



South Coast Air Basin Attainment Plan for 2006 24-hour PM_{2.5} Standard

Regional Public Hearing

October 7, 2020

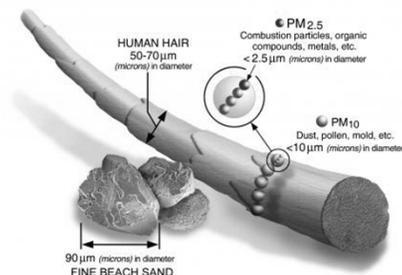
Cleaning The Air That We Breathe...

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PM_{2.5} Background

- PM_{2.5} are particles less than 2.5 μm in diameter
- Linked to adverse cardiovascular and respiratory health effects (e.g., asthma, lung cancer, premature death)
- Exposure to PM_{2.5} drives majority of adverse health effects due to air pollution in our region



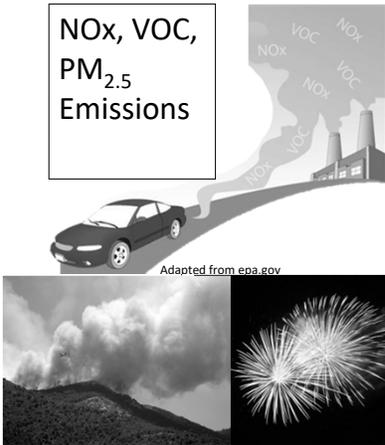
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Factors Influencing PM_{2.5} Levels

NO_x, VOC,
PM_{2.5}
Emissions



Adapted from epa.gov

Mixing and Ventilation



<https://sparetheairofs.weebly.com/inversions.html>

Sunlight



Storms



Fog and Humidity

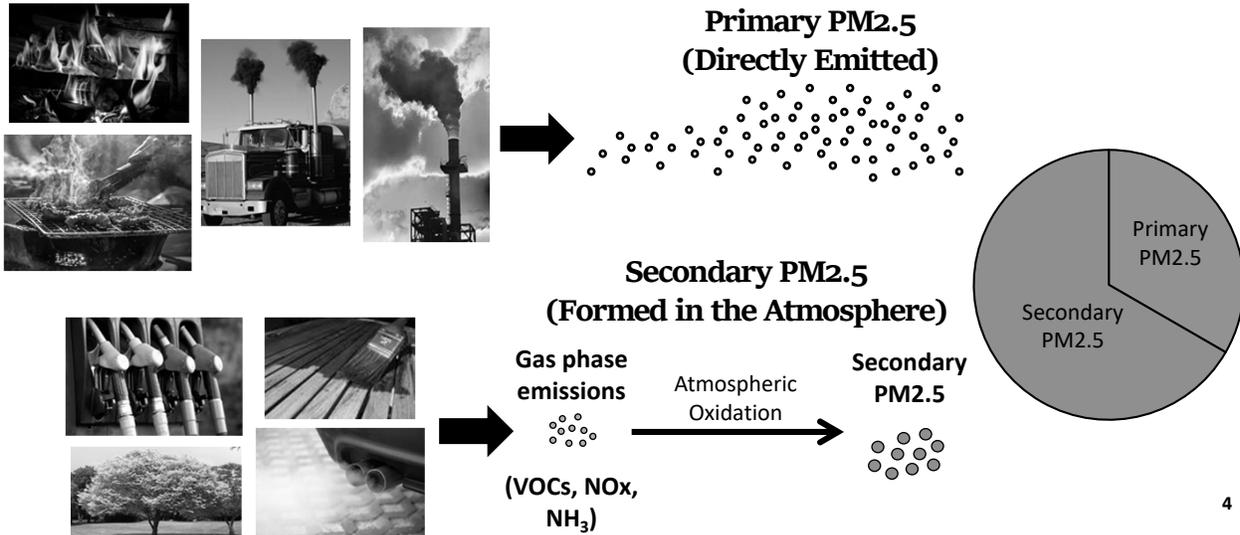


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How Does PM_{2.5} Form?



