

East Oakland Community Emission Reduction Plan  
(CERP)

**Community Steering Committee Meeting #11**

*August 10, 2023*

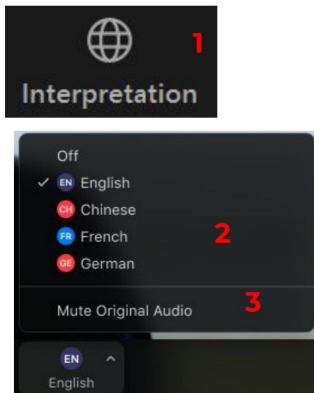


**BAY AREA AIR QUALITY  
MANAGEMENT DISTRICT**

COMMUNITIES  
FOR A BETTER  
ENVIRONMENT  
**established 1978**

# Interpretation Instructions

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## ZOOM - Select Language Channel

### ENGLISH

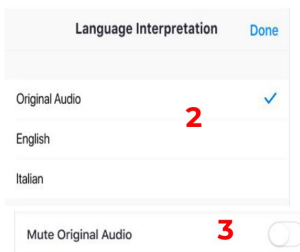


1. In your meeting/webinar controls, click Interpretation.
2. Select the language that you would like to hear: English.
3. Closed caption: please turn on if you need it.

### SPANISH

1. En los controles de la reunión o el seminario web, haga clic en Interpretación.
2. Haga clic en el idioma que desee escuchar: español (Spanish).
3. (Opcional) Para escuchar solo el idioma interpretado, haga clic en Silenciar audio original

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# Welcome

Co-Chair Mykela Patton

# Agenda

- **Meeting Objectives:** To familiarize the CSC members with emissions inventory from the Air District and public health data and engage members in gathering community information and data
- **Welcome, Interpretation, Agenda** (10 mins; 6:00-6:10 PM)
- **East Oakland Emissions Inventory** (35 mins, 6:10-6:45 PM)
- **Health Inequities in East Oakland by Alameda County Public Health Department (ACPHD)** (30 mins, 6:45 - 7:15 PM)
- **Break** (5 mins, 7:15 PM)
- **East Oakland Community Mapping Project and Community Organizing Grants Overview** (30 mins, 7:20 PM)
- **East Oakland Environmental Justice (EJ) Announcements and Updates** (10 min, 7:50 PM)
- **Next Steps, Evaluation and Close out** (8:00 PM)

## Initial Meeting Agreements or Notes for Participation

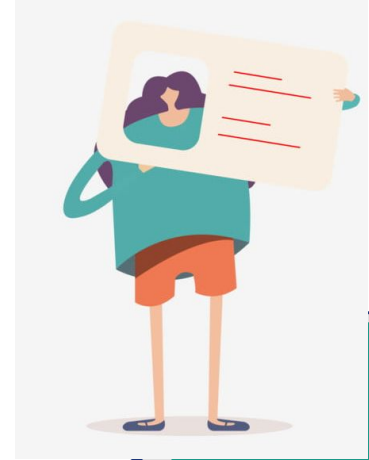
- One mic, one voice: use Raised Hand function under Reactions at the bottom of your screen
- Grace for ourselves and one another.
- Take care of yourself (Stretch, drink water and breathe)
- Community building on Zoom: use Chat and the Reaction emojis to inspire and encourage one another
- For any questions throughout the meeting: please use the Zoom Chat. CBE and BAAQMD staff will be responding to your questions.

# COMMUNITY BUILDING

Type into Chat:

- Name, Pronouns, affiliated organizations

CSC members, please raise hand if you are not able to type into chat and we will have you speak aloud.



# Timeline



# Draft Emissions Inventory for East Oakland

Steve Reid, BAAQMD



# Presentation Outline

We will address some key questions:

- What is an emissions inventory?
- What emissions sources are covered?
- What pollutants are covered?
- What limitations can an inventory have?
- What does the East Oakland inventory look like?



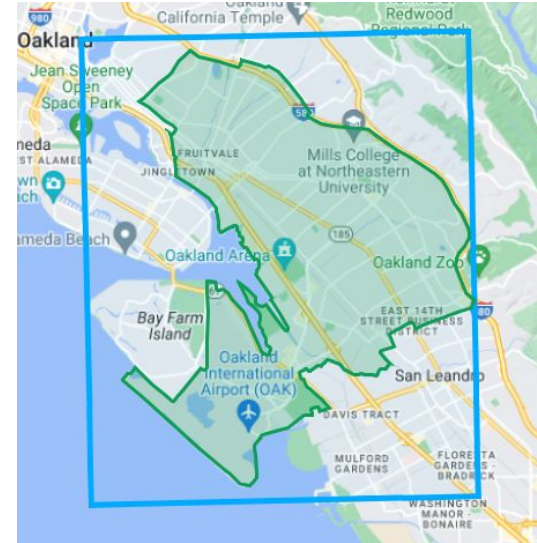
# What is an emissions inventory?

## Definition:

- An estimate of the amount of air pollution emitted by sources within a defined geographic region during a specified time period (e.g., one year)

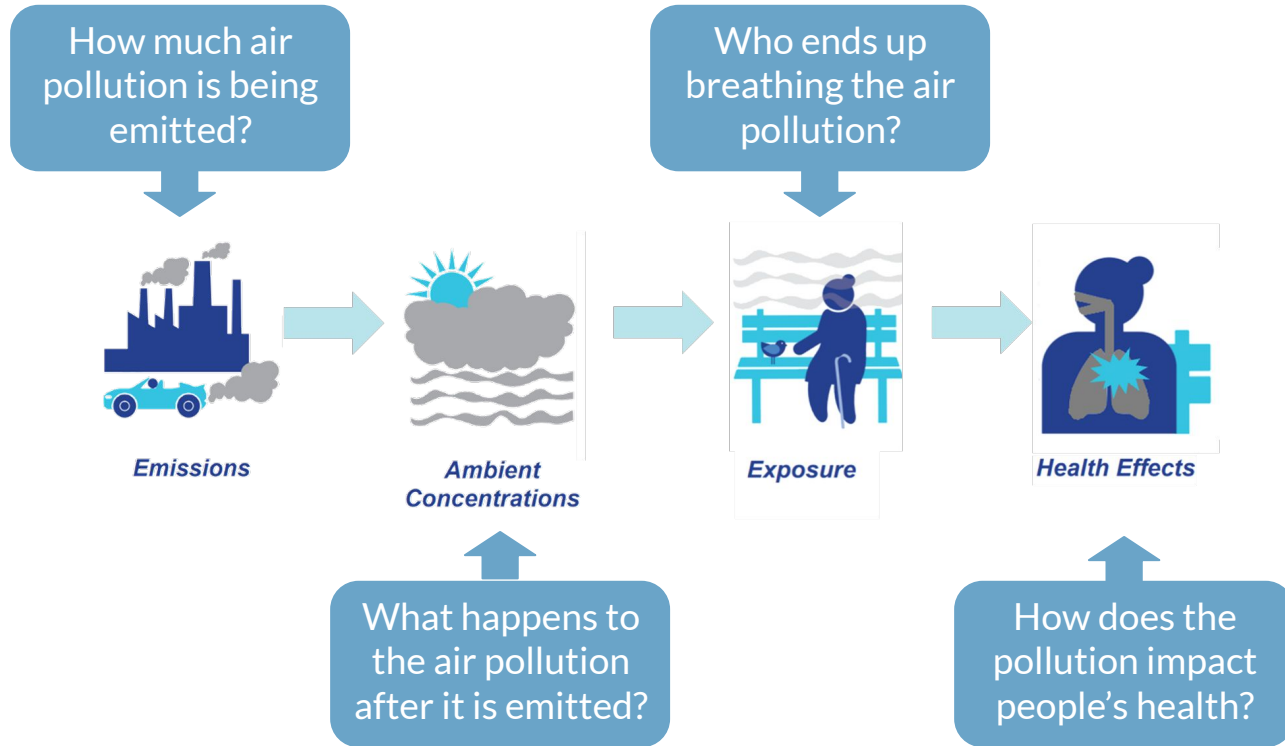
## Purposes:

- Provides critical information about pollution and sources that supports the development of CERP strategies and actions
- Sets a baseline for emissions reporting and tracking
- Can be used as input data for air quality modeling efforts that help us understand potential impacts of air pollution



*The blue rectangle defines the emissions boundary for the 2021 East Oakland inventory*

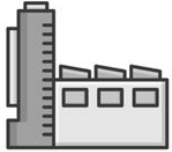
# What is an emissions inventory?



