

# Environmental Justice and Air Pollution

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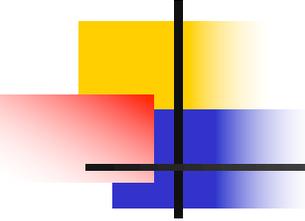
**National Institute for Health Care Management**

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U.S. Environmental Protection Agency



# Presentation Outline

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- Background on EJ and disproportionate impacts
- EJ and air pollution: Lived experience of communities and empirical evidence
- Structural racism and EJ
- Strategies and methods to advance community air protection
- Conclusions

# Historical Roots of Environmental Justice



Warren County, North Carolina, 1982



United Church of Christ Study, 1987



First People of Color Environmental Leadership Summit, 1991



Executive Order 12898, 1994

The EJ movement, started by people (primarily people of color) to address inequitable environmental protection and environmental services in their communities was grounded in civil rights and the environmental movement. The movement builds on the lived experience of disproportionately impacted communities. The work of these early advocates paved the way for program development starting in the early 1990's, over the past 30 years, have resulted in significant progress at all levels of government.

# What is environmental justice?

Fair treatment and meaningful involvement of all people, regardless of race, color, national origin or income, in the development, implementation and enforcement of laws, regulations and policies that affect the environment and public health



**Distributive  
Justice**

**Procedural  
Justice**

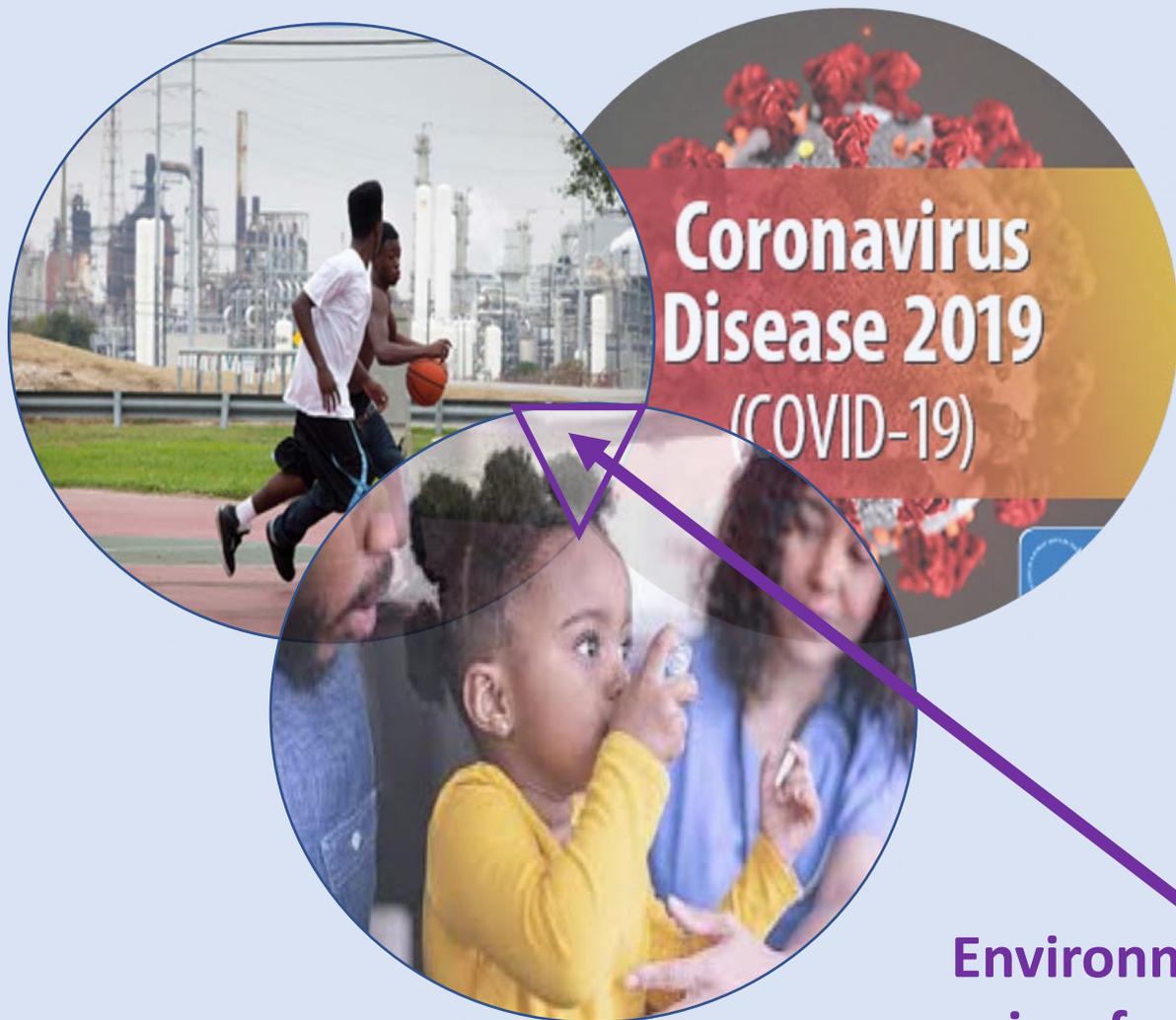
**Corrective  
Justice**

**Social  
Justice**

**Recognitional  
Justice**

**Structural  
Justice**

# Science of Disproportionate Environmental Health Impacts



## DRIVERS

- **Built Environment:** Proximity to pollution sources (e.g., stationary and mobile air emissions)
- **Natural Environment:** Disasters (e.g., wildfires, heat waves, pandemics)
- **Social Environment:** Health disparities (e.g., asthma, heart disease, hypertension, diabetes)

**Environmental injustice  
is a force multiplier**

# Empirical Scientific Evidence on Disproportionate Impacts

Thousands of peer-reviewed articles now exist addressing multiple areas through multiple methodologies. Literature continuously expands to new areas of research.

