



# **Fifty Year Air Quality Trends and Health Benefits**

**50<sup>th</sup> Anniversary of the  
California Air Resources Board**

# CARB Established in 1967

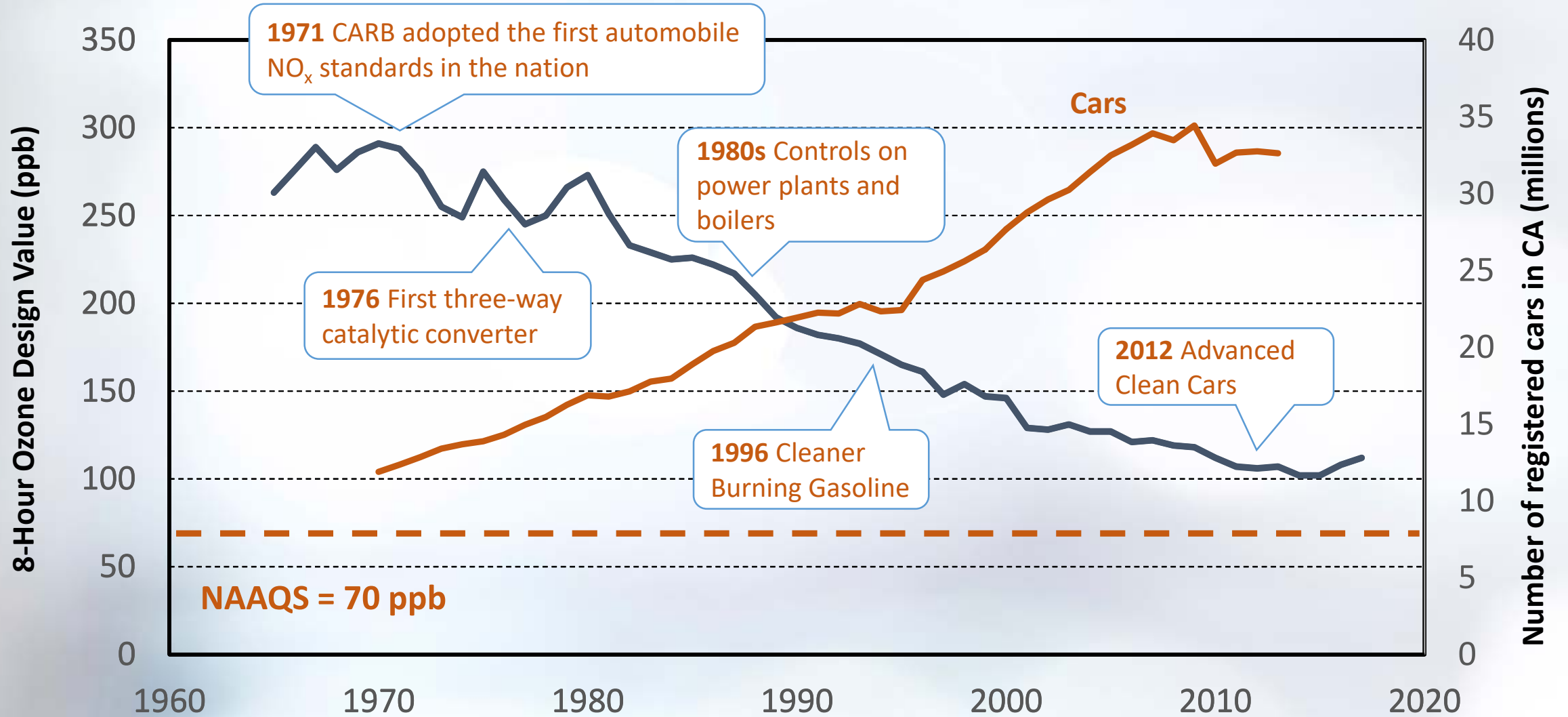
- First Board hearing was February 8, 1968
- Los Angeles had some of the worst air quality in the world