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National Ambient Air Quality Standards

- The U. S. Environmental Protection Agency (EPA) sets National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment.
- The EPA has set NAAQS for six criteria air pollutants
 - Ozone, Lead, Nitrogen Dioxide, Sulfur Dioxide, Carbon Monoxide, and PM (PM_{2.5} and PM₁₀)
- Periodically, the standards are reviewed and may be revised



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PM_{2.5} National Ambient Air Quality Standards

National Ambient Air Quality Standards

Standard	Level	Attainment Deadline	South Coast Attainment Status
1997 Annual PM _{2.5}	15 µg/m ³	2015	Attained in 2013
1997 24-hour PM _{2.5}	65 µg/m ³	2015	Attained in 2013
2006 24-hour PM _{2.5}	35 µg/m ³	2019	Serious Nonattainment
2012 Annual PM _{2.5}	12 µg/m ³	2025	Serious Nonattainment

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24-hour PM_{2.5} Attainment Determination

- Whether an area meets the standard is determined by the “Design Value” at the highest site
- The design value is the 3-year average of the annual 98th percentile of daily concentrations at each monitoring location

Year 1	Year 2	Year 3
2017	2018	2019
98 th percentile of 24-hr concentrations	98 th percentile of 24-hr concentrations	98 th percentile of 24-hr concentrations
3-Year Average = Design Value		

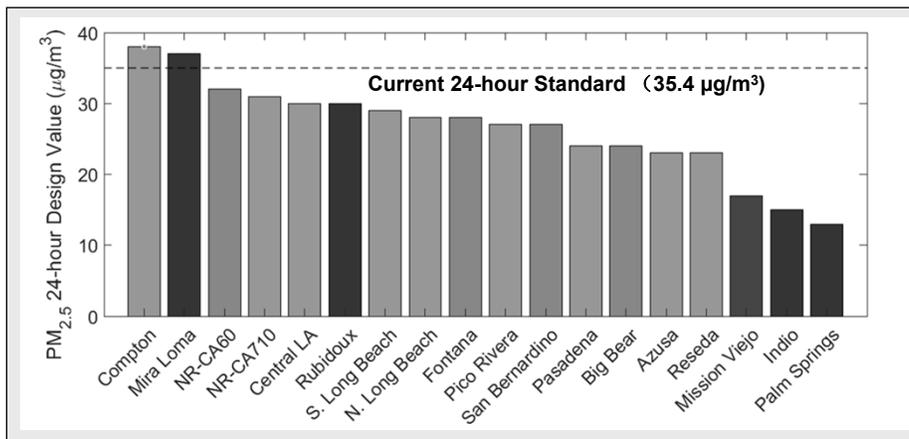
- 98th percentile depends on sampling frequency
 - every day sampling - 8th highest reading
 - every third day sampling - 3rd highest reading

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2017-2019 3-year Design Values*



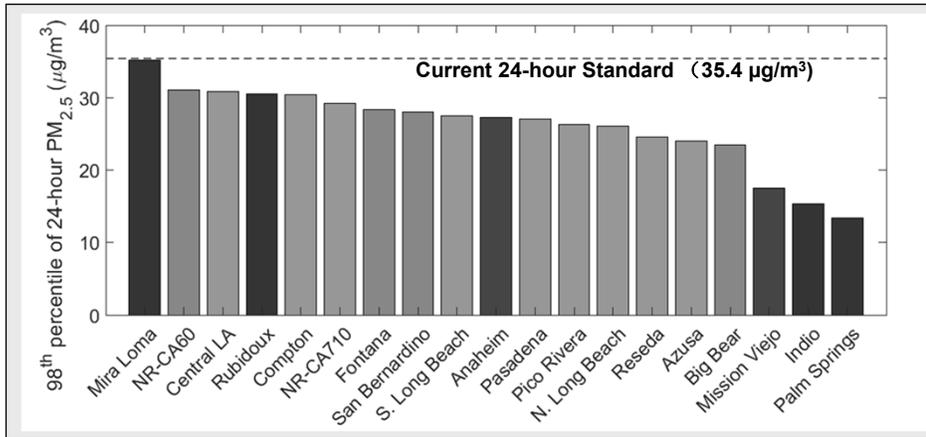
* Data likely to be approved as exceptional events by U.S. EPA removed from analysis