## Multiple Issues

- Exposure and proximity to pollution sources
- Physical infrastructure
- Health impacts and disparities
- Social vulnerability
- Unique exposure pathways
- Psycho-social stress
- Climate and natural disasters
- Cumulative impacts



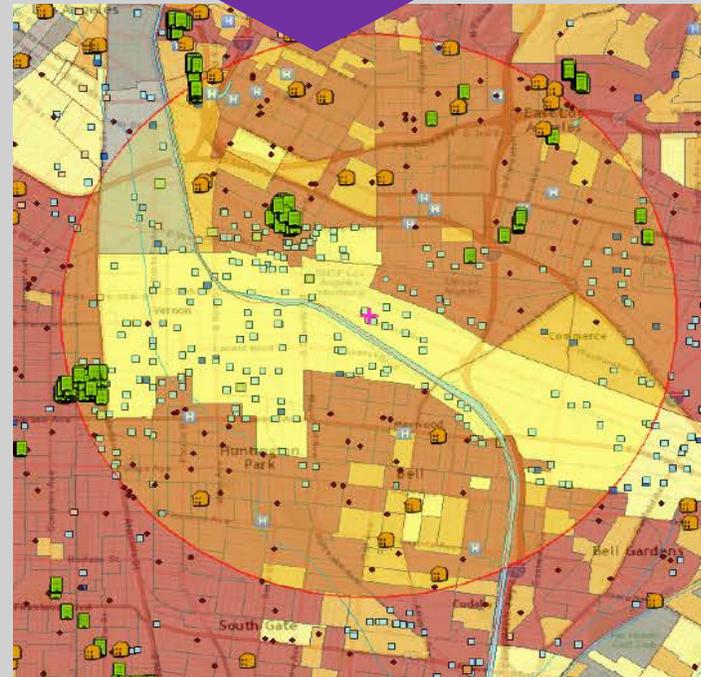
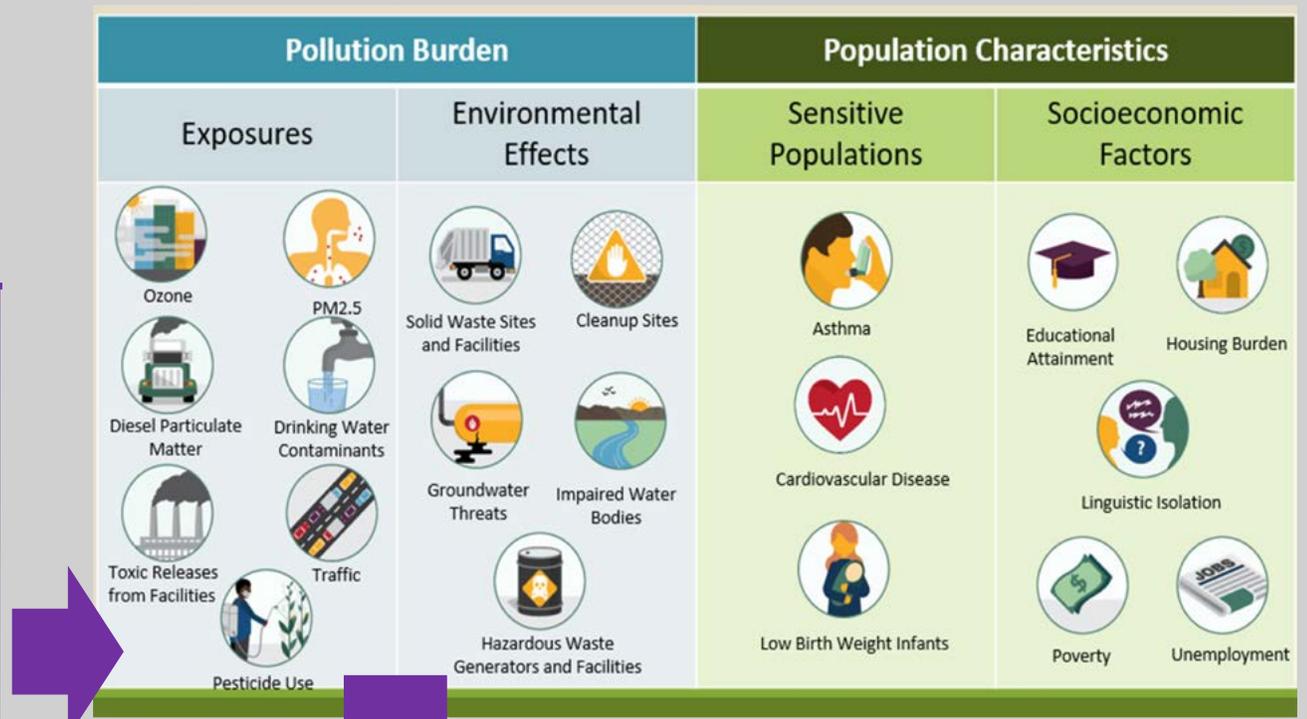
## Multiple Media

