U.S. EPA's Proposal to Strengthen the National Ambient Air Quality Standards for Fine Particulate Matter

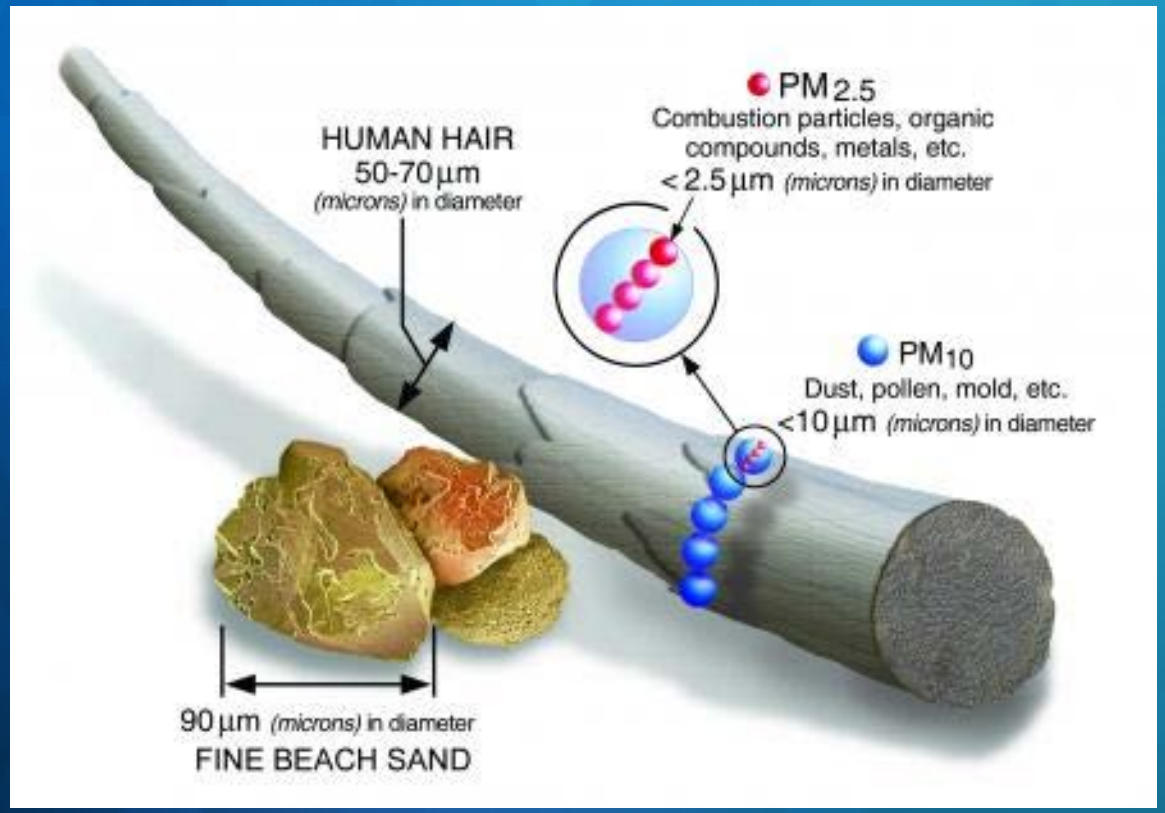
South Coast AQMD
Board Meeting

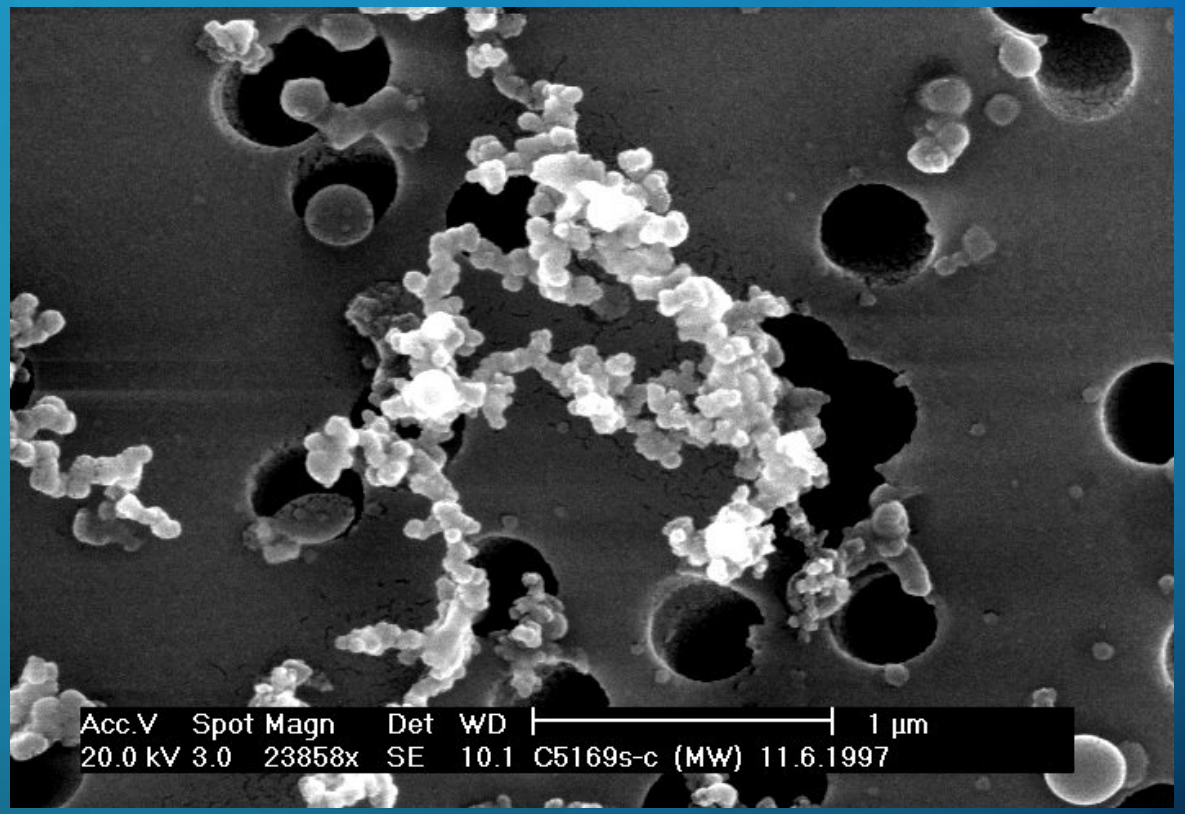
February 3, 2023

National Ambient Air Quality Standards

- The Clean Air Act (CAA) requires U.S. EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants that are common in outdoor air, considered harmful to public health and the environment, and that come from numerous and diverse sources
- Sections 108 and 109 of the CAA requires periodic review, and revision, as appropriate, of the NAAQS for each criteria air pollutant
- PM2.5 is among the six criteria pollutants included in the CAA

Fine Particulate Matter (PM2.5)





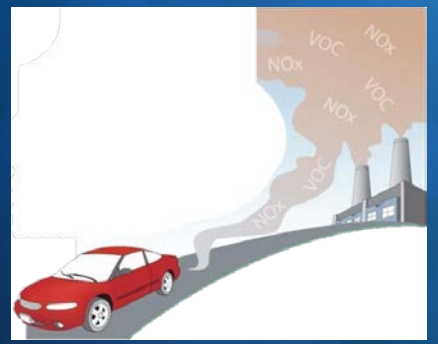
Health Effects of PM2.5

Short Term Exposure

- Cardiovascular Effects
- Respiratory Effects
- Metabolic Effects
- Nervous System Effects

Long Term Exposure

- Cardiovascular Effects
- Respiratory Effects
- Nervous System Effects
- Cancer
- Metabolic Effects
- Reproductive and Development
- Total Mortality
- Premature Death



U.S. EPA's NAAQS Review Process

- Gather input from scientific community and the public
- Comprehensive review, synthesis, and evaluation of the most policy-relevant science
- Quantitative characterizations of exposures and risks to human health or environment
- Evaluation of policy implications to determine the adequacy of retaining or revising the NAAQS
- Notice of proposed rulemaking
- Public comment period
- Final rule

