All species of PM are a health concern

• Helps shape and guide our current work
  o Health impacts and equity analysis for amendments to Rule 6-5

• Organizes agency future initiatives
  o Focus on inequitably impacted communities
  o Maximum feasible actions possible for stationary sources
  o Reduce both directly PM and PM precursors (like NO$_x$)
Example: Developing an Equity Framework

Modeling Study of Refinery Impacts: Who is exposed?

Contours shown at 0.1, 0.2, ... 1.0 µg/m³

White
Hispanic / Latino
Asian / Pacific Islander
African American / Black
Other
Exposure Per Capita Assessed to Supplement Rulemaking

Per capita, Hispanic/Latino and African American/Black residents exposed to more PM$_{2.5}$ from Chevron and PBF refineries

Fluidized Catalytic Cracking Unit (FCCU) impacts shown in darker colors
Bar heights = totals (FCCU + Other)
L02 and L01 represent proposed controls for Rule 6-5
PM Proposed Response

NEW/FUTURE INITIATIVES

• Implement an equity and public health framework for prioritizing actions
• Annual air quality analysis and report:
  o Summary and trends
  o Potential drivers of air quality
• Advocate for new source categories for incentive funding
• Annual report on implementation or recommended actions (accountability)
PM Proposed Response (cont.)

PLANNED INITIATIVES

- Rule 6-5: PM from Fluid Catalytic Cracking Units *(Under development)*
- Incentives to clean up diesel backup generators in impacted communities
- New regulation for large concentrations of diesel backup generators (e.g. data centers)
- Cleaner furnaces/water heaters to reduce secondary PM
- Pursue programs to fund more indoor air filtration
PM Proposed Response (cont.)

**NEXT STEPS**

**• Stakeholder Partnerships**
  - Community Advocates
    - Equity analysis
    - Prioritization
    - Alignment with AB 617
  - Industry/Industry Associations
    - Confirm technical details
    - Keep updated on progress
  - Government & Academic Partners
    - Peer review of science
    - Addressing mobile sources and land use

**• Board Involvement**
  - Air quality racial equity presentation
    - Redlining, racial inequity in baseline mortality, racial differences in susceptibility to PM
  - Resolution formalizing Board direction to staff in response to Advisory Council report
  - Annual updates to Board on implementation of recommendations and PM ambient concentrations
  - More details on proposed staff response will be provided at the Board Retreat in January