- Air
- Water
- Land
- Waste
- Toxics
- Workers

# Disproportionate Impacts



The decades-long journey from describing, quantifying to mapping



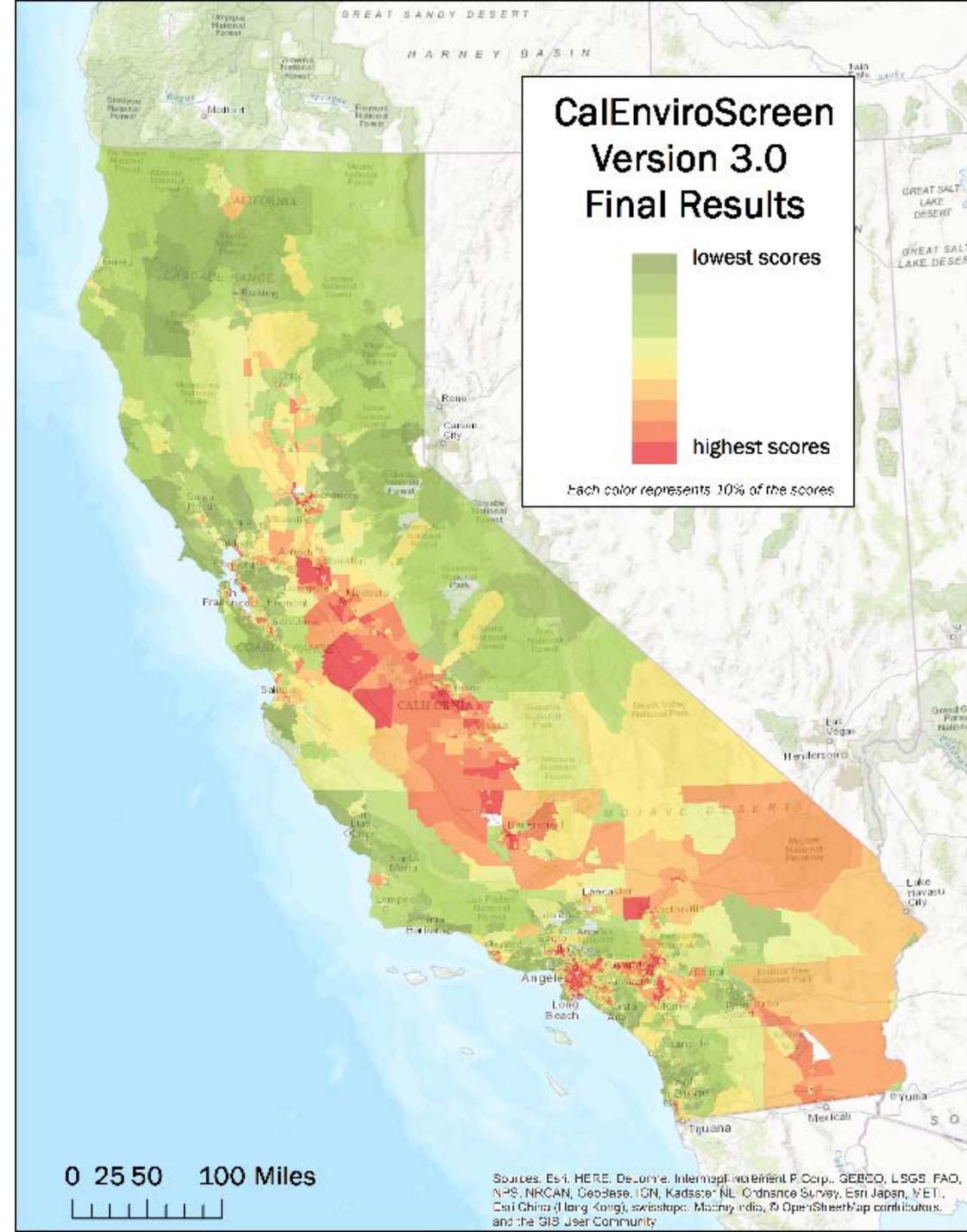
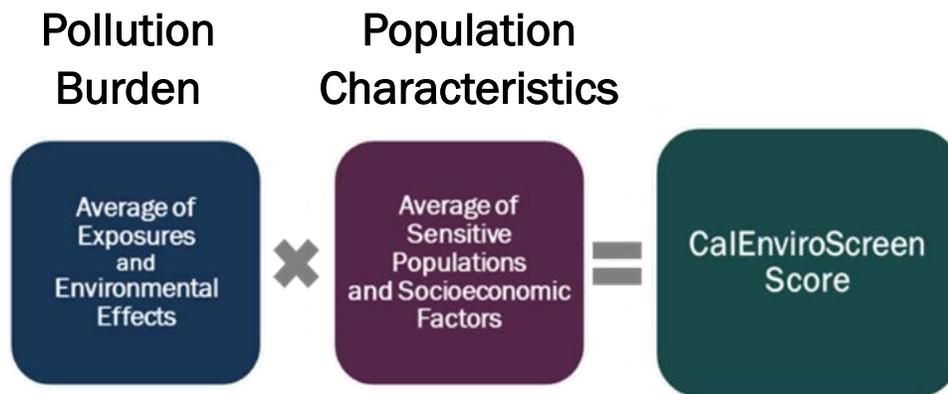
Disproportionate impacts is the consistent pattern of a combination of greater **pollution burden** and **population vulnerability** affecting the same communities, primarily minority, low-income, indigenous populations, as demonstrated by ample evidence.

Sources: CalEPA Office of Environmental Health Hazard Assessment and EPA EJSCREEN



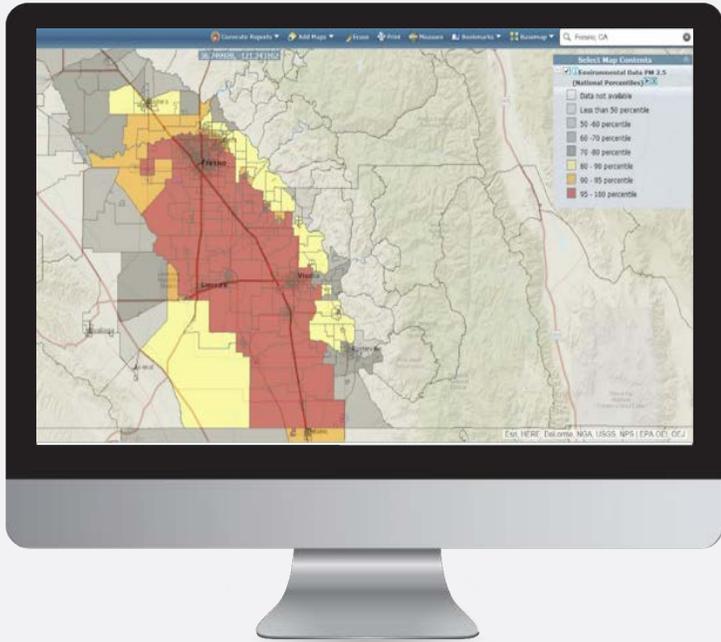
# CalEnviroScreen

- Combines pollution burden and population characteristics
- Ranks communities according to combined scores for cumulative impacts
- Informed by significant and ongoing public input



[Available as an interactive web map](#)

# EJSCREEN



## Environmental Indicators

- PM 2.5
- Ozone
- NATA Diesel PM
- NATA Air Toxics Cancer Risk
- NATA Respiratory Hazard Index
- Lead Paint (pre-1960s Housing)
- Traffic Proximity
- Proximity-NPL Sites
- Proximity-RMP Facilities
- Proximity-TSD Facilities
- Proximity-Waste Water Dischargers