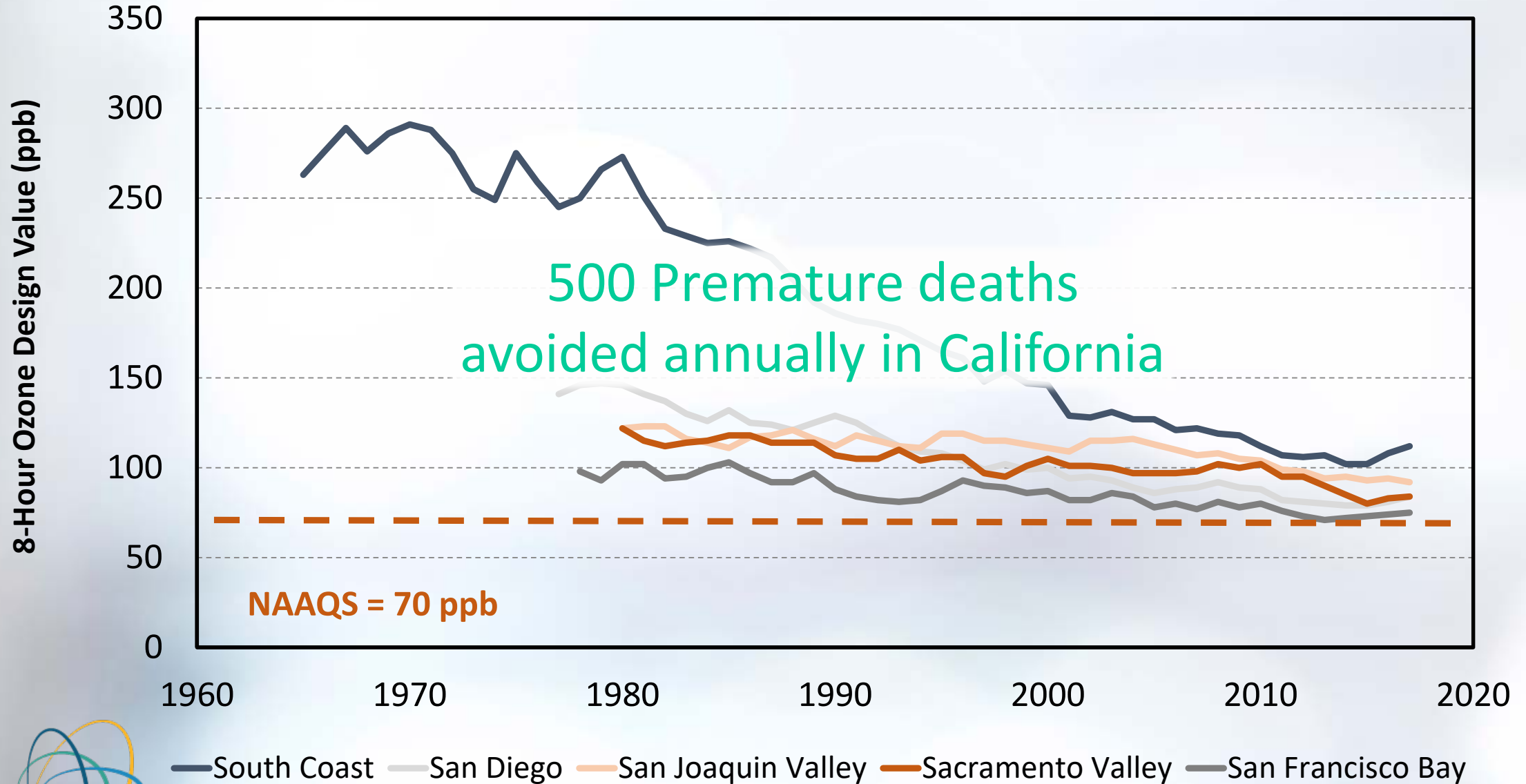
# Los Angeles Air Quality in the 1960s



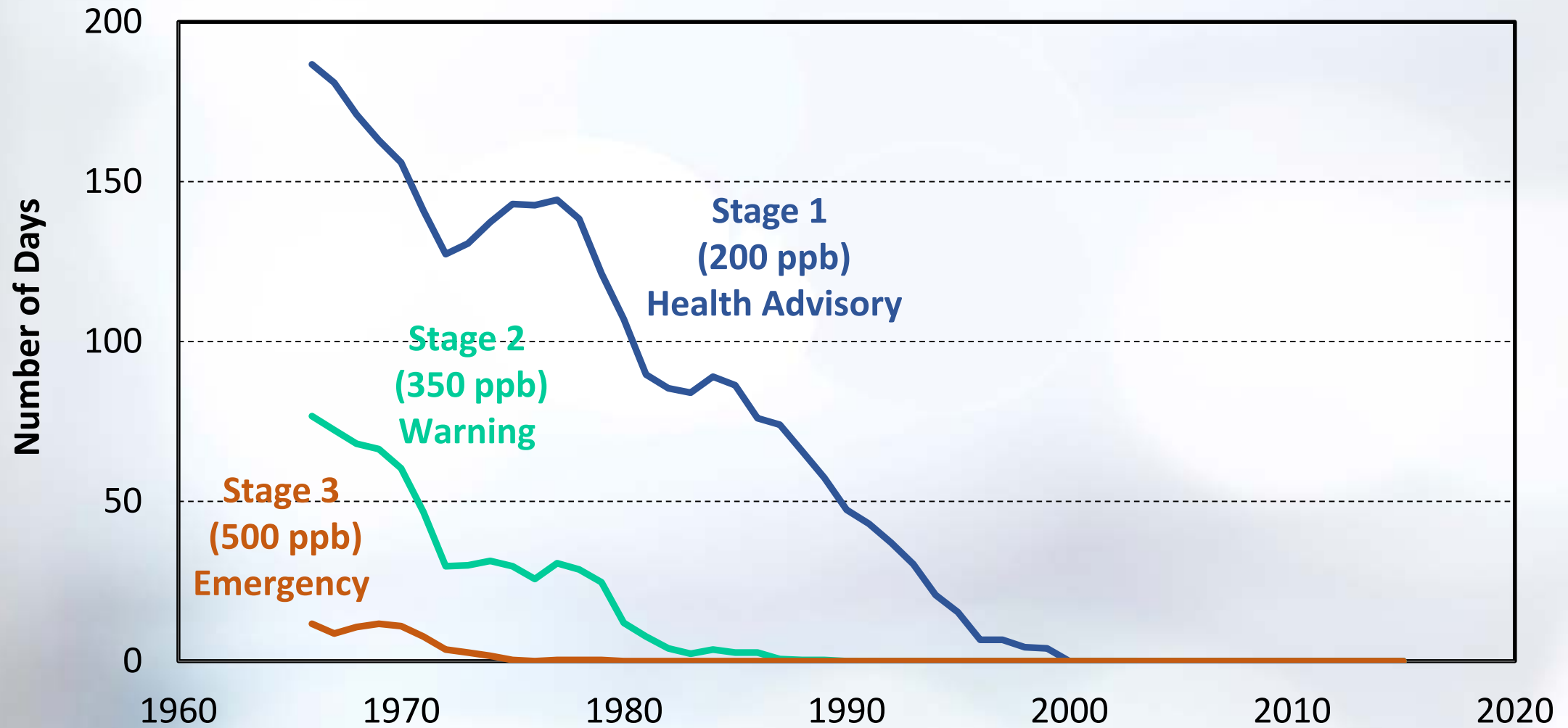
# Ozone in Los Angeles



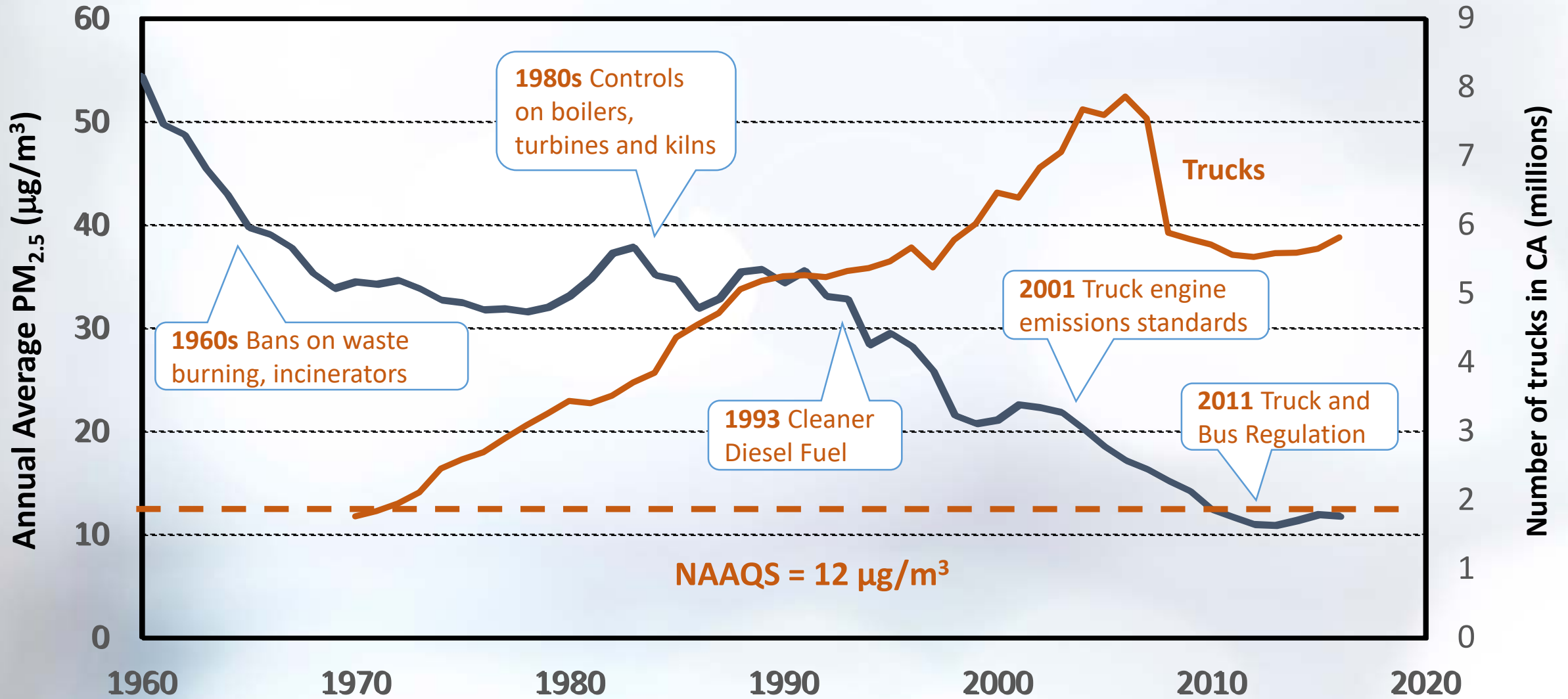