U.S. EPA's Recent Review of PM NAAQS

December 7, 2020

- U.S. EPA retained existing PM standard
- Annual PM2.5 Primary standard: 12.0 µg/m^3
- Annual PM2.5 Secondary standard: 15.0 µg/m^3
- 24-hour average PM2.5 standard: 35 µg/m^3

June 10, 2021

- U.S. EPA reconsidered the December 2020 decision to retain the standard
- Integrated Science Assessment Supplement and Policy Assessment released in May 2022

January 6, 2023

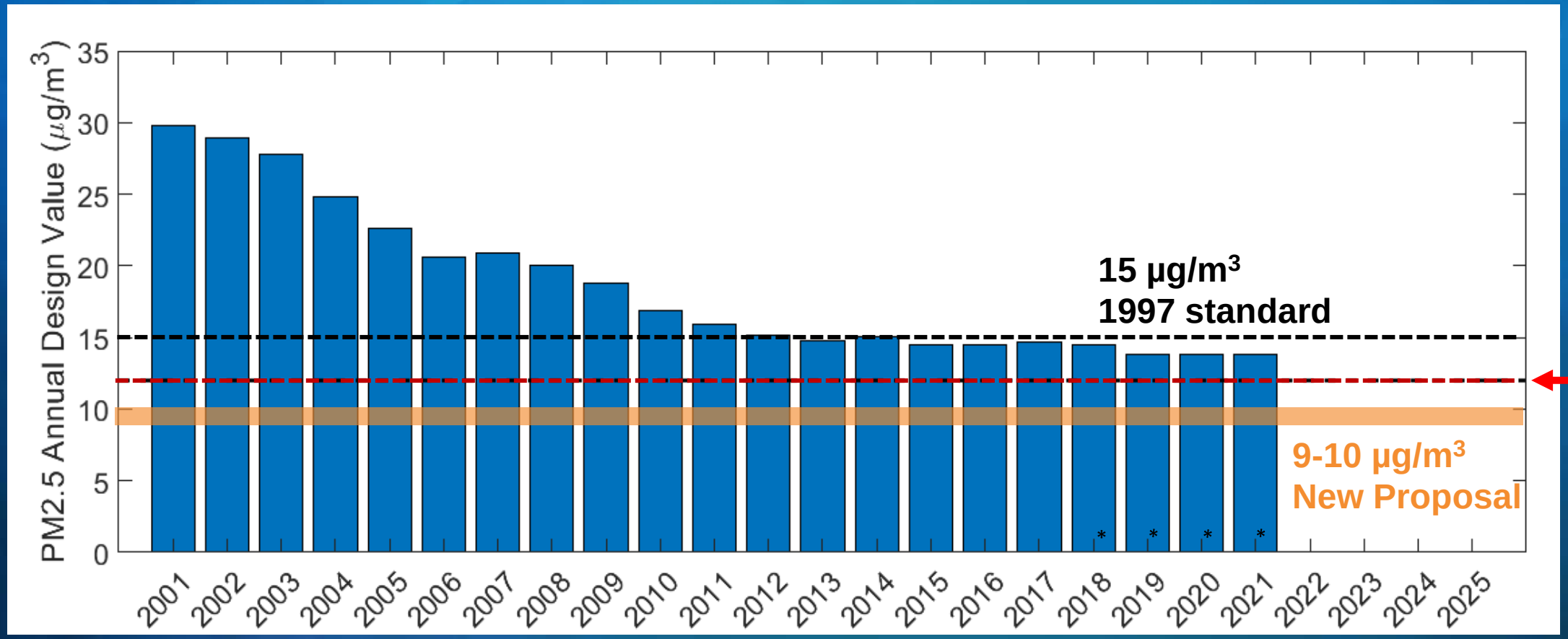
- U.S. EPA proposed to strengthen the annual PM2.5 NAAQS from its current level of 12.0 µg/m^3 to within the range of 9.0 to 10.0 µg/m^3

Details of U.S. EPA's proposed PM standard

- Annual average PM2.5 standard
  - Targeted to protect long term exposure
  - Proposed to tighten from the current 12 $\mu g/m^3$ to 9-10 $\mu g/m^3$
  - Seeking public comments for 8 - 11 $\mu g/m^3$