# What sources are covered?

## Stationary Sources

### Point Sources



Facilities with sources that have been issued a permit or registered by the Air District

### Area Sources



Small, dispersed sources such as fireplaces, water heaters, and consumer products

## Mobile Sources

### On-road Sources



Vehicles that travel on roadways, such as cars, trucks, and buses

### Off-road Sources



Vehicles and equipment such as trains, airplanes, ships, and bulldozers

# What pollutants are covered?

## Two air pollution “buckets”

### Criteria Air Pollutants (CAPs)

- Harm human health
- Regulated based on air quality standards that define clean air\*
- An important example is fine particulate matter (PM<sub>2.5</sub>)

### Toxic Air Contaminants (TACs)

- Can cause cancer, other serious health effects
- Have no “safe” exposure level (unlike CAPs)
- Examples include diesel particulate matter (DPM) and benzene

\*“Clean air” can be defined as the amount of a pollutant that can be present in outdoor air without harming public health

# What limitations can an inventory have?

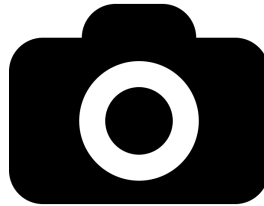
An emissions inventory offers a useful perspective on what may be important.

But keep in mind:

- Inventories usually focus on typical conditions, so events like accidental releases or fires may not be captured
- Some sources may be unknown or the inventory has yet to catch up
- Some estimates have higher uncertainty than we would like
- A source with relatively low emissions can have a large impact on local exposures due to its location, release characteristics, and prevailing winds
- Other kinds of information are needed: community experience, measurements, etc.

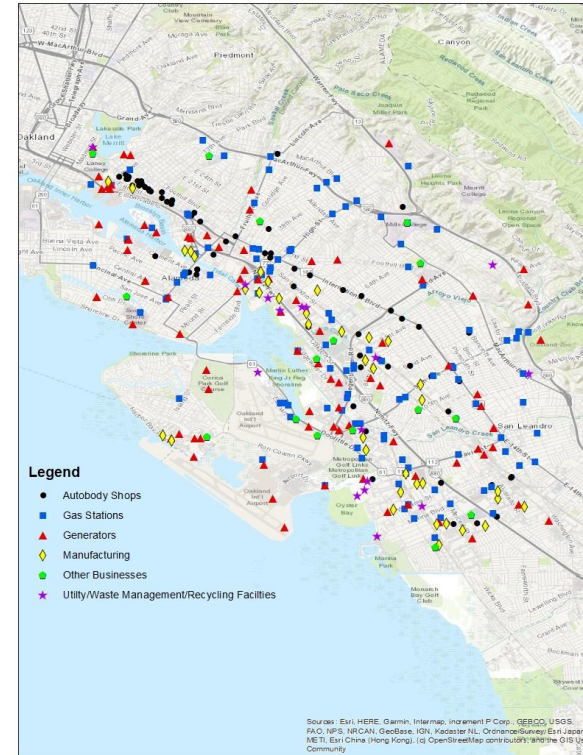
# What does the East Oakland inventory look like?

A snapshot view of key pollutants and sources



# Map of Permitted Facility Locations

- The East Oakland emissions inventory includes data for nearly 400 permitted facilities in East Oakland
- The Air District issues permits to these facilities and track compliance with permit requirements
- Common permitted source types include gas stations, auto body shops, and backup diesel generators

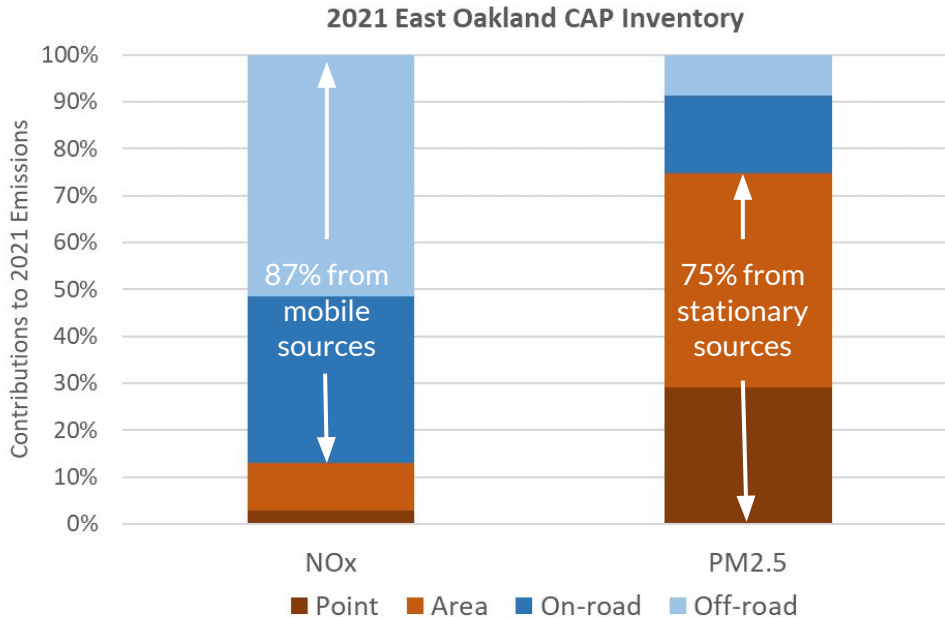




# Criteria Air Pollutant (CAP) Snapshot for East Oakland

## Nitrogen Oxides (NOx)

- Gases that form when fuel is burned at high temperatures
- Exposure to NO<sub>2</sub> (a type of NO<sub>x</sub>) can lead to asthma and other respiratory diseases



## PM2.5

- Fine particles can be emitted as dust, from fuel combustion, etc.
- Exposure can lead to premature death, heart disease, etc.

# A Closer Look at PM<sub>2.5</sub>

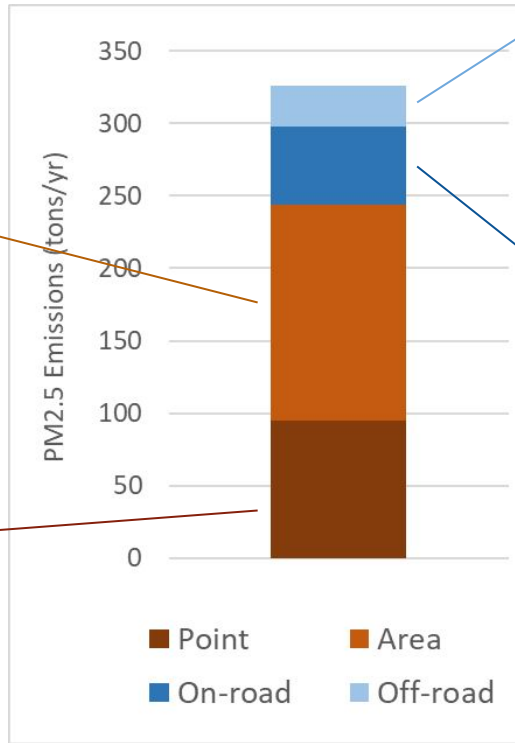
## Where is it coming from?

### Area Sources

	PM2.5 (tpy)
Residential Fuel Combustion	80.7
Construction Dust	19.1
Commercial Cooking	17.7
Metal Processes	15.1
Other	15.7

### Point Sources

	PM2.5 (tpy)
Davis St. Transfer Station	38.9
Gallagher & Burk, Inc.	21.3
Miller Milling Company	16.5
Peet's Coffee & Tea, Inc.	10.4
Other	8.0



### Off-road Sources

	PM2.5 (tpy)
Aircraft and GSE	9.7
Construction Equipment	5.1
Industrial & Commercial Equip.	2.3
Lawn & Garden Equipment	1.7
Other Off-road Equipment	9.5