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Progress towards Attainment based on 2018-2019 Data (2-year average) *



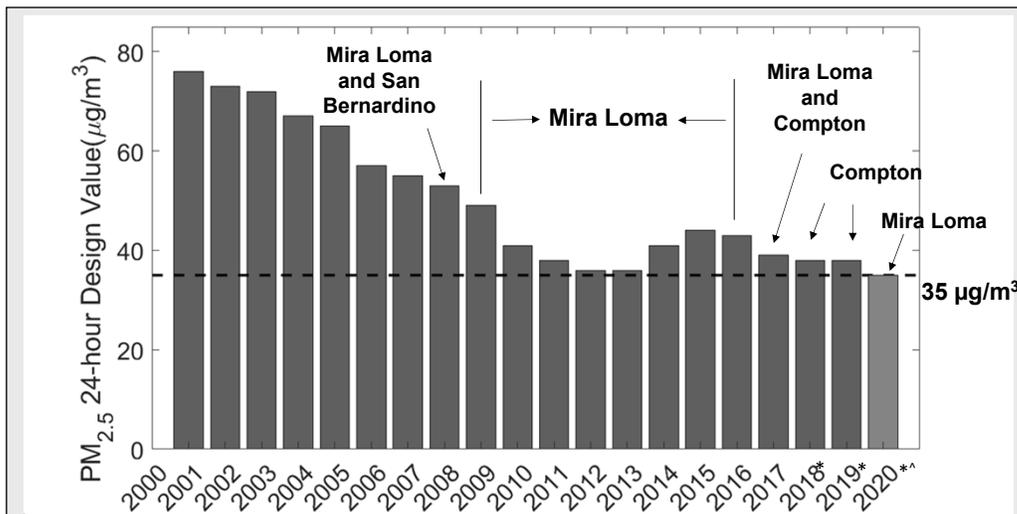
Removing 2017 data, 2-year average of 98th percentiles is below standard at all stations

Los Angeles County Orange County Riverside County San Bernardino County

* Data likely to be approved as exceptional events by U.S. EPA removed from analysis



Overall Progress towards Attainment



* Likely exceptional events are removed ^ Preliminary 2020 Jan-Jun Data



Attainment Status

- Since 2001, Basin maximum 98th percentile concentrations decreased by 51%
- Based on the design value for 2017-2019, South Coast Air Basin failed to attain the 2006 24-hour PM_{2.5} standard by December 31, 2019
 - Both the Mira Loma and Compton sites exceeded the standard
- Mira Loma has had the highest PM_{2.5} concentration since 2008
- For 2017-2019, Compton became the highest site, due to three abnormally high PM_{2.5} episodes measured on January 1st and late December 2017
 - Likely causes are anomalous human activities such as wood burning and fireworks, adverse meteorology and other local sources
 - High levels at Compton were not observed before and after 2017

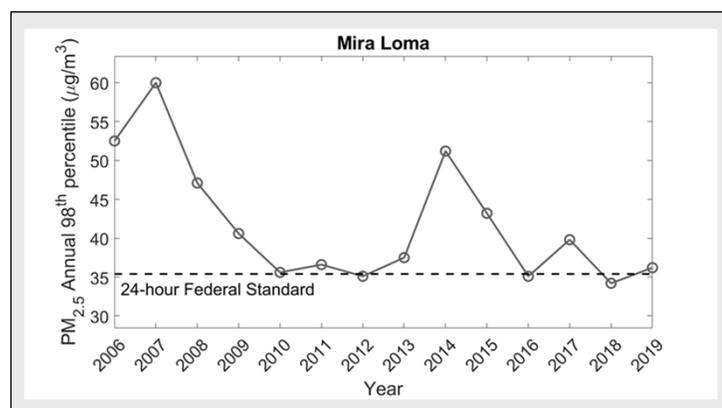
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Progress at Mira Loma