# Ozone in California



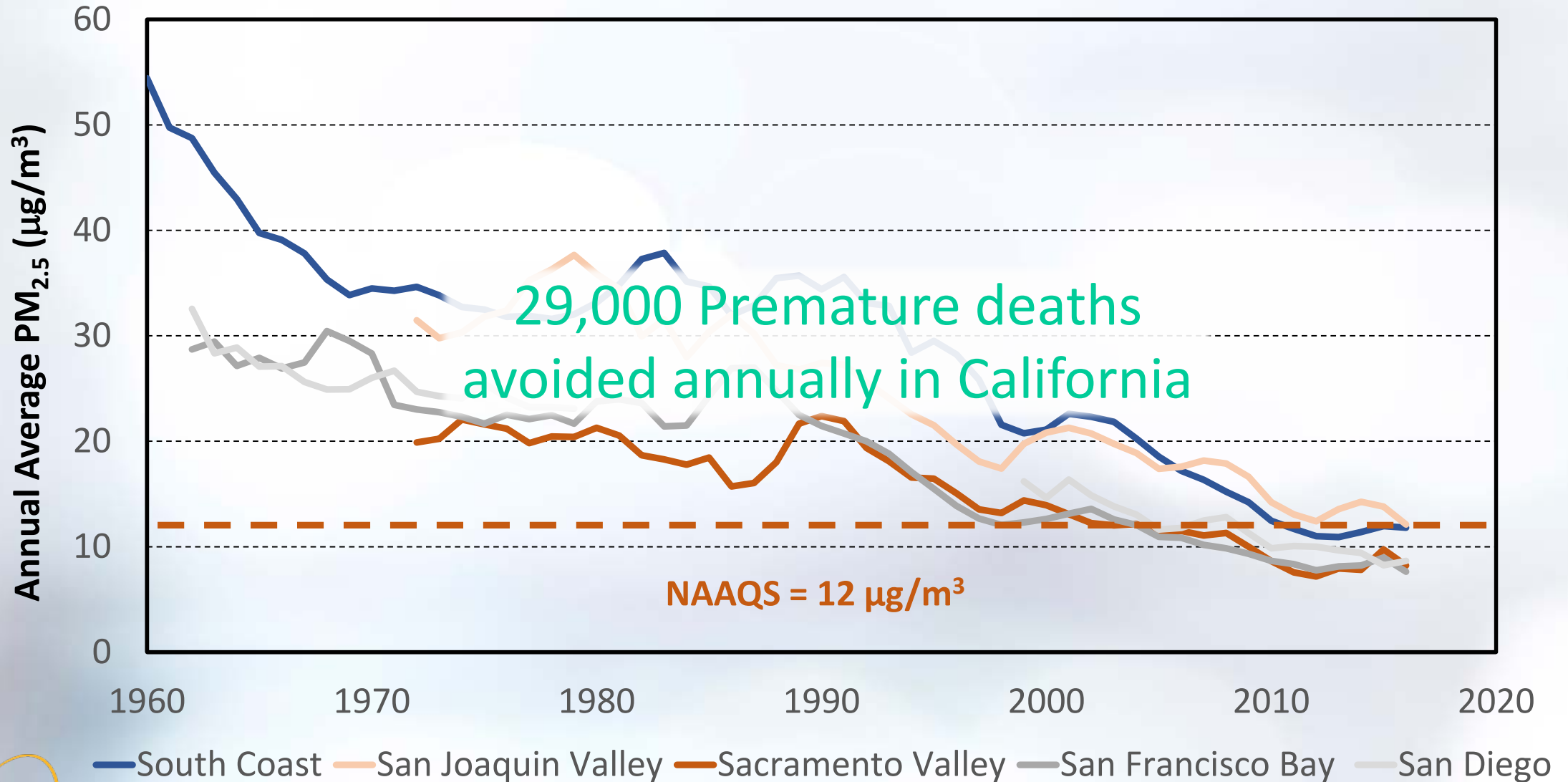
# Number of Ozone Alerts in Los Angeles



# Fine Particles (PM<sub>2.5</sub>) in Los Angeles

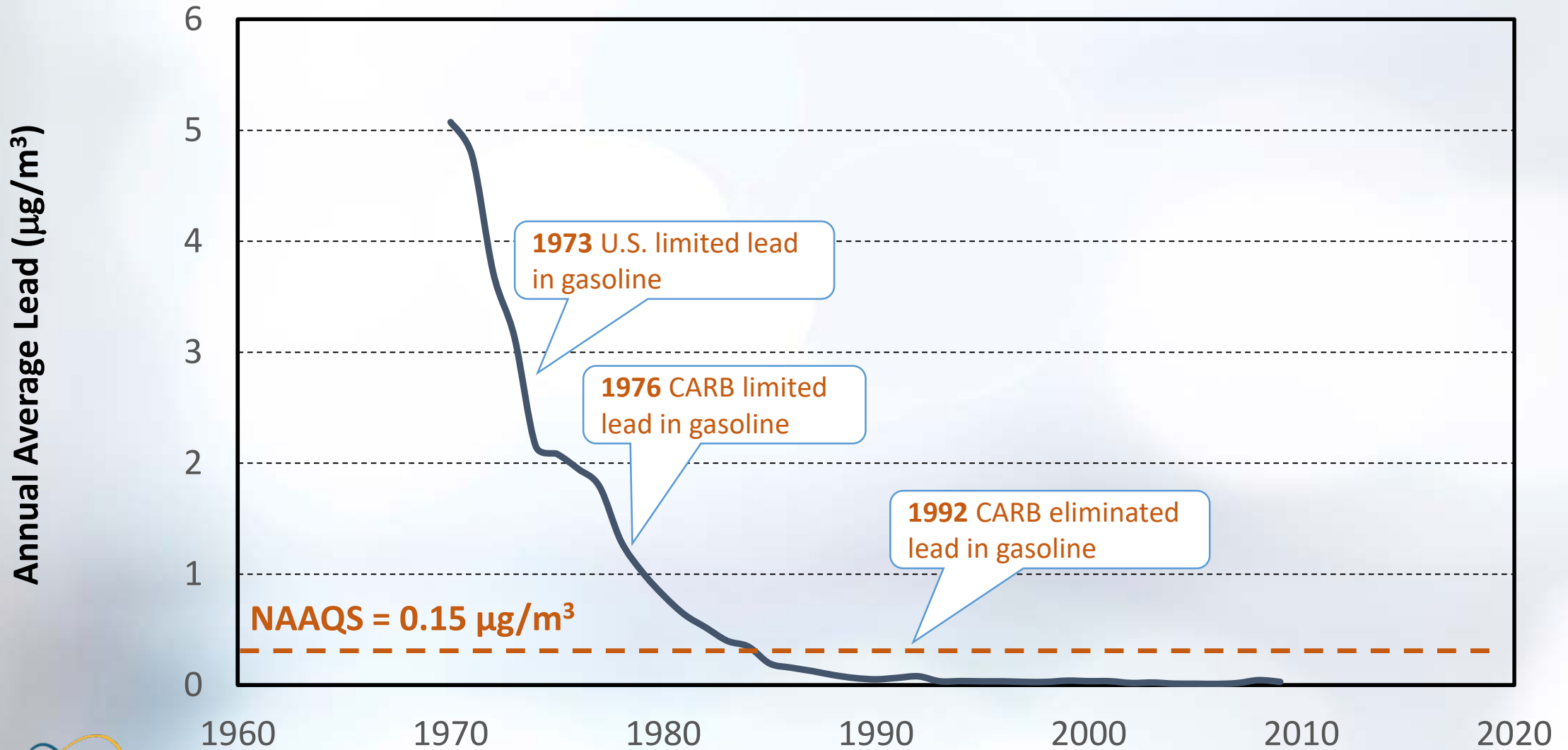


# Fine Particles (PM<sub>2.5</sub>)