### On-road Sources

	PM2.5 (tpy)
Paved Road Dust	32.1
Passenger Vehicles	12.4
Trucks	9.2
Buses	0.4

# Toxic Air Contaminant (TAC) Snapshot for East Oakland

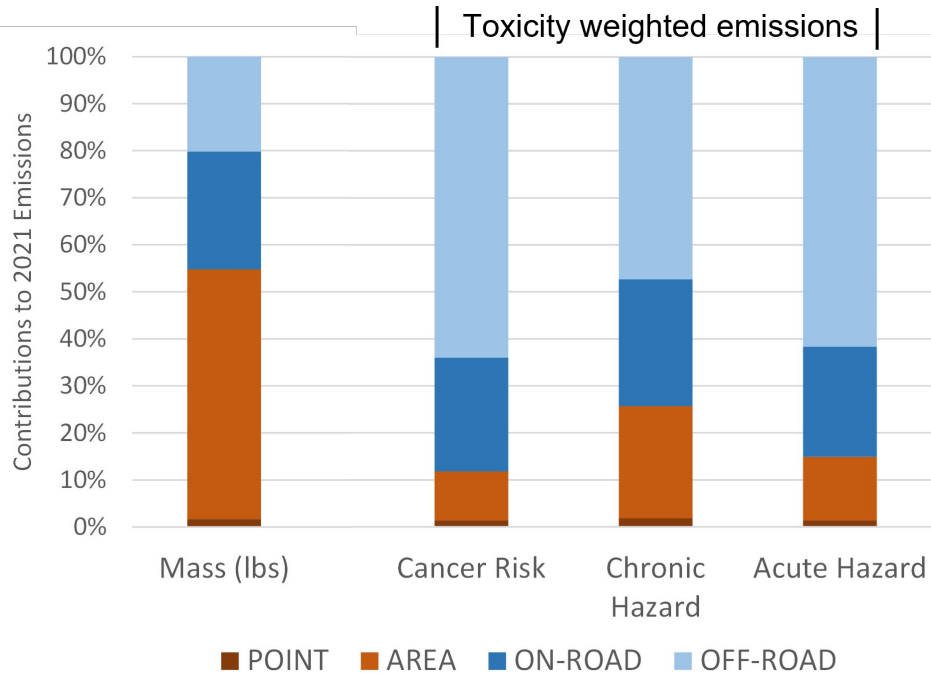
- The East Oakland inventory includes emissions estimates for **144 TACs**
- However, not all TACs are equally harmful to human health
- We can use “toxicity weighting” as a way of comparing emissions estimates for various TACs
- For example: Which is worse, 1 ton of benzene or 1 ton of DPM?\*

## Toxicity: What are potential health effects?

- **Cancer risk** - the likelihood that a person will develop cancer from lifetime exposure to a substance
- **Chronic Hazard** - represents the potential for developing non-cancer, chronic health effects such as asthma or reproductive issues due to lifetime exposure to a substance
- **Acute Hazard** - represents the potential for developing health effects such as eye or lung irritation due to short-term TAC exposure

\*From a cancer risk perspective, the DPM is 10x more toxic.

# Toxic Air Contaminant (TAC) Snapshot for East Oakland



- For TACs, stationary sources account for over half of emissions by mass
- However, TAC emissions from mobile sources are generally regarded as more toxic, per pound
- Point sources make a small overall contribution to the TAC inventory but may be important locally (*see limitations listed on Slide 9*)

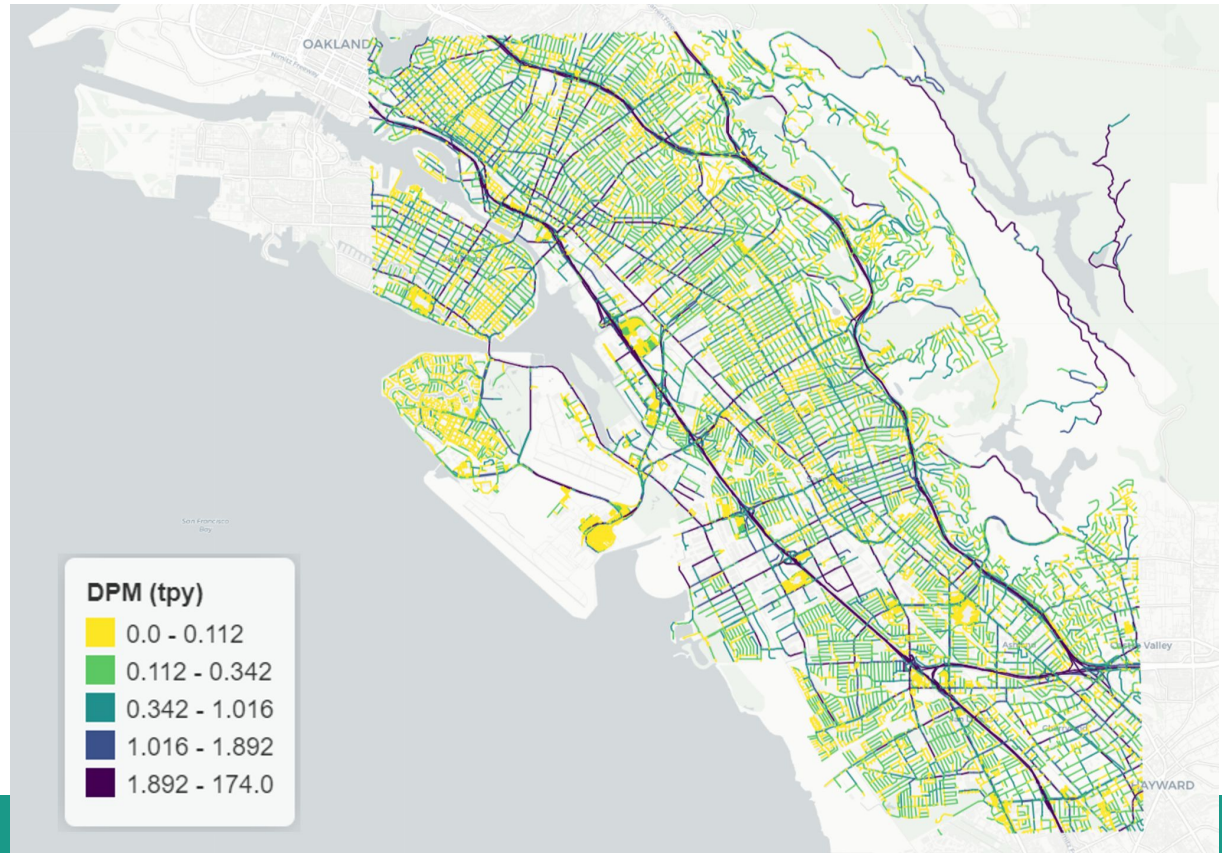
# Toxic Air Contaminant (TAC) Overview for East Oakland

- Recall that the East Oakland inventory includes emissions estimates for **144 TACs**
- However, **10** of those TACs account for at least **90%** of each type of toxicity-weighted emissions (TWE)
- Diesel particulate matter (DPM) alone accounts for **59%** of cancer TWE

Pollutant	Contribution to Total TWE		
	Cancer	Chronic	Acute
Diesel Particulate Matter	59%	6%	–
1,3-Butadiene	17%	8%	<1%
Benzene	12%	21%	28%
Cobalt	3%	–	–
Formaldehyde	3%	8%	19%
Styrene	1%	<1%	<1%
Nickel	<1%	11%	9%
Acrolein	–	21%	35%
Manganese	–	11%	–
Ammonia	–	3%	2%
Other	4%	9%	5%

# A Closer Look at On-road DPM

- Emissions estimated for each road segment
- DPM levels higher on freeways and major arterials (darker colors)



# A Closer Look at Chronic TWE (facility scale)

These 4 facilities account for 81% of chronic TWE from permitted sources in the study area

Facility	Key Sources	Key Pollutants
PCC Structural (metal fabrication)	Triplex gator saw, belt grinder	Nickel
Evergreen Cemetery	Human crematory retort	Mercury, hydrochloric acid
East Bay Crematory (a.k.a., SE Combined Services)	Human crematory retort	Mercury, hydrochloric acid
Peet's Coffee and Tea, Inc.	Coffee roaster, gas burner for coffee roaster	Formaldehyde, acetaldehyde

# Next Steps

- Provide opportunities to walk through the emissions inventory in more detail
- Update and improve the inventory as needed
- Perform air quality modeling and exposure assessment for selected sources
- Provide additional technical information to support strategy development





Questions?

# Health Inequities in East Oakland

Kimi Watkins-Tartt and Dr. Nicholas Moss  
Alameda County Public Health Department (ACPHD)



Alameda County  
Health Care Services Agency



Alameda County Public Health Department  
Celebrating Healthy People in Healthy Communities

# Air Pollution Risks & Exposure: Community Health Impacts in East Oakland

AUGUST 10, 2023

Kimi Watkins-Tartt

PUBLIC HEALTH DIRECTOR

Dr. Nicholas Moss

ALAMEDA COUNTY HEALTH OFFICER

# Agenda

Goals: Identify specific and cumulative health indicators as well as population characteristics that can make communities highly vulnerable to health impacts of air pollution; Discuss strategies to reduce health burdens and eliminate air quality disparities

- What is Public Health? Who We Are
- Pollution Burdens and Health Impacts in East Oakland
- Key Population Characteristics
- Health Equity: Considerations for Solutions
- Questions & Answers

# Public Health: Who We Are



Alameda County  
Health Care Services Agency



Alameda County Public Health Department  
Celebrating Healthy People in Healthy Communities

# ACPHD Vision

Everyone in Alameda County, no matter who you are, where you live, how much money you make, or the color of your skin, leads a healthy, fulfilling, and productive life.