- Mira Loma, the highest site since 2008, is impacted by secondary PM formation as well as local sources
- Mira Loma is very close to attainment
- Preliminary 2020 design value (years 2018-2020) to date shows that Mira Loma will attain by the end of 2020, if there are no more than 4 days above the standard for rest of year



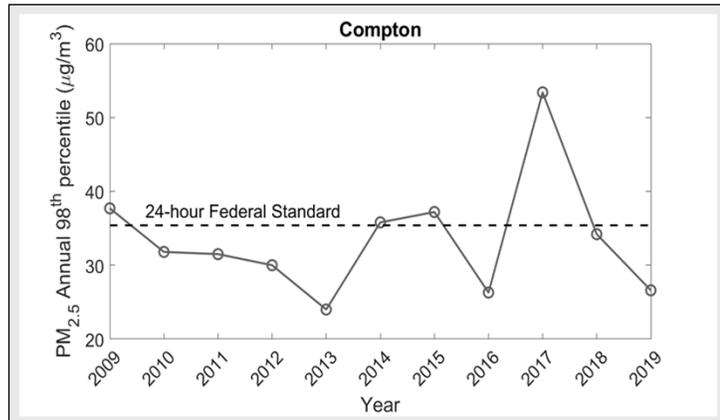
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Progress at Compton

- Monitoring data in Compton shows lower PM_{2.5} levels prior to 2017 and a sharp increase in 2017 only
- Preliminary 2020 design value (years 2018-2020) to date is well below the standard, indicating Compton will attain the standard by the end of 2020
- Compton could have up to 7 days above 45 $\mu\text{g}/\text{m}^3$ for rest of year and still meet the standard



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Implications of Nonattainment

EPA Notice of Failure to Attain

- Final rule published in Federal Register on September 16, 2020

Contingency Measures

- Contingency provisions triggered in Rule 445-Wood Burning Devices
 - Curtailment threshold lowered from 30 to 29 $\mu\text{g}/\text{m}^3$

State Implementation Plan (SIP) Revision

- Due to EPA on December 31, 2020

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PM2.5 Plan Revision – Key Requirements

5% Reduction of PM2.5 or One of Its Precursors (NOx, NH3, SOx, and VOC)

- ✓ NOx emissions reduced by more than 5% per year from existing regulations

Emission Inventory and Attainment Demonstration

- ✓ Updated emissions inventory; expeditious attainment expected in 2023 based on emission reductions from existing regulations

Control Strategy Analysis

- ✓ Continued implementation of Serious area plan control strategy included in 2016 AQMP
- ✓ Analysis of other feasible measures

Reasonable Further Progress (RFP) and Quantitative Milestone

- ✓ Demonstrated based on reductions from existing regulations and recently adopted PM regulations

Contingency Measures

- ✓ Contingency provisions already included in Rule 445 – Wood Burning Devices

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Attainment Demonstration – Compton

- **Supplemental weight of evidence and air quality trend analysis based on monitoring data**
 - **Traditional attainment demonstration using air quality modeling is not appropriate for Compton**
 - High PM2.5 episodes observed in 2017 were likely driven by anomalous human activities which are not reflected in the emissions inventory
 - If local emissions causing non-attainment are unknown, difficult to develop an effective control strategy
 - Traditional control strategy for Compton would require unrealistic levels of emissions reductions in the entire Basin and may not be effective
 - **Compton will very likely be in attainment before U.S. EPA considers plan**

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Attainment Demonstration – Mira Loma and All Other Locations

- **Traditional Approach - Updated emissions inventory/regional air quality modeling**
 - **Modeling analysis indicates attainment with emission reductions from existing regulations with recently adopted regulations providing further assurances**
 - Driven mostly by NO_x reductions needed to attain federal ozone standards
 - Additional regulations not required to meet the PM_{2.5} standard

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Paths Forward



Develop Required Plan

- Attainment strategy based on Mira Loma, with alternate approach for Compton
- Ongoing emission reductions from adopted rules and regulations
- Demonstrate annual reduction of 5% until attainment
- Plan may be moot if all sites attain by end of 2020 (roughly 50/50 chance)