## Demographic Indicators

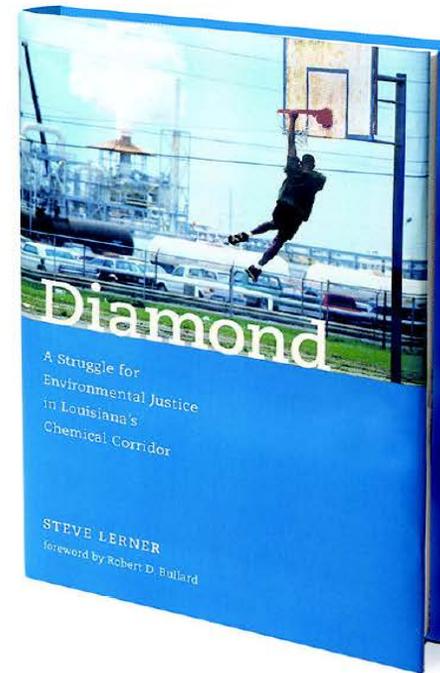
- Low-Income
  - Minority
  - Less than High School Education
  - Linguistic Isolation
  - Individuals under Age 5
  - Individuals over Age 64
- Index:** Calculated as (Low income + minority) / 2

## EJSCREEN Training Videos

<https://www.epa.gov/ejscreen/ejscreen-videos>

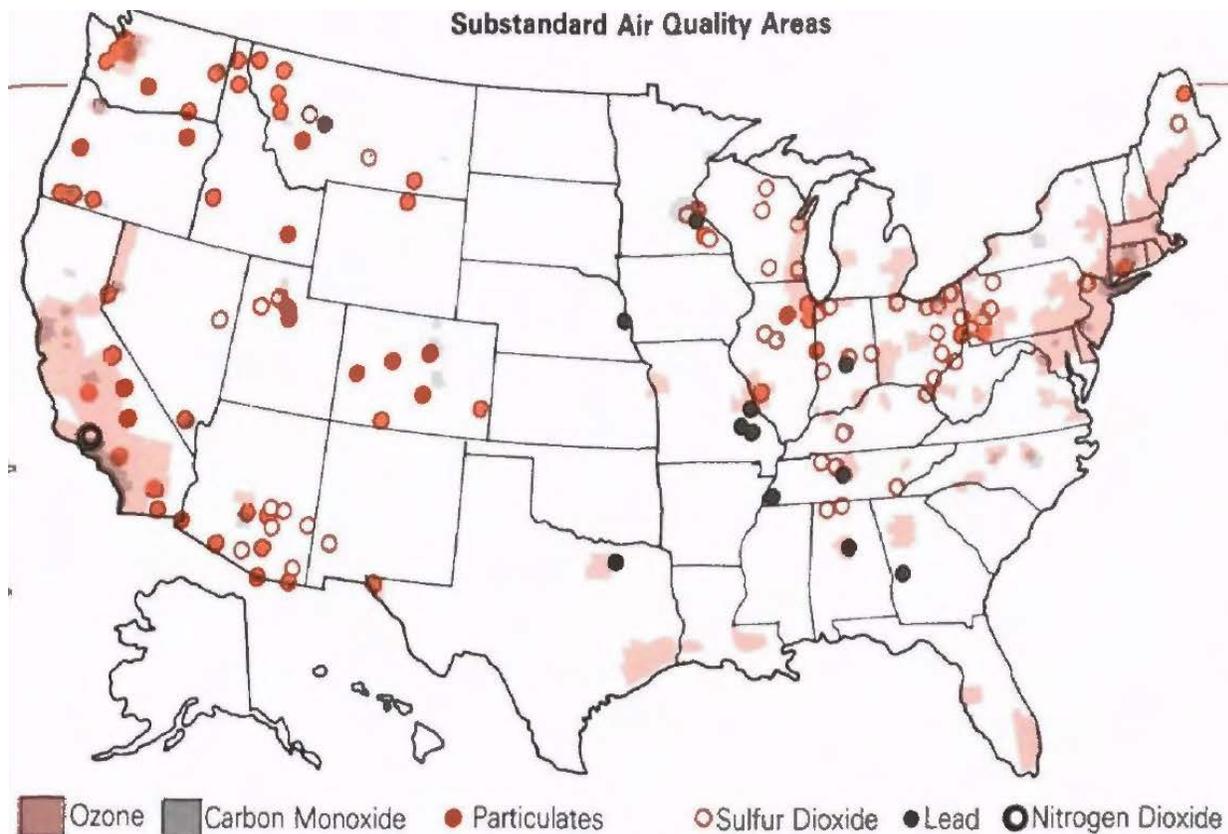
# Disproportionate Air Pollution Impacts: Lived Experience of Communities

- **South Bronx: Solid Waste**
- **Norco, Louisiana: Community Near Refinery Relocated**
- **California: Wildfires and Farmworkers**