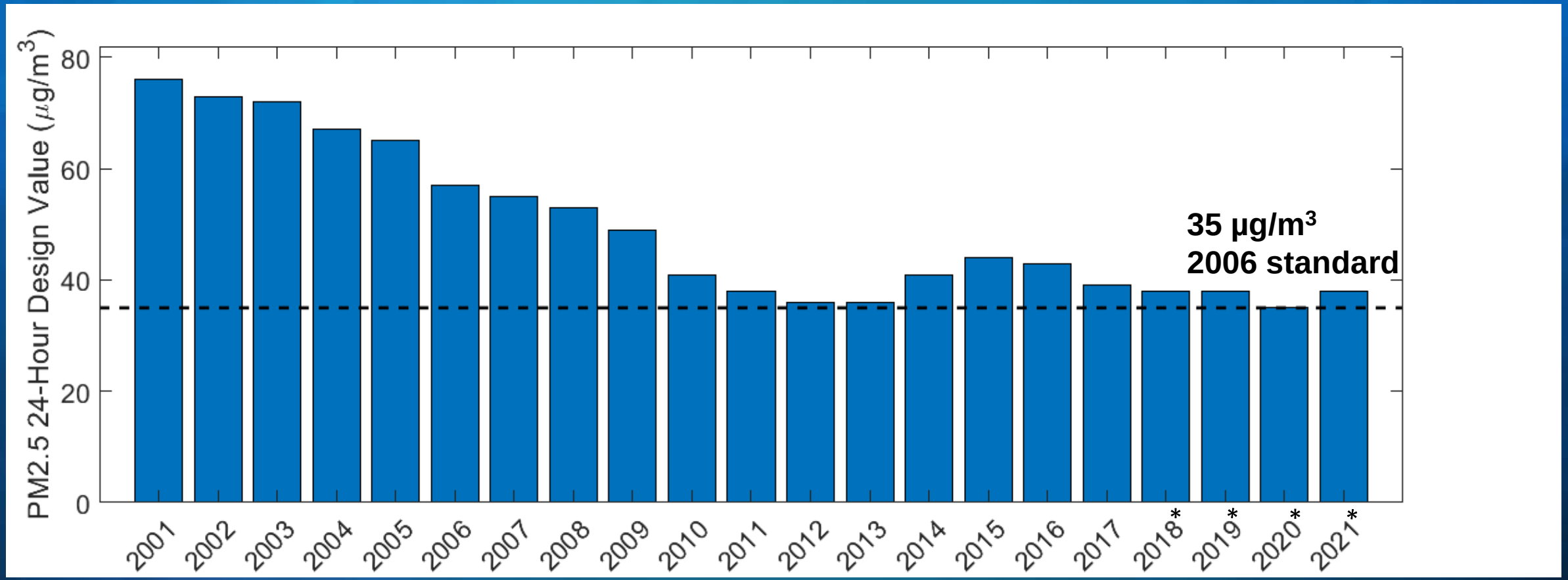
- 24-hour average PM2.5 standard
  - Targeted the most polluted days of a year
  - Proposed to retain the current 35 $\mu g/m^3$
  - Seeking public comments for 25 - 35 $\mu g/m^3$