# ACPHD Mission

To work in partnership with the community to ensure the optimal health and well-being of all people through a dynamic and responsive process respecting the diversity of the community and challenging us to provide for present and future generations.

# Pollution & Health

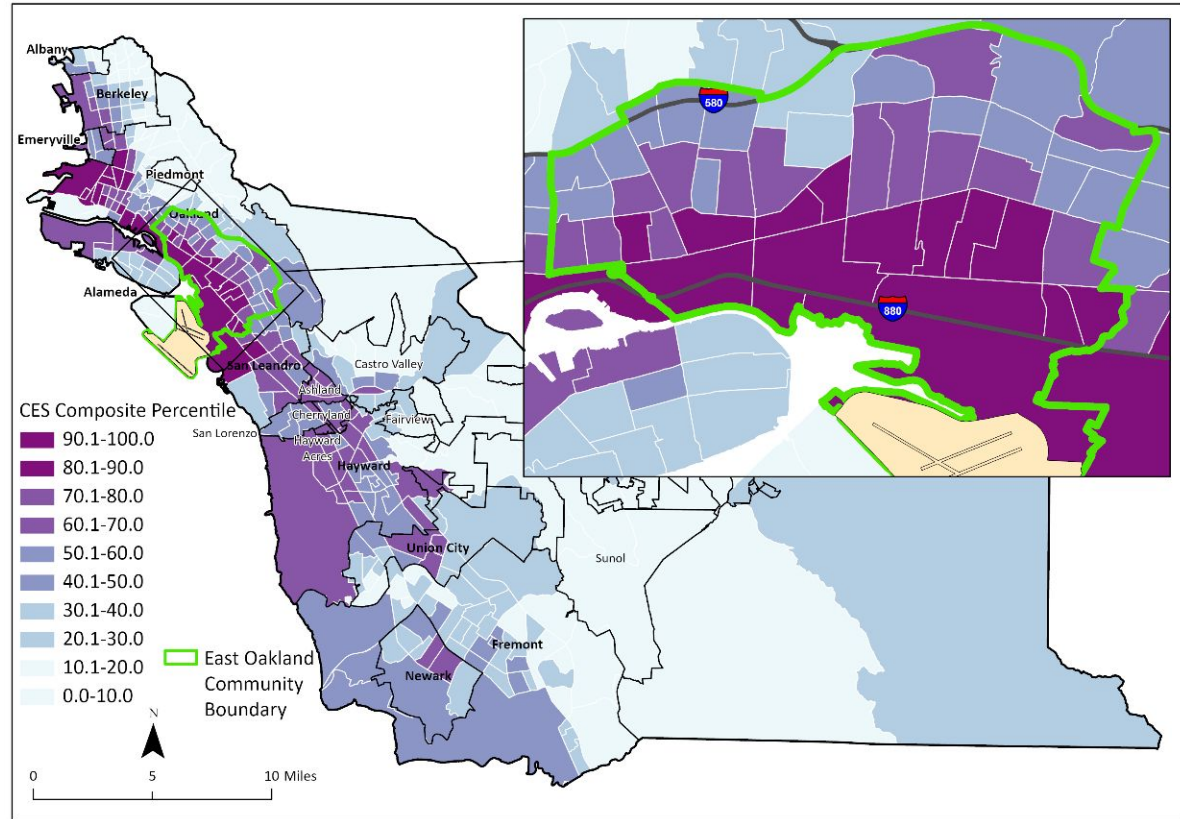


Alameda County  
Health Care Services Agency



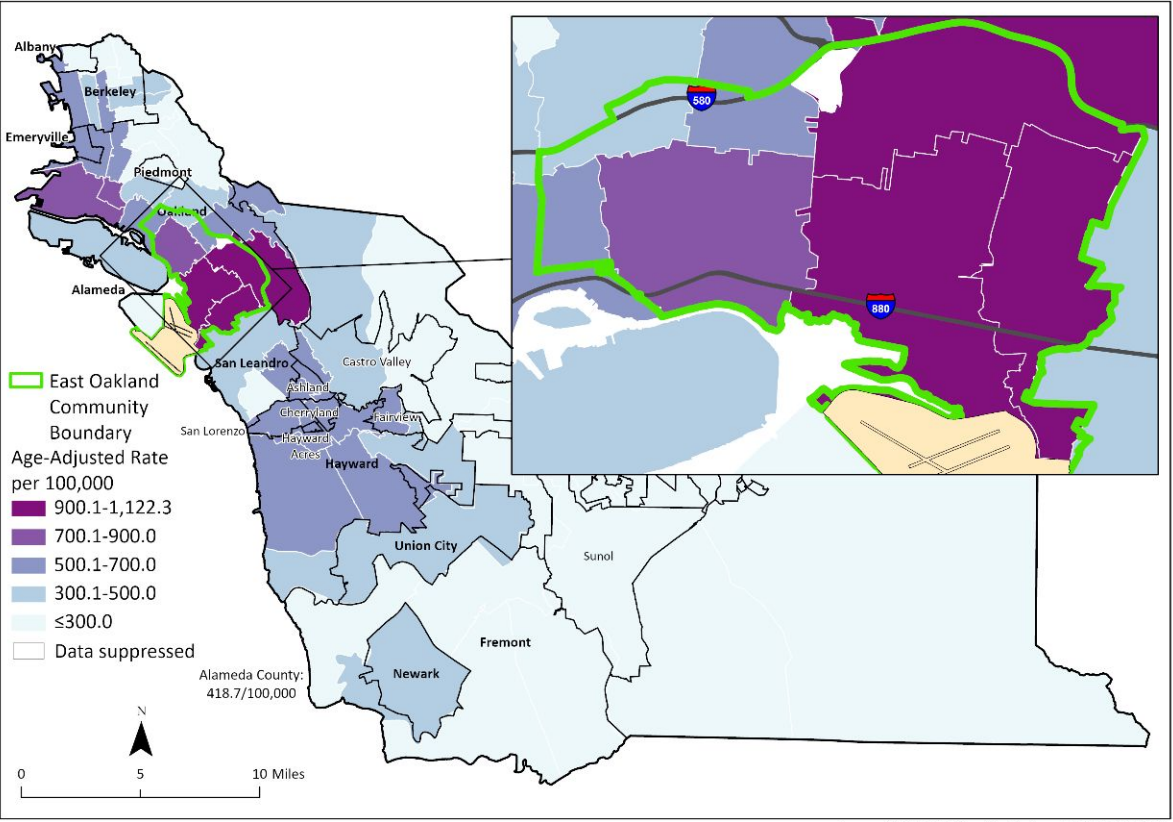
Alameda County Public Health Department  
Celebrating Healthy People in Healthy Communities