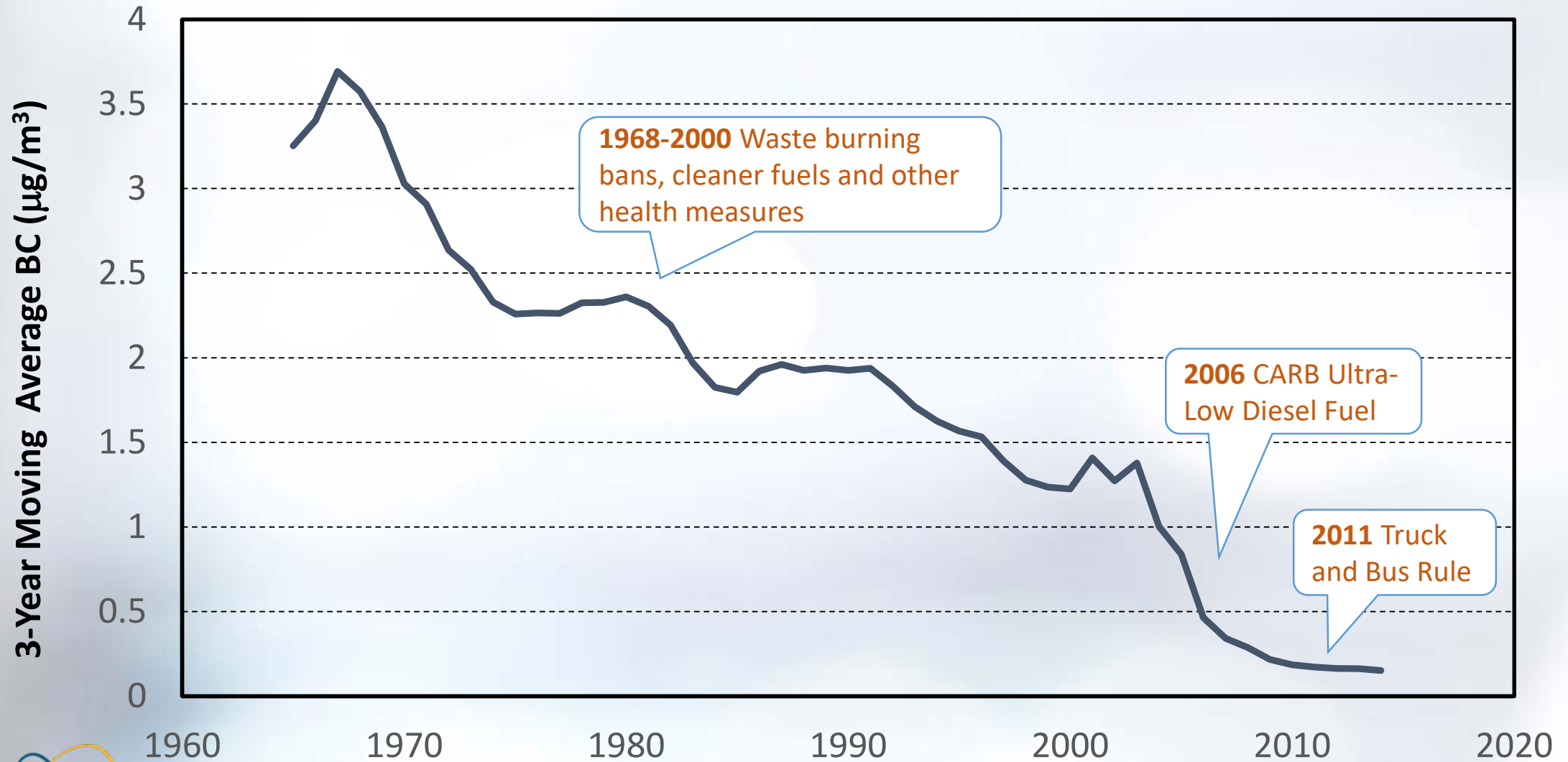




# Lead in Los Angeles

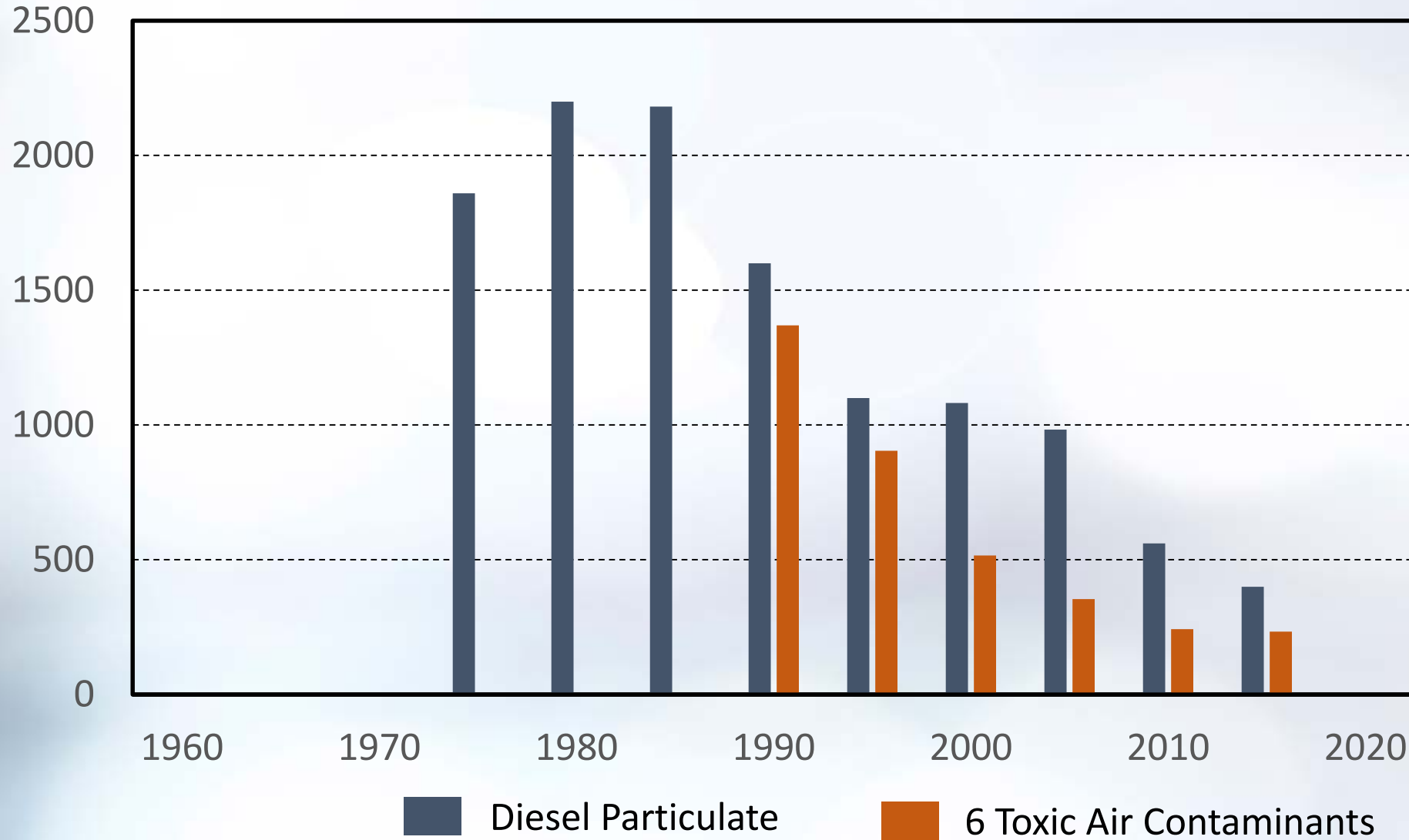


# Black Carbon

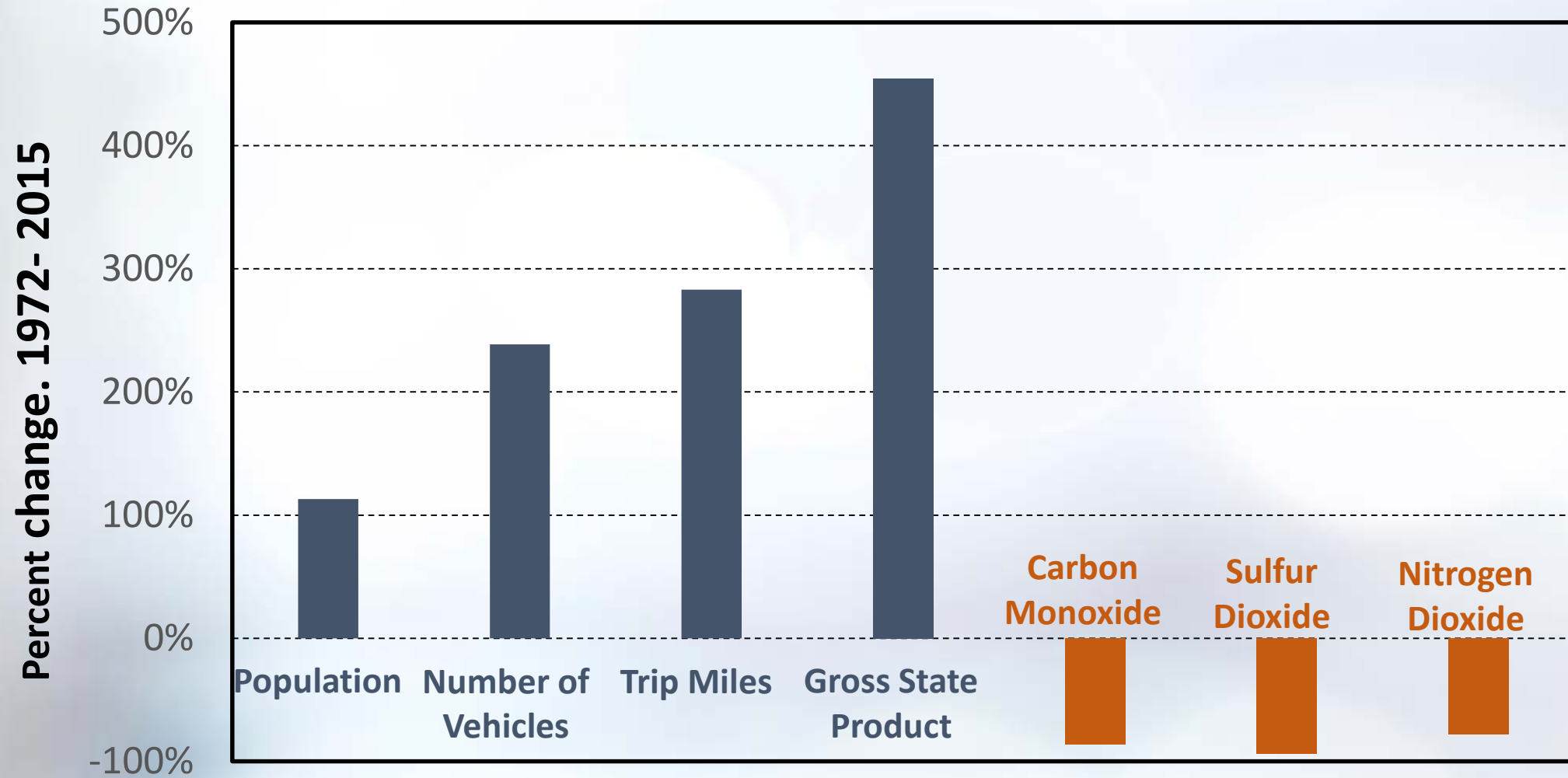


# Statewide Toxic Health Risks

Increased Cancer risk per million residents