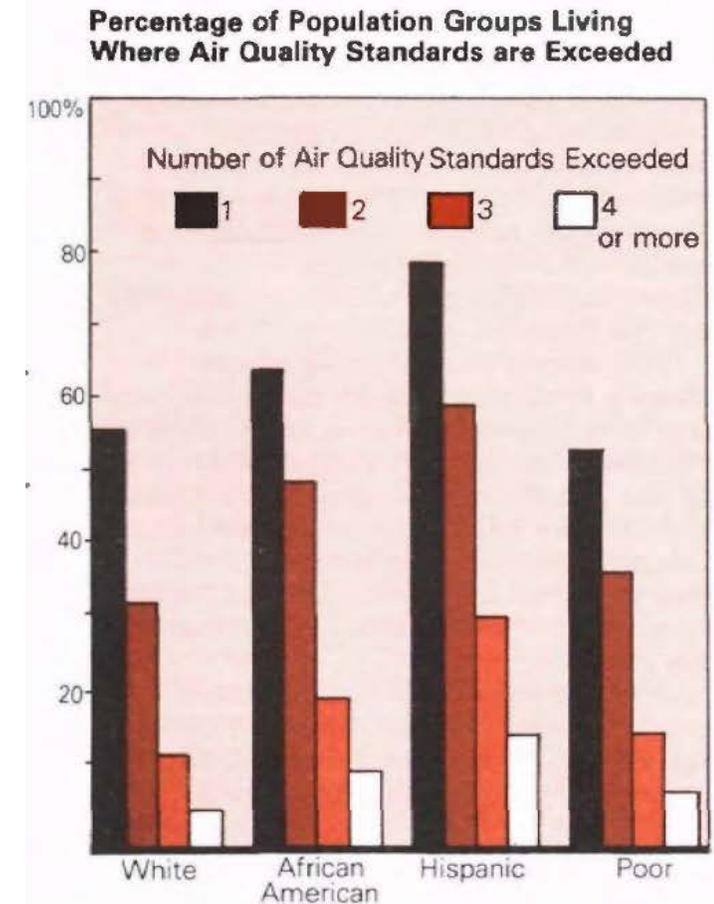


# Disproportionate Air Pollution Impacts: Historical Evidence

*EPA Journal: Environmental Protection—Has It Been Fair? (March/April 1992)*

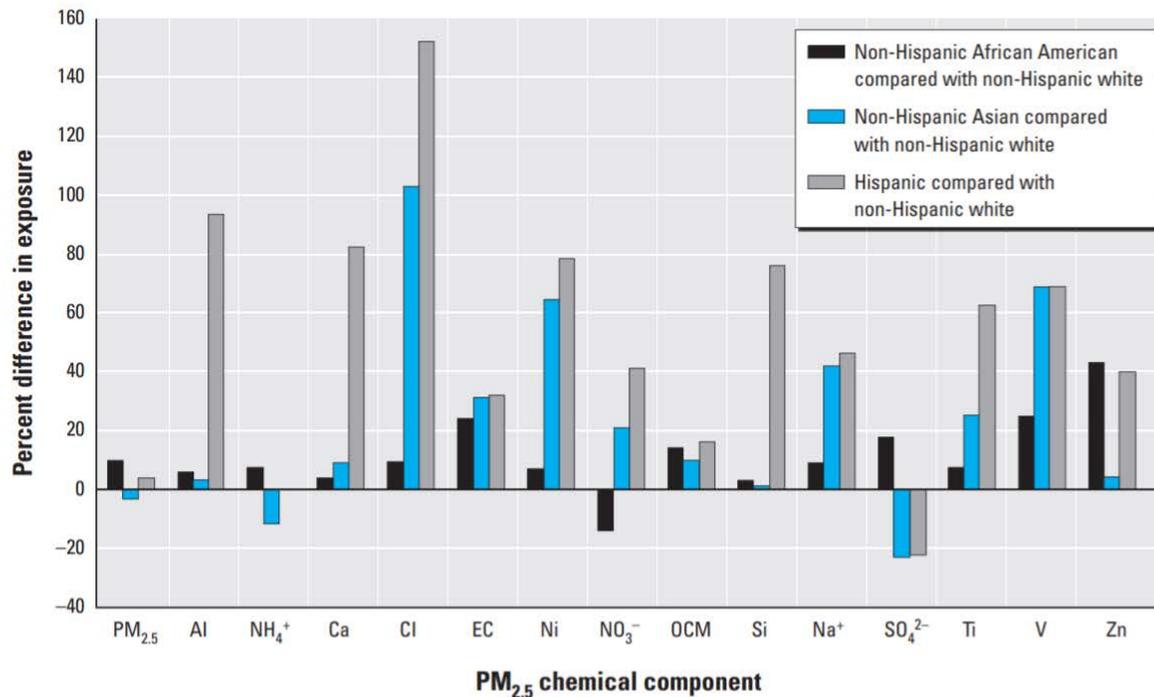


Wernette and Nieves, 1992



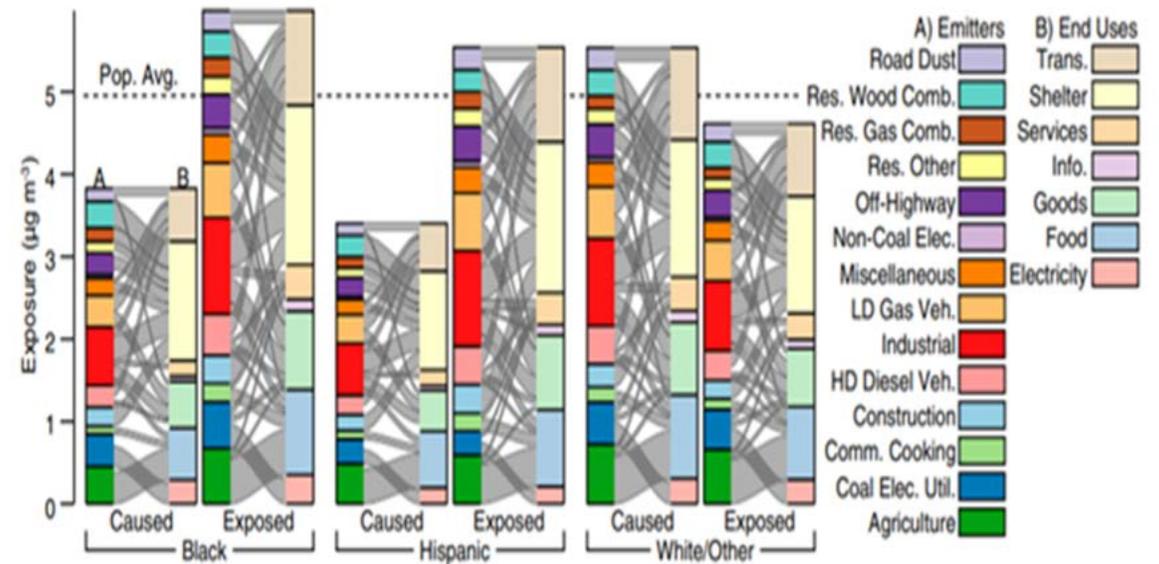
# Disproportionate Air Pollution Impacts: Empirical Studies