# CES Composite Indicator





# Asthma ED and Hospitalizations

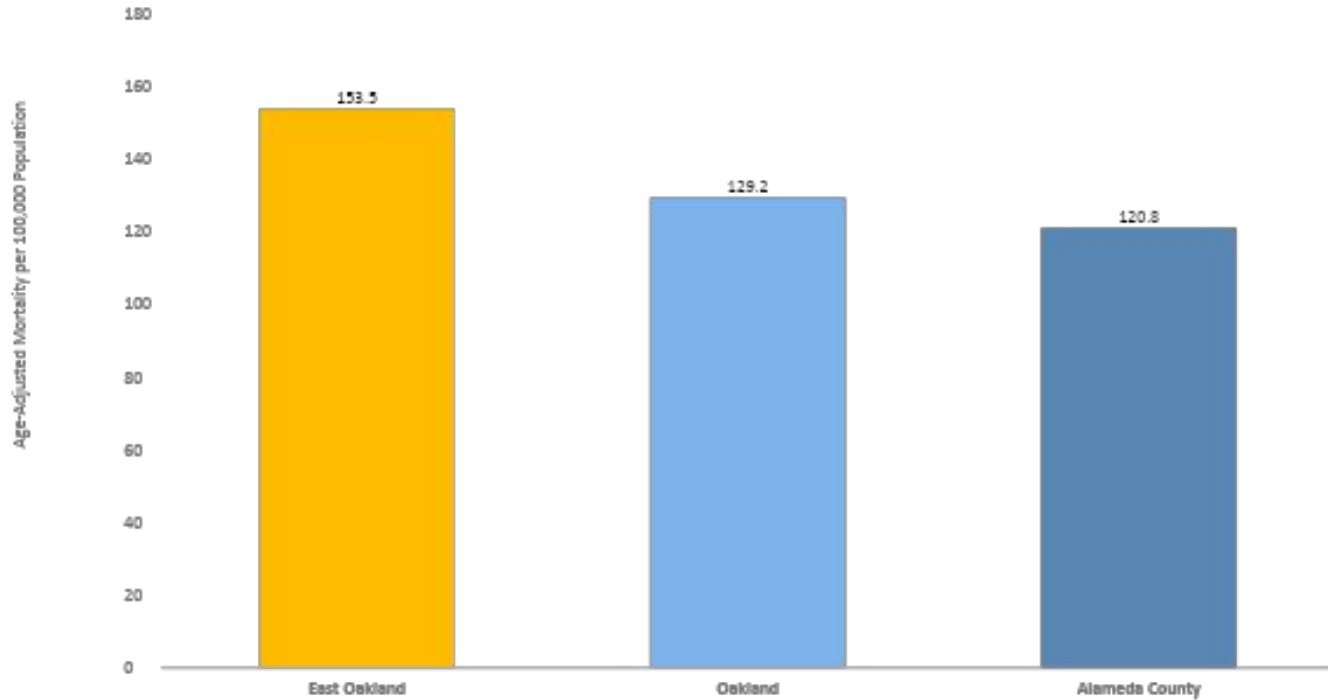


# East Oakland Leading Causes of Death

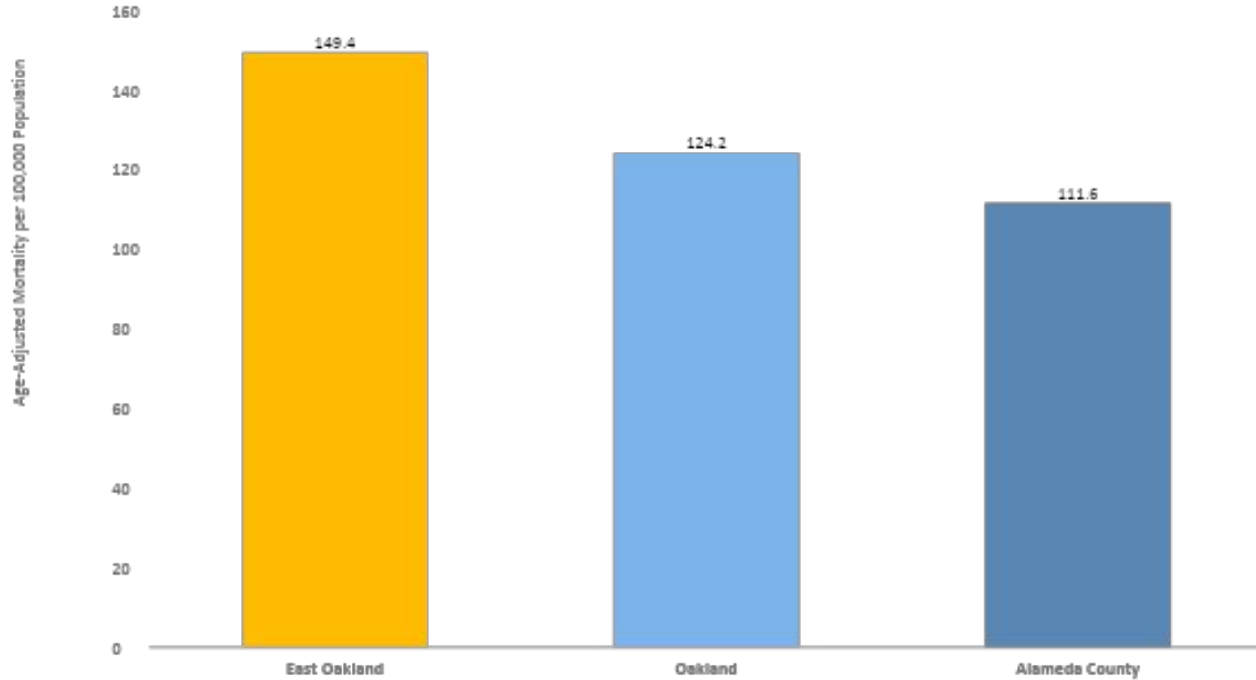
Rank	Causes	Death Count	Mortality Rate (Age-Adjusted per 100,000 Population)	% of Total Deaths
1	Cancer	254	153.5	17.3%
2	Heart disease	246	149.4	16.8%
3	COVID-19	126	78.2	8.6%
4	Stroke	103	65.0	7.0%
5	Homicide	68	35.3	4.6%
6	Diabetes	61	35.2	4.2%
7	Unintentional overdose	59	30.2	4.0%
8	Alzheimer's disease	52	35.5	3.5%
9	Chronic liver disease and cirrhosis	41	22.2	2.8%
10	CLRD	34	21.7	2.3%

Source: ACPHD CAPE, with data from Alameda County vital statistics files, 2021.