Annual PM2.5 in South Coast Air Basin



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

24-hour PM2.5 in South Coast Air Basin



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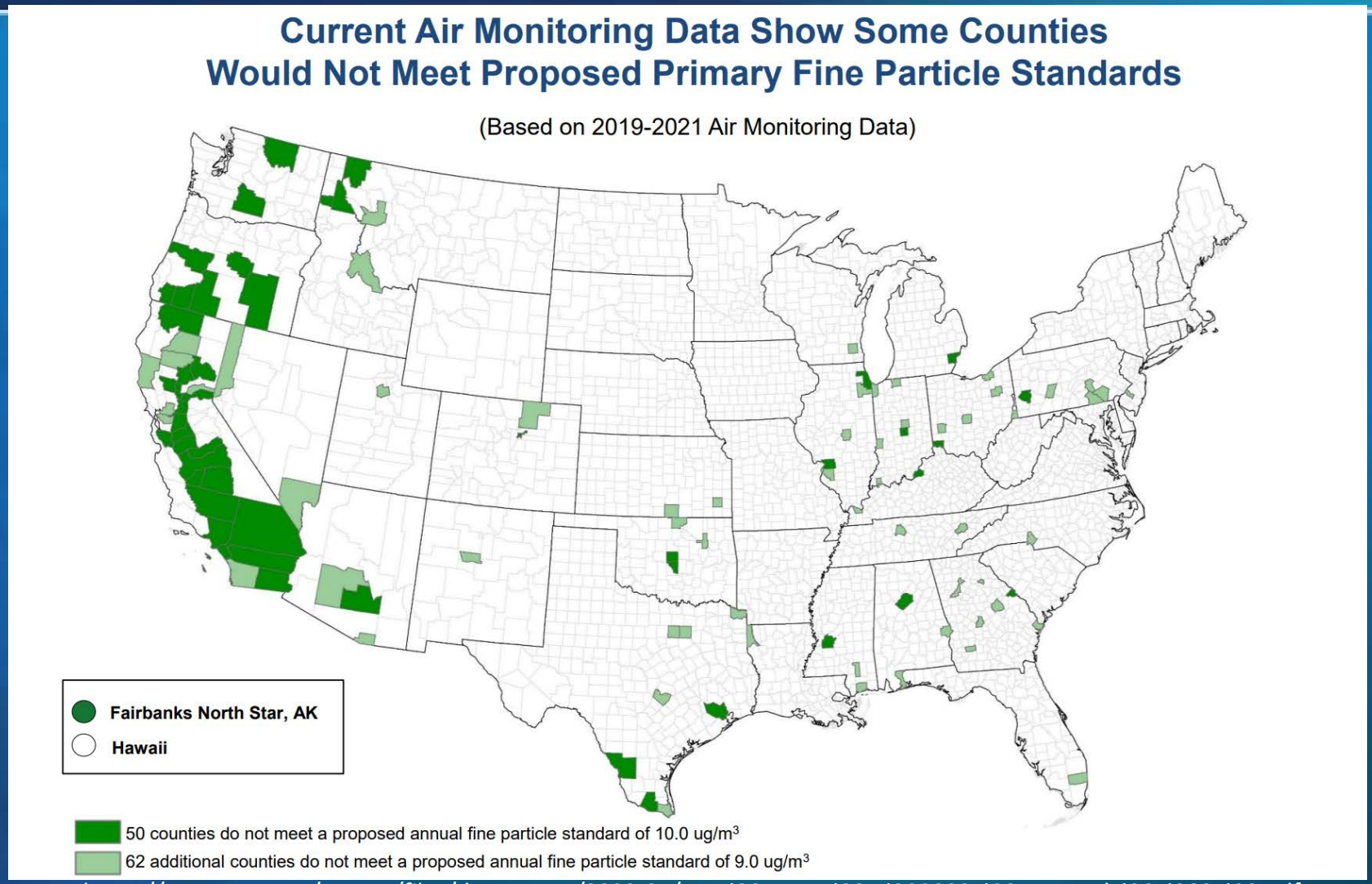
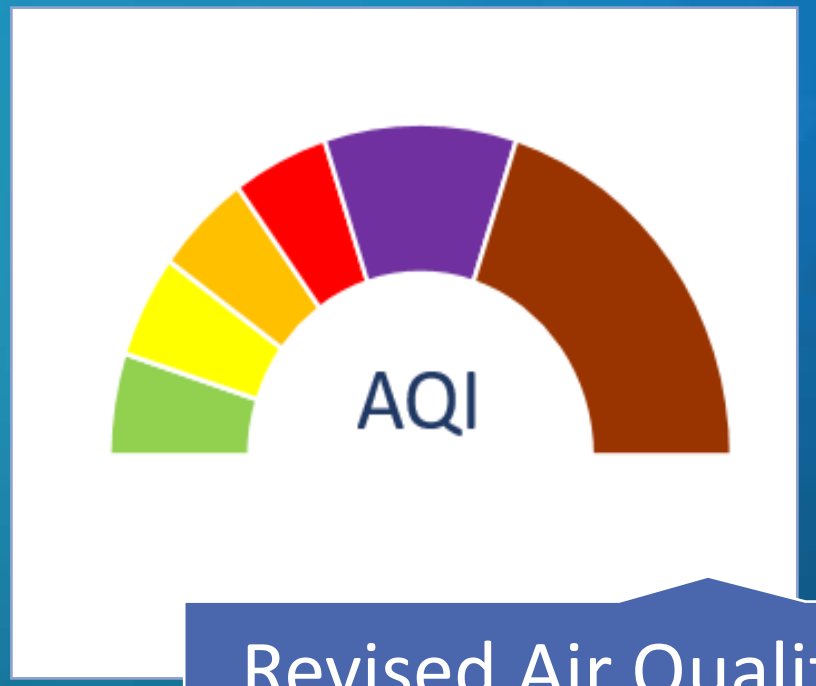
EPA's Projected Nonattainment Area