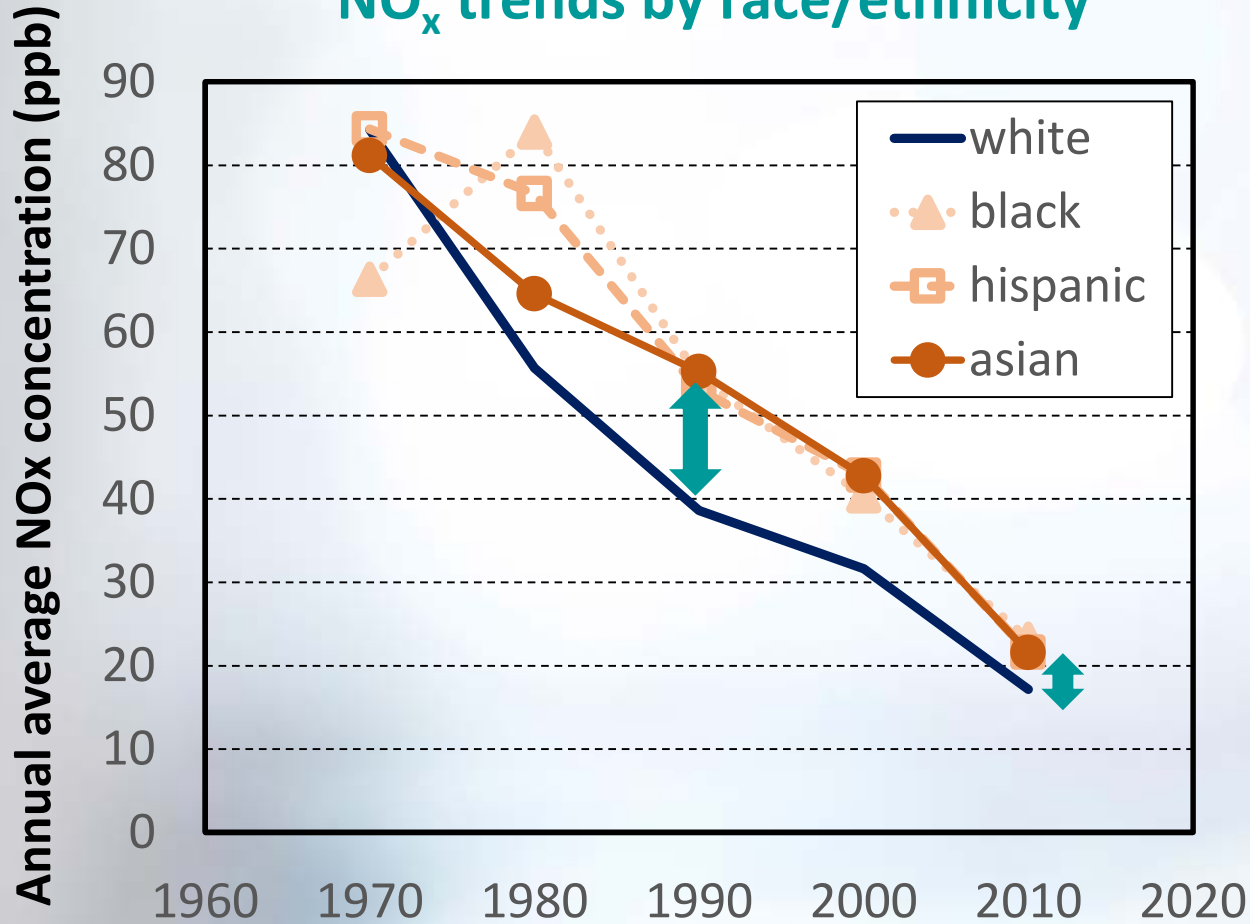


# Other Criteria Pollutants in Los Angeles

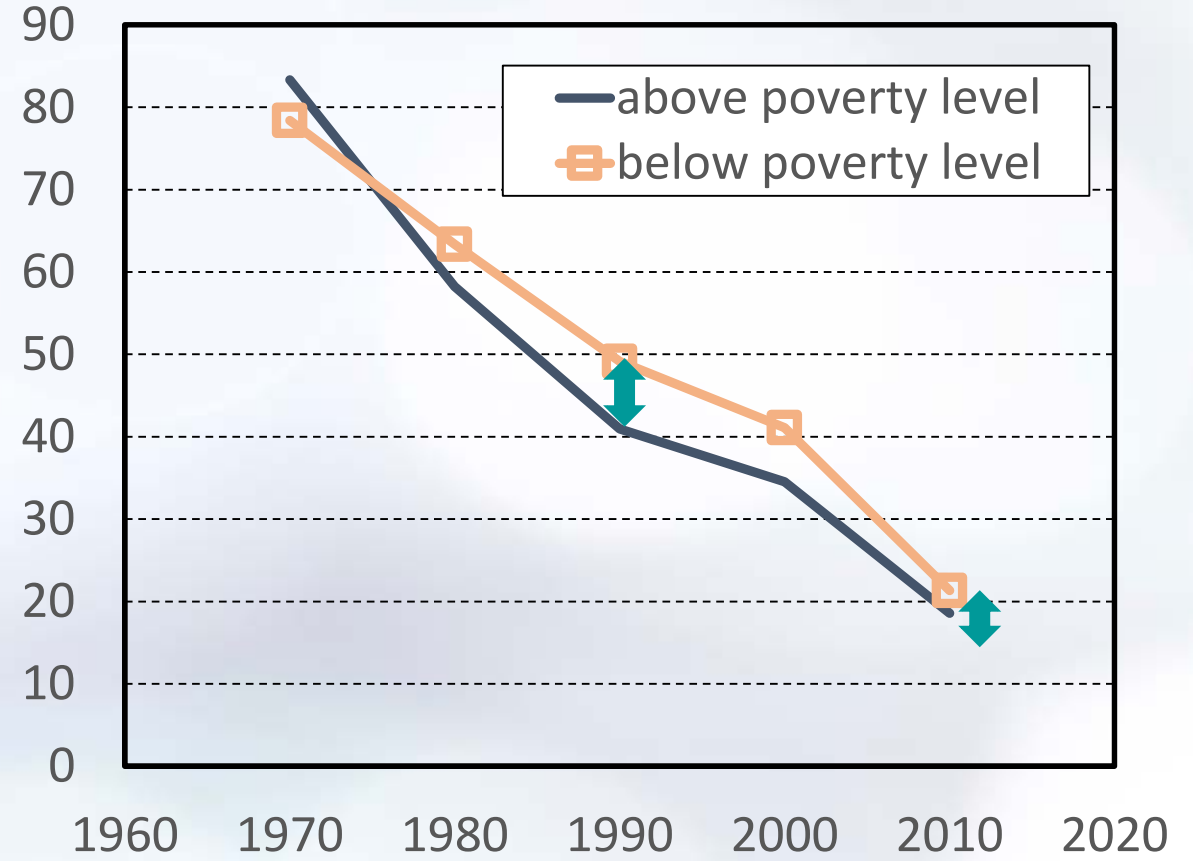


# Air Quality Improvements in Disadvantaged Communities