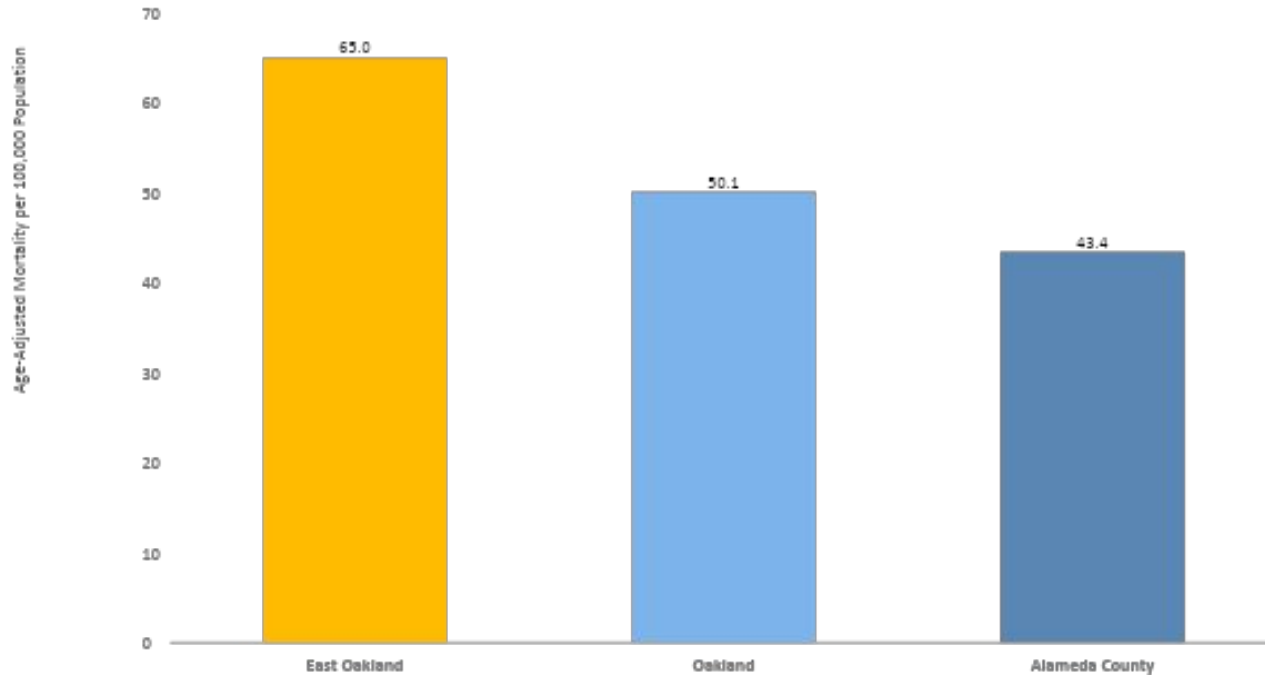
# Cancer Mortality Rate 2021



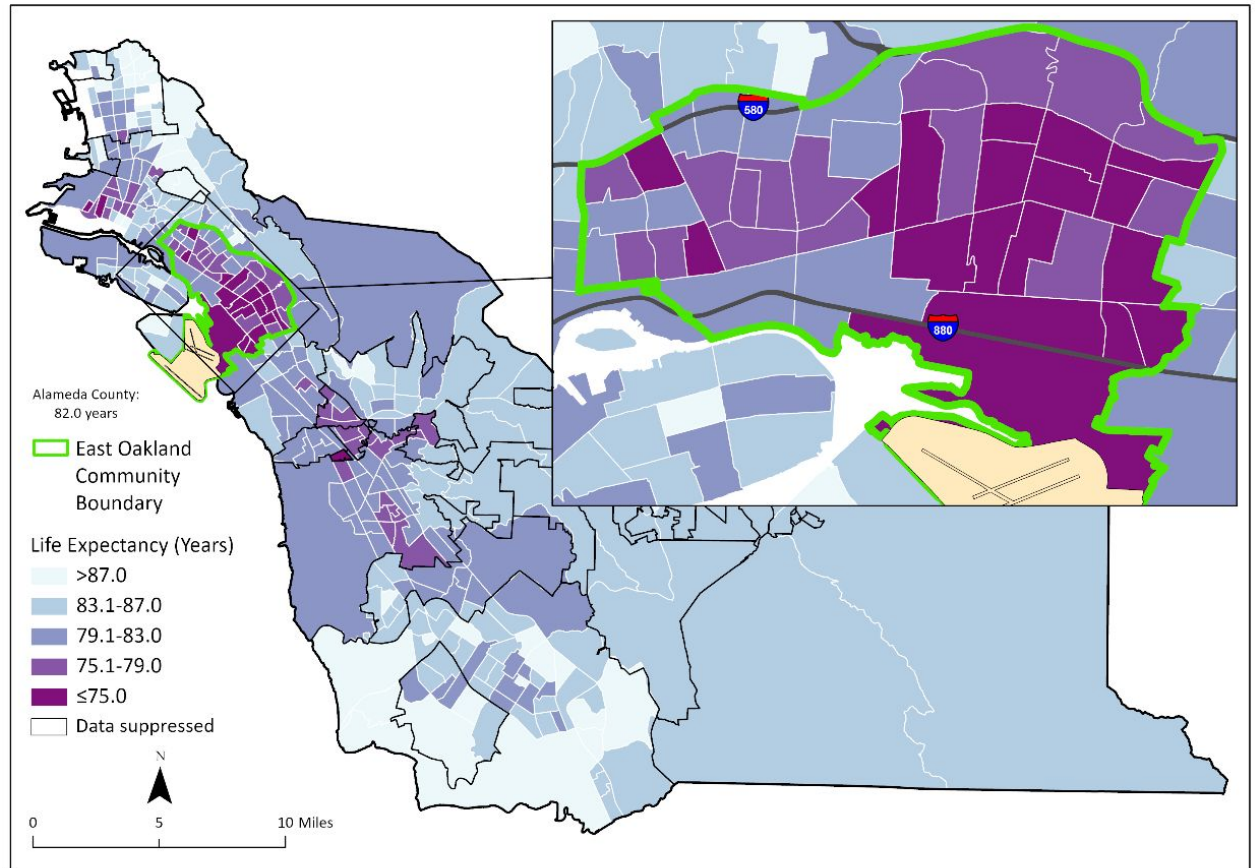
# Heart Disease Mortality Rate 2021



# Stroke Mortality Rate 2021



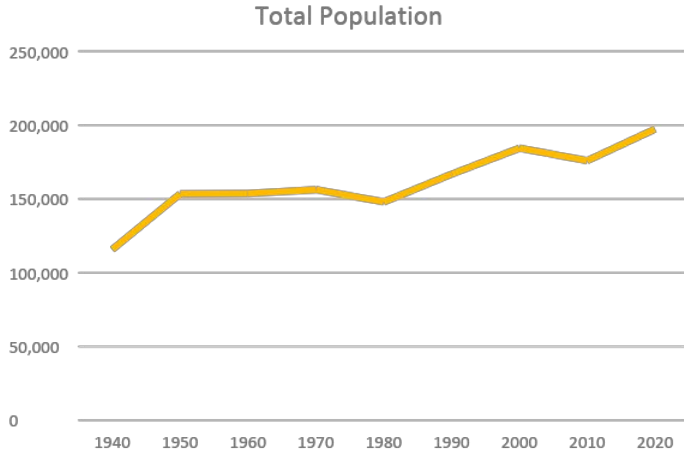
# Life Expectancy



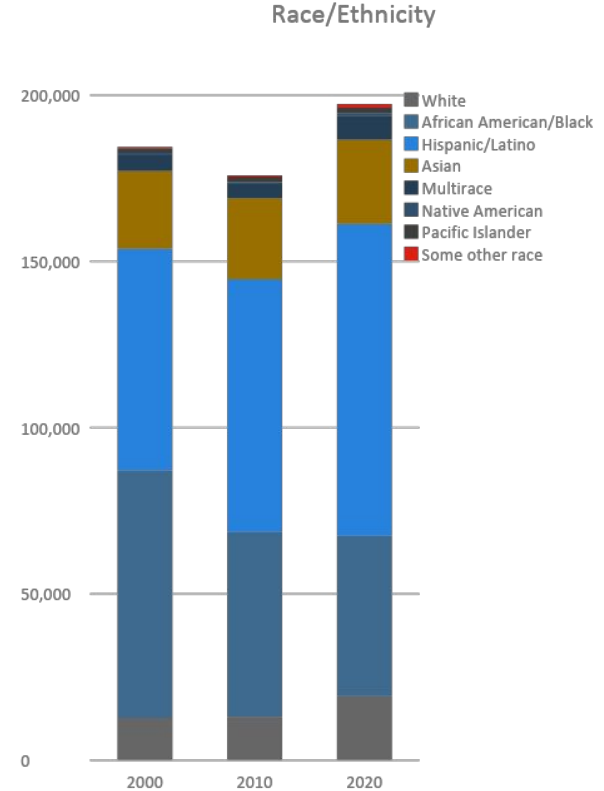
# Key Population Characteristics



# Demographics of East Oakland

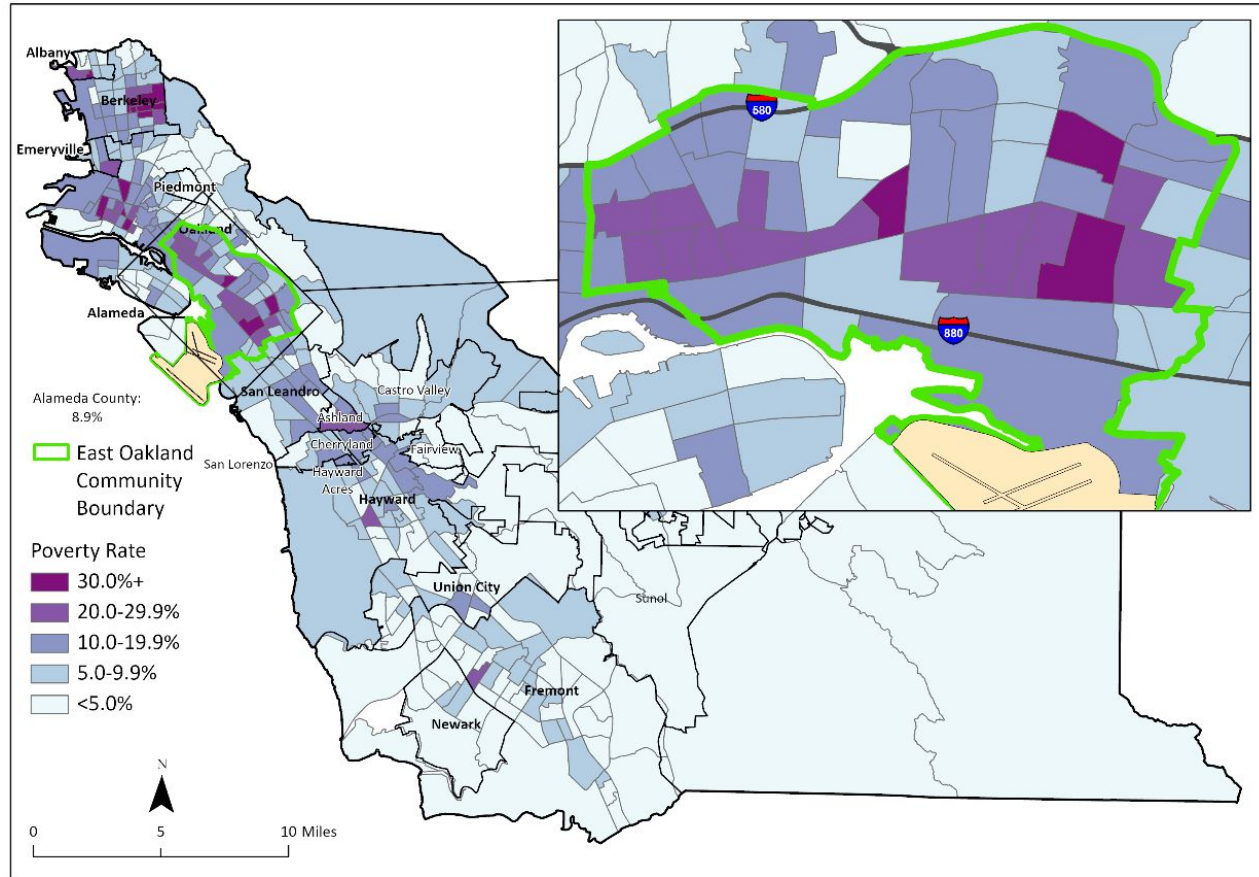


Overall, population in East Oakland has increased greatly since the 1940s when it was more industrial. Since 2000, there has been a decrease in the number of African Americans and an increase in Hispanic/Latinos.