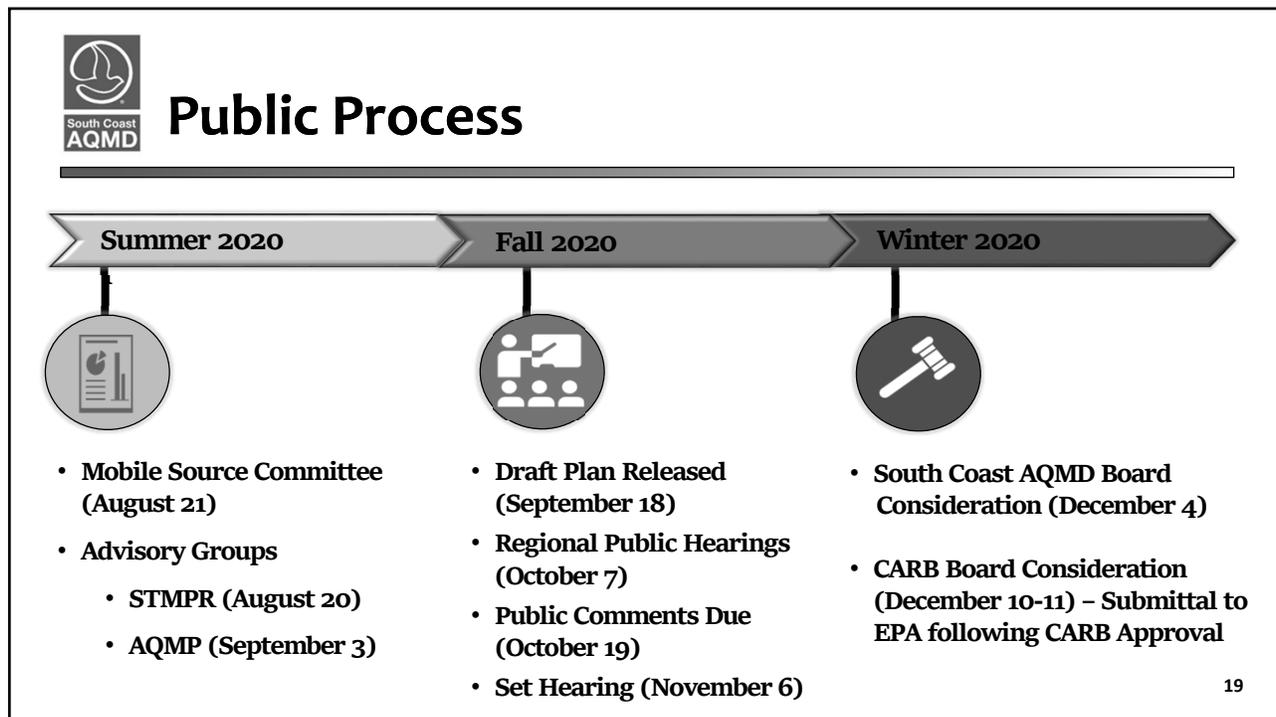


Clean Data Determination

- Closely monitor PM_{2.5} levels in 2020 (Oct/Nov/Dec)
- Possible exceptional events such as wildfire and fireworks to be addressed promptly working with CARB and EPA; these exceedances are excluded in design value calculations
- Potential Clean Data Determination by U.S. EPA if 2020 design values are below standard, attainment plan not needed

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Supporting Documents Available

- Notice of Regional Public Hearing
- Draft South Coast Air Basin Attainment Plan for 2006 24-hour PM_{2.5} Standard
- Fact Sheet for South Coast Air Basin Attainment Plan for 2006 24-hour PM_{2.5} Standard

[http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/other-state-implementation-plan-\(sip\)-revisions](http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/other-state-implementation-plan-(sip)-revisions)

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Submission of Documents or Comments

Please address questions, comments, documents or other relevant information to:

**Kalam Cheung, Ph.D.
Program Supervisor
Planning, Rule Development, and Area Sources
South Coast Air Quality Management District
Email: kcheung@aqmd.gov
Phone: (909) 396-3281**

**Written comments should be submitted no later than Monday,
October 19, 2020**

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