## NO<sub>x</sub> trends by race/ethnicity



## NO<sub>x</sub> trends by income



# Economic Benefits

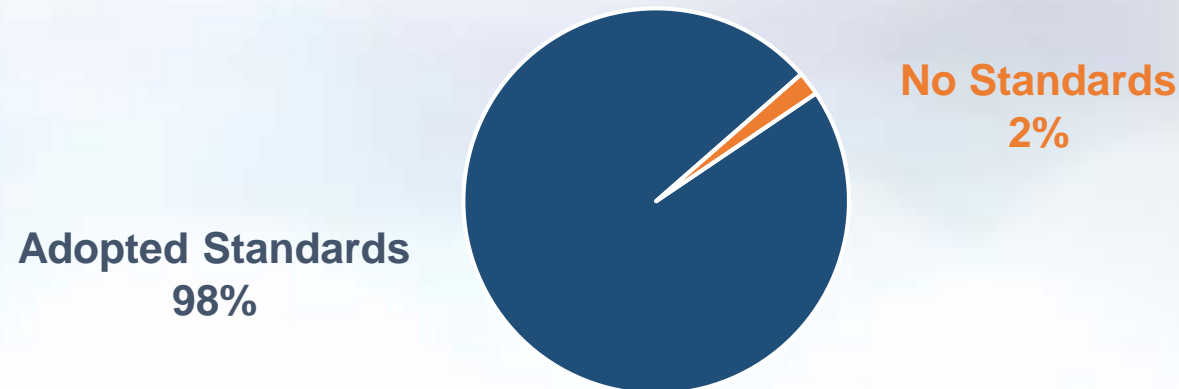
- \$38 in benefits for each \$1 spent on air pollution control in California
- Economic value of health benefits exceeds \$250 billion
- Air pollution control industry jobs grew to 42,000 in 2016 or 3.2% of total manufacturing jobs in California, generating \$8 billion in revenue.