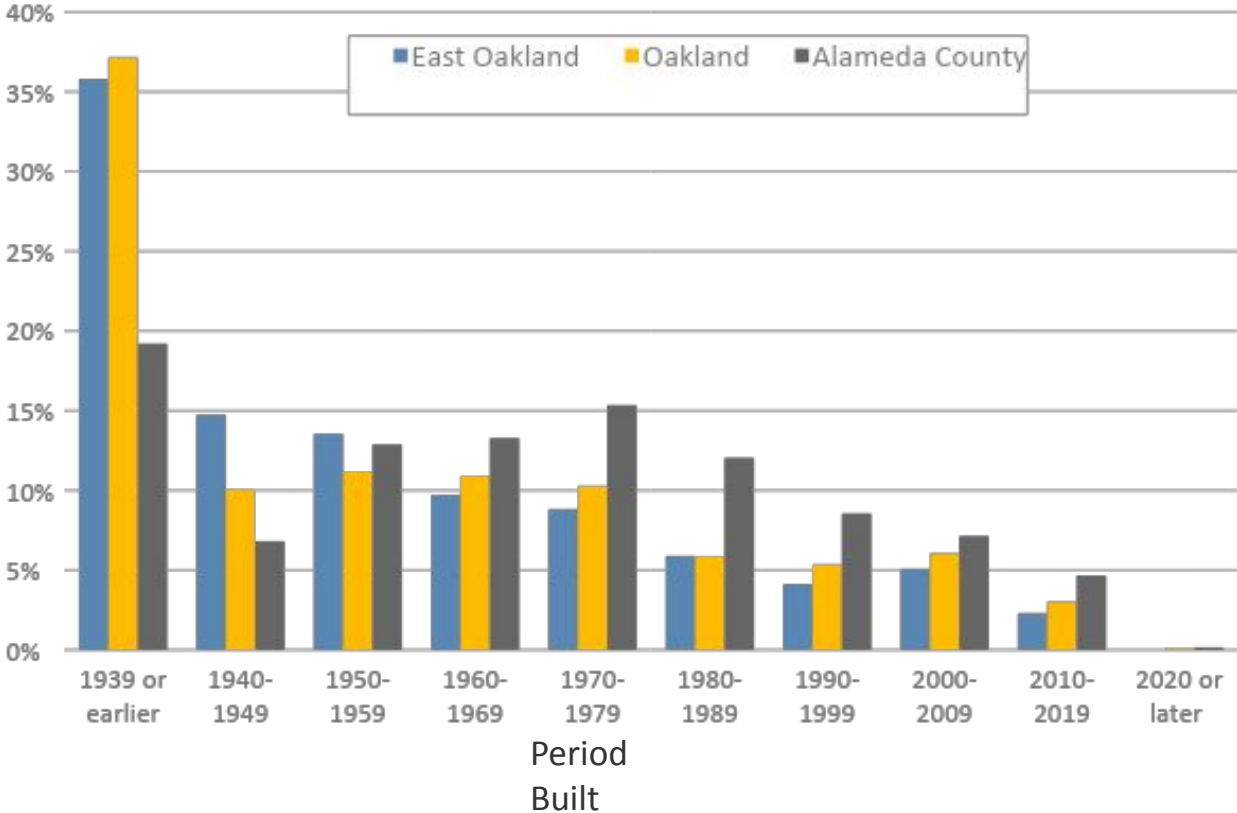




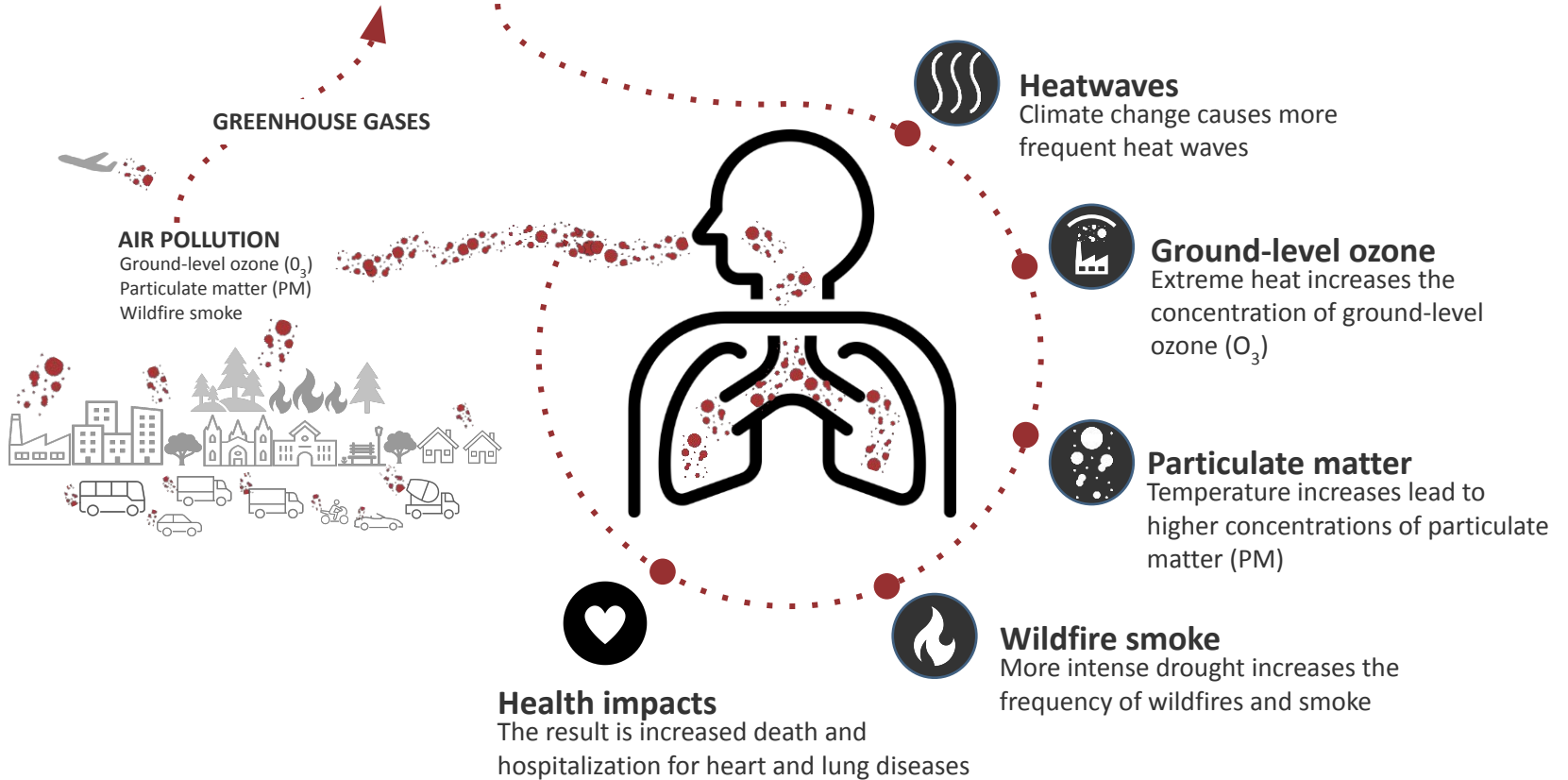
# Poverty



# Age of Housing Units



# We breathe **Climate Change**



# Health Equity: Considerations for Solutions



# County EJ and Climate Planning: Opportunities to leverage solutions

- **Prioritize Urban Greening:** invest in the maintenance, expansion, and protection of urban forests and green infrastructure
- **Require Buffer Zones:** apply air pollution exposure overlay zone around freeways and require new construction in these and other targeted areas of poor air quality to install enhanced ventilation systems and other proactive strategies to protect residents
- **Improve Access to Healthcare and Supportive Services** for Vulnerable Groups.
- **Protect the Soil and Water from Contamination:** Environmental Health oversight of investigation and cleanup of hazardous materials
- **Making Homes More Resilient:** Expand participation in programs such as the Low-Income Weatherization Program, Renew Alameda County, and East Bay Energy Watch that provide funding and resources for low-income households