https://www.epa.gov/system/files/documents/2023-01/PM%20Maps%20-%202022%20proposal%20%282%29.pdf

Other Key Elements of U.S. EPA's Proposal

Additional Monitoring Network

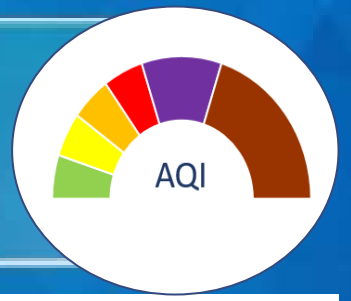


Revised Air Quality Index

PM2.5 Monitoring Requirements

- Modify PM2.5 monitoring network design criteria to include an Environmental Justice factor that accounts for proximity of populations at increased risk of adverse health effects from PM2.5 exposures to sources of concern
- Require monitoring in “at-risk communities” where there are anticipated effects from sources in the area (e.g., a major port, rail yard, airport, or industrial area) contributing to poor air quality, if existing sites need to move
  - Proposed change does not add a requirement for new monitors

Air Quality Index (AQI) for PM2.5



- The AQI is used to help inform the public about current and daily air quality and recommends steps to take to reduce exposure to air pollution
- Proposed updates
  - Lower breakpoints (50 – 150) based on the proposed levels of the primary standard and related health evidence
  - Upper breakpoints (200+) to reflect the newest scientific information

Proposed Revisions to AQI for $PM_{2.5}$

AQI Value	Current [µg/m³]	Proposed Revisions [µg/m³]
0, Good	0	0
50, Moderate	12	Annual Standard (e.g., 9-10)
100, USG	35	Daily Standard
150, Unhealthy	55	Change with Daily Standard
200, Very Unhealthy	150	125
300, Hazardous	250	225
500, Hazardous*	500	325

*The 500 breakpoint is used in conjunction with the 300 breakpoint to calculate AQI values within the hazardous category. The proposed approach does not use the 500 breakpoint to determine other breakpoints values.

PM Air Quality in the South Coast Jurisdiction

Air Basin	2006 24-hour Standard	2012 Annual Standard
South Coast Air Basin	“Serious” nonattainment with attainment due by 2023	“Serious” nonattainment with attainment due by 2025
Coachella Valley	Attainment	Attainment

Implication of the Proposed Annual PM Standard

Pros

- Public health benefits
- Health costs savings
- Decreased risk disparity for disadvantaged communities

Challenges

- South Coast Air Basin annual PM2.5 design value is approximately 13.9 µg/m^3 *
- Benefits are expected from NOx reductions proposed in the 2022 AQMP
- Still significant PM2.5 emission reductions will be needed to meet the proposed PM2.5 standard
- Control options will be limited and expensive

*preliminary value for 2021-2021 excluding potentially exceptional event days

Next Steps and Anticipated Timelines

Jan 6, 2023
- EPA proposed the new standard

March 28, 2023
- 60-day public comments to EPA*

2024
- EPA finalize the standard

2026
- Designate nonattainment area

2028 AQMP
- South Coast AQMD submit attainment strategy

* 88 FR 5558