# California's Global Impact

California "firsts" now adopted worldwide

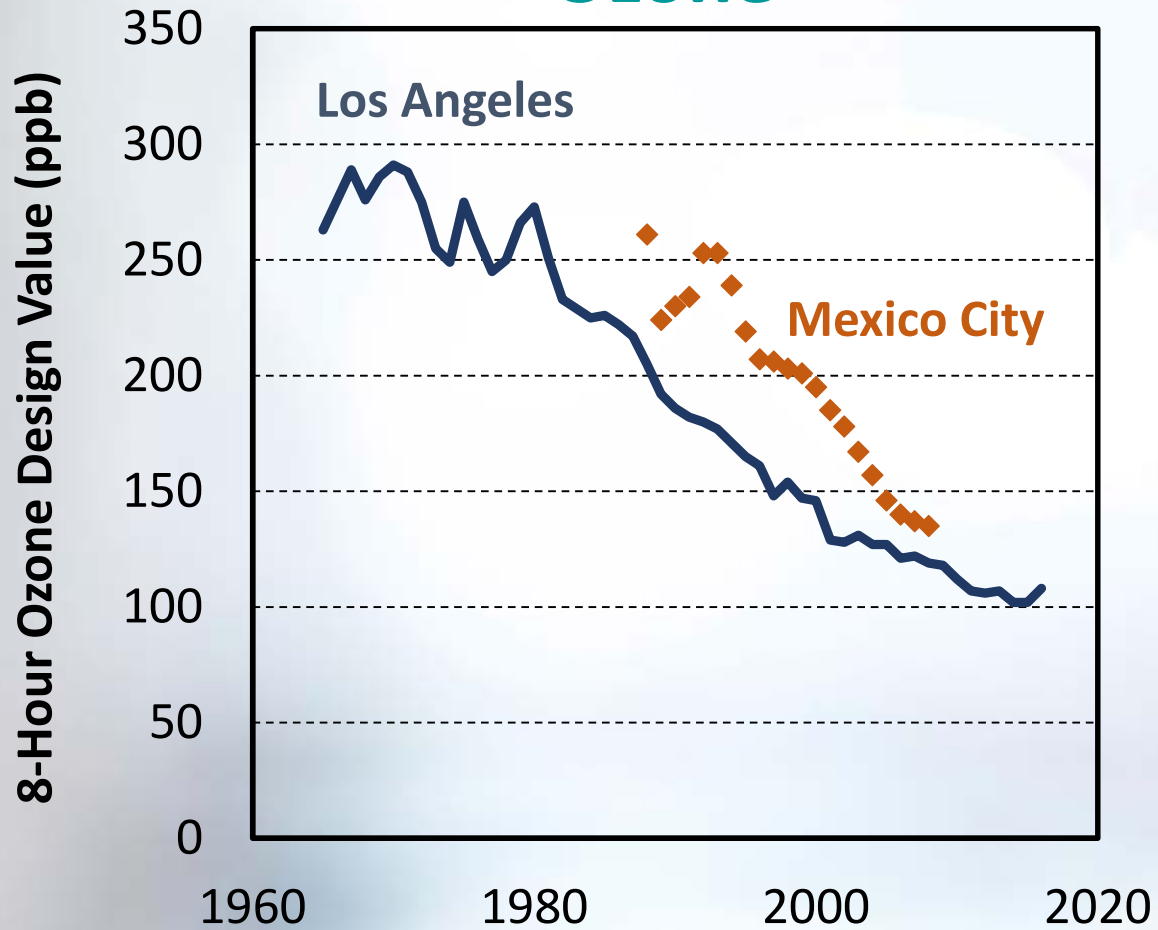
- Lead-free gasoline
- Strict vehicle emission standards that prompted the use of three-way catalytic converters and diesel particle filters
- Stringent NO<sub>x</sub> control for ozone and PM<sub>2.5</sub>
- Low-sulfur fuels

Percentage of *World Vehicles* With New Engine Standards First Demonstrated in California

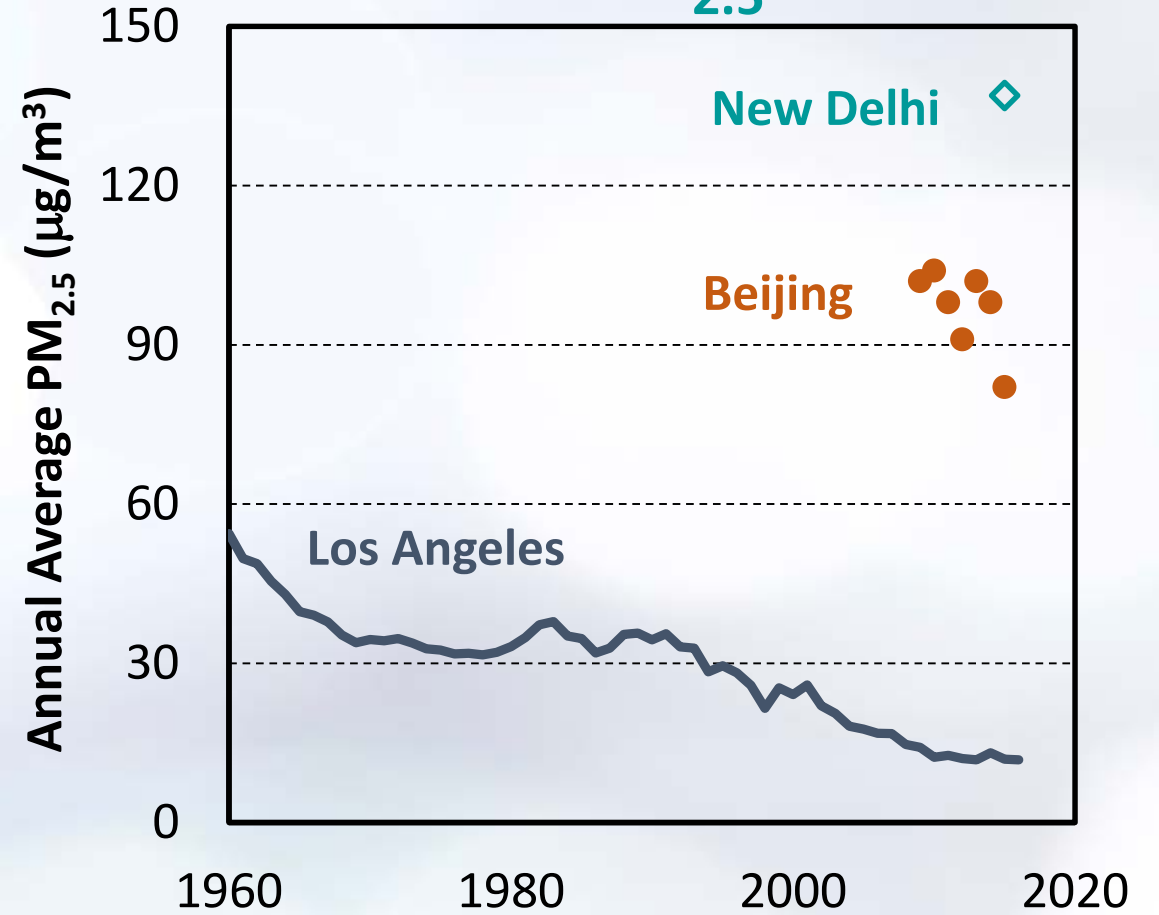


# The World Benefits from CARB's Leadership

## Ozone



## PM<sub>2.5</sub>





# Adoption of Catalytic Converters



# 50 Years of Progress

- Pollutant levels decreased 75-99% (in all communities) despite doubling of population and quadrupling of vehicle use
- 29,500 premature deaths avoided each year
- Economic value of health benefits exceeds \$250 billion
- EJ Communities initially lagged behind, but the gap is narrowing
- Direct air pollution control costs are less than 1% of GSP, but have led to creation of 42,000 jobs and revenue of \$8 billion in the air pollution control industry alone

# Looking Forward

- The State Implementation Plan will reduce exposure to harmful pollution
- The Scoping Plan will guide efforts to reduce greenhouse gases
- The Community Air Protection Program will focus on communities most affected by air pollution
- CARB will continue to lead the world in reducing air pollution in an equitable, cost-effective way