## Unequal exposure to airborne particulate matter components



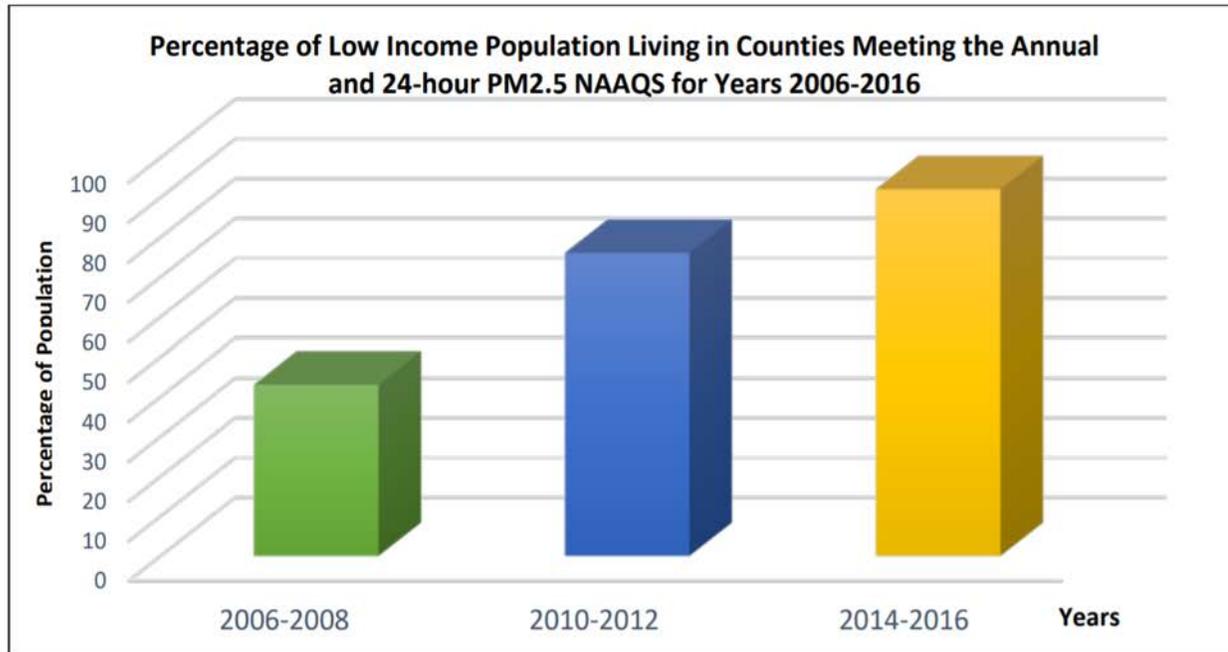
Bell and Ebisu 2012

## Inequity between exposure burden and consumption benefit



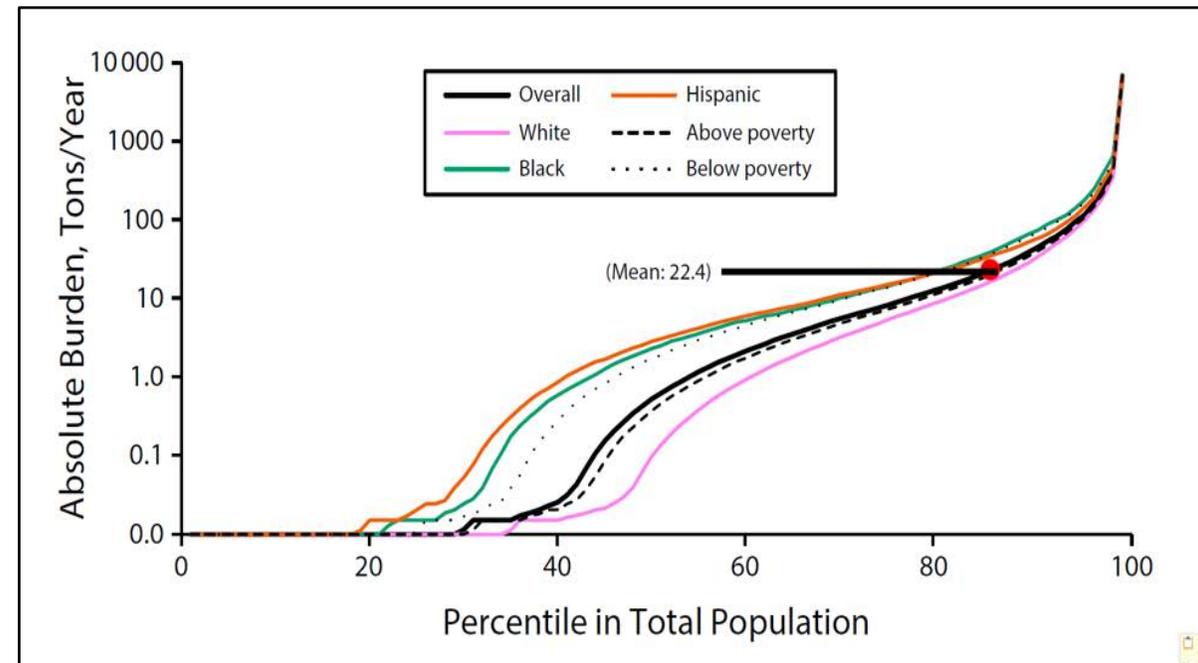
Tessum, et.al. 2019

# EJ and Air Pollution at EPA: Progress and Challenges



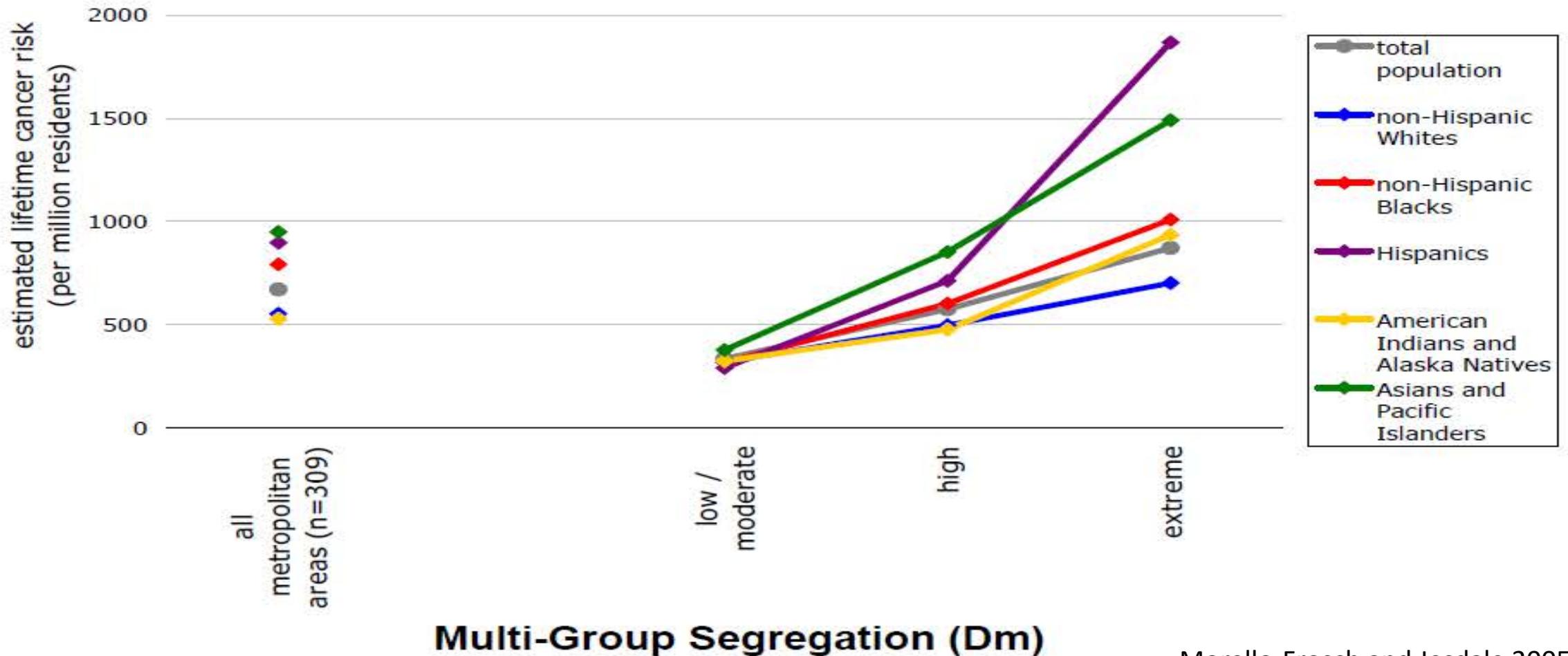
EJ Strategic Plan Environmental Outcomes Measure: PM<sub>2.5</sub> NAAQS (2017)

## ORD Study: PM Disparities from Stationary Sources (2018)

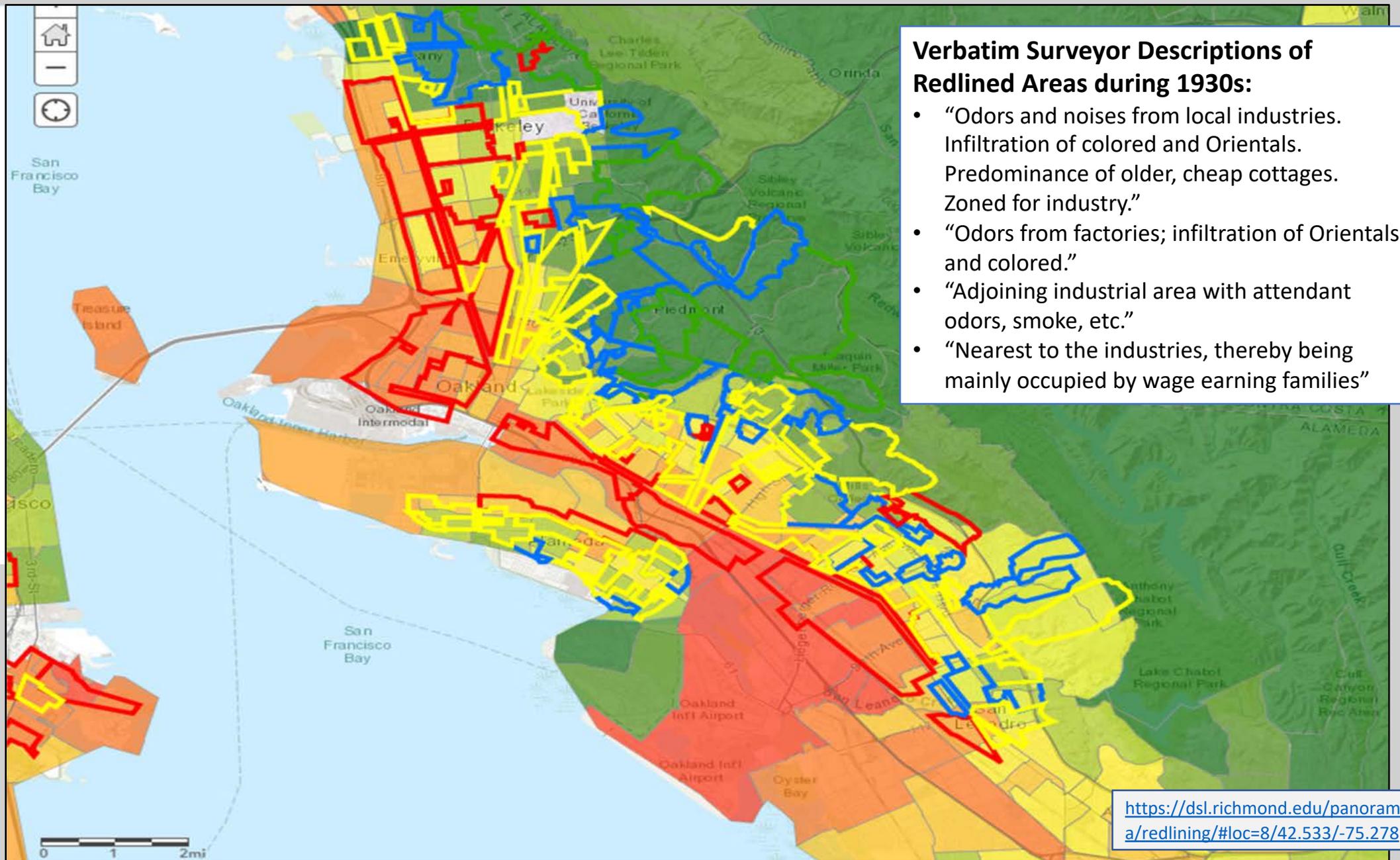


# Residential Segregation and Air Quality

Estimated cancer risk associated with ambient air toxics by race/ethnicity and racial/ethnic residential segregation, continental United States metropolitan areas



# Historical Legacy of EJ: Redlining and Structural Racism



**Verbatim Surveyor Descriptions of Redlined Areas during 1930s:**

- “Odors and noises from local industries. Infiltration of colored and Orientals. Predominance of older, cheap cottages. Zoned for industry.”
- “Odors from factories; infiltration of Orientals and colored.”
- “Adjoining industrial area with attendant odors, smoke, etc.”
- “Nearest to the industries, thereby being mainly occupied by wage earning families”

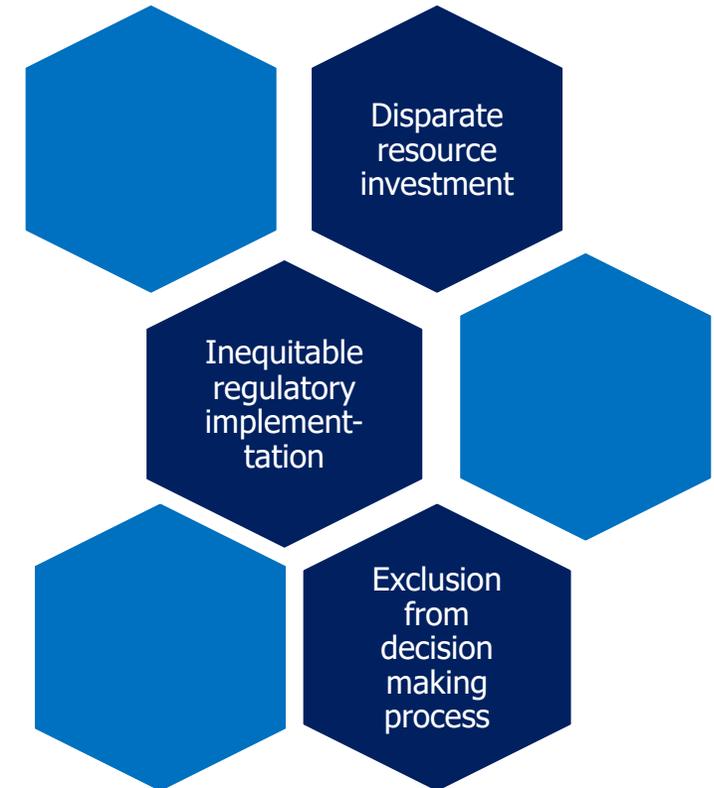
## Oakland, California

Source: Digital Scholarship Lab, University of Richmond and CalEnviroScreen

<https://dsl.richmond.edu/panorama/redlining/#loc=8/42.533/-75.278>

# Public Policies and Government Programs

- Exclusion from participation in decision-making
  - Identify examples from own experience
- Disparities in resource investments
  - Identify examples from own experience
- Inequities in development and implementation of regulations
  - Identify examples from own experience

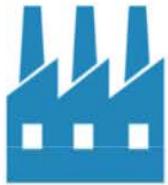


# Strategies and Methods: California's Community Air Protection Program (AB 617)

## AB 617 ELEMENTS • Focus on Community Action



Community emissions reduction programs



Accelerated retrofit of pollution controls on industrial facilities



Community-level air quality monitoring



Enhanced emissions reporting



Increased penalty provisions



Grants to local community groups



Source: California Air Resources Board

# Strategies and Methods: Owning Our Air – The West Oakland Community Action Plan

## KEY STRATEGIES



### Move polluting businesses & activities away from residents

Relocate California Waste Solutions and CASS, Inc. to the former Oakland Army Base.

Use incentives and subsidies to relocate businesses that do not conform with zoning designations.

Relocate truck yards and truck routes away from residences.

Enforce ordinances that restrict truck idling, truck parking, and truck routes.

Prohibit new truck yards and truck service, repair, and fueling businesses in residential areas in West Oakland.



### Move toward a zero-emission port

Transition to zero-emission drayage truck operations by 2035.

Amend statewide at-berth regulation requiring more ocean-going vessels to plug in.

Fund cleaner tugboat engines.



### Fund clean trucks

Offer more incentives to replace diesel trucks with cleaner engines or zero emission engines.



### Clean up industry

Increase frequency of compliance inspections.

Consult with the community to identify unpermitted sources of air pollution. Enhance the Air District's enforcement referral process and update complaint policy.

Consider amending existing regulations on metal recycling and foundry operations.



### Reduce car trips & road dust

Improve transit service.

Improve design and safety of local streets for pedestrian and bike trips.

Increase street sweeping along roads and highways to decrease exposure to road dust.



### Stop backyard burning

Develop community education and outreach materials addressing the impacts of open burning and backyard wood fires.



## OWNING OUR AIR

The West Oakland Community Action Plan – A Summary

October 2019

A joint project of the Bay Area Air Quality Management District and the West Oakland Environmental Indicators Project

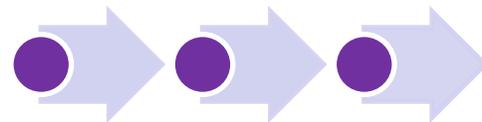


Sources: BAAQMD and Earthjustice

# Strategies and Methods: Three Paradigm Shifts

- Moving from large geographic to neighborhood scales
- Joint planning and power sharing
- Addressing structural racism and disproportionate impacts

<b>GOAL</b> To protect and improve community health by eliminating disparities in exposure to local air pollution.			
	<b>BASELINE</b> Baseline conditions in West Oakland in the year 2017.	<b>2025 TARGET</b> All neighborhoods experience West Oakland's <i>average</i> air quality.	<b>2030 TARGET</b> All neighborhoods experience West Oakland's <i>best</i> air quality.
Diesel PM	0.30 µg/m <sup>3</sup>	< 0.25 µg/m <sup>3</sup>	< 0.13 µg/m <sup>3</sup>
PM <sub>2.5</sub>	1.70 µg/m <sup>3</sup>	< 1.70 µg/m <sup>3</sup>	< 1.20 µg/m <sup>3</sup>
Cancer Risk	204 in a million	< 200 in a million	< 110 in a million



Source: BAAQMD

# Conclusions

- EJ is proving to be a powerful “lens” by which to understand current issues, such as Covid-19
- Not only does ample evidence regarding disproportionate impacts of air pollution exist, but it is growing
- Disproportionate air pollution impacts are demonstrably linked to structural racism
- Replicable strategies and methods to advance community air protection are emerging