*Thank you*



# East Oakland Community Mapping Project and Community Organizing Grants Overview

Aneesh Rana, BAAQMD  
Karissa White, BAAQMD

# Outline of Presentation

- Purpose and Overview of the East Oakland Community Mapping Project
- Demo of the East Oakland Community Mapping Tool
- Overview and Timeline of the Community Organizing Grants
- Q&A

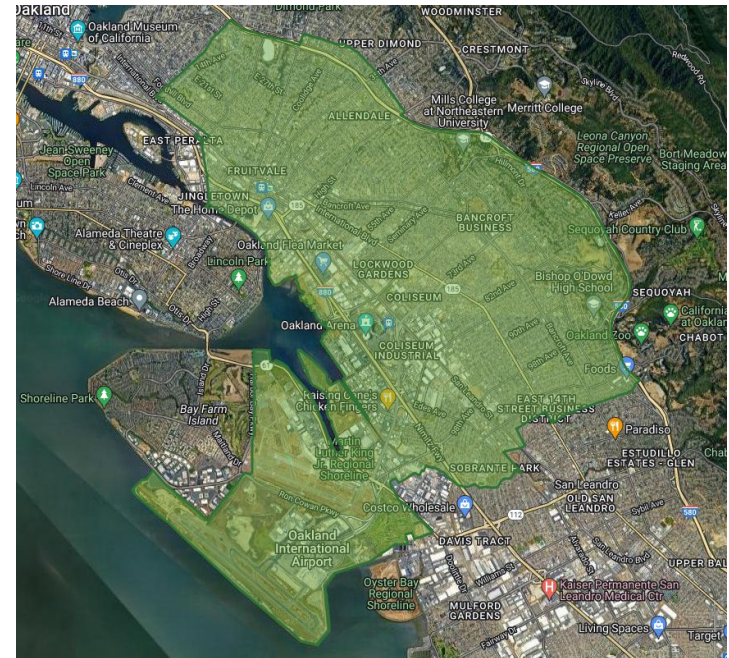


# Purpose

- To support the Development of the Strategies for Community Emissions Reduction Plan (CERP)
- Engage the broader East Oakland community in the CERP development process, by gathering community's knowledge and lived experiences for the Community Map

# Overview

- It's an interactive online mapping platform to gather community input.
  - <https://rspcerp.mysocialpinpoint.com/east-oak/community-map#/>
- Link to the Quick Start Guide for instructions on how to use the mapping tool:
  - <https://rspcerp.mysocialpinpoint.com/east-oak/quick-start-guide>



# What information are we collecting?



## Air Pollution Concerns

Air pollution from buildings, industry, trains, trucks, ships, etc. at this location.



## Locations Where People Gather

Places where people gather – especially seniors, young people, or community members with increased health risks.

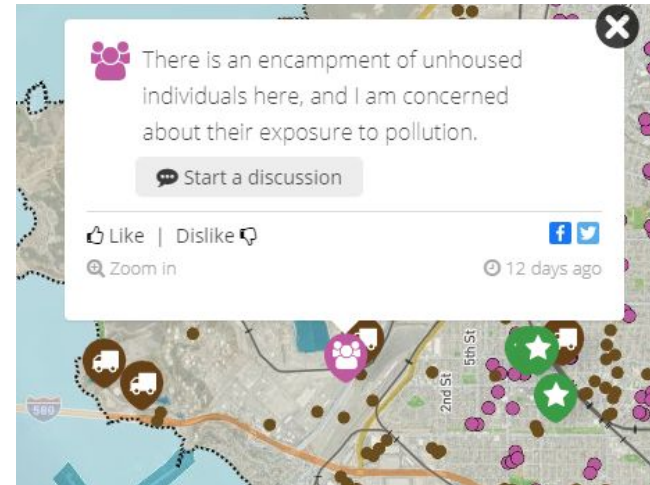


## Community Strengths and Resources

Locations which represent the creativity, culture, history, heritage, and strength of the local community.

# What will we do with this information?

- Identify community concerns
- Identify susceptible populations
- Learn more about communities we serve



# Demo and Mobile Snapshots

Link to Social Pinpoint East Oakland Community Mapping Tool:

<https://rspcerp.mysocialpinpoint.com/east-oak/community-map#/>

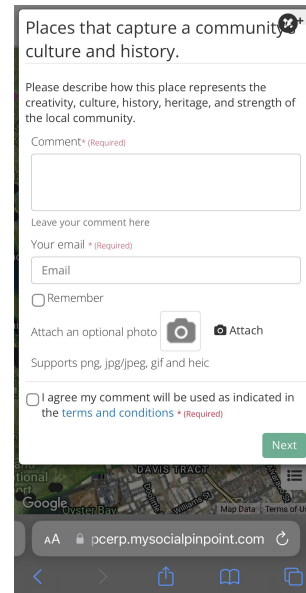
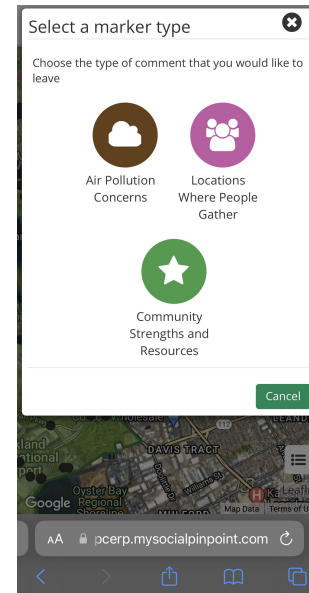
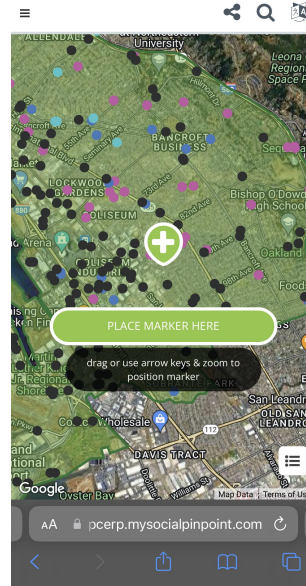
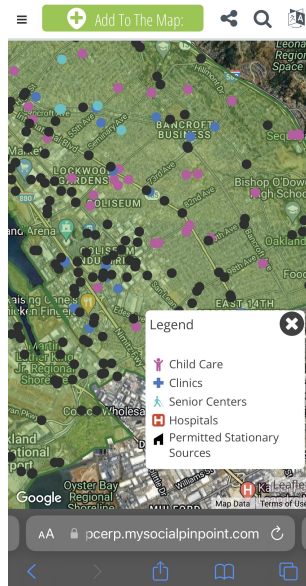


## East Oakland Air Pollution and Community Asset Mapping

Your thoughts, concerns, and ideas will inform the development of a community-led air quality plan for East Oakland. This plan will reduce air pollution and protect your family's and your community's health.

To share your story :

1. Click on the green "+ Add To Map" button at the top.
2. Select a marker type that aligns with your thought, idea or concern.
3. Drag and zoom the map to put the marker at the appropriate location.
4. Click "Place Marker Here" to add your story.



# Questions and Answers

## **Pause for Questions**

- We have 10 minutes for discussion/questions.
- Please use the raised hands zoom feature or put your question in the Chat Box and we will answer questions in the order we receive them.

# Overview of the Community Organizing Grants

- The Air District is offering grants up to \$7,500 to non-profit organizations. There is \$30,000 total that will be awarded.
- September through mid-October.
- Grants are focused on outreach to vulnerable and/or underrepresented communities within the project area to use and add “pins” and information to the East Oakland Community Map
- <https://www.baaqmd.gov/community-health/community-health-protection-program/east-oakland-community-emissions-reduction-plan/air-pollution-and-community-asset-mapping-project>

# Timeline

- **July 31:** Application period opened
- **August 9:** Informational webinar for interested applicants held. Recording available.
- **August 24, 5:00 pm PST:** Deadline to apply
- **August 31:** Applicants will be notified about selection
- **September 14 – October 19:** Projects will occur
- **November 9:** CSC will receive a presentation on the project findings



# Questions and Next Steps

- We have 5 minutes for discussion/questions. Please use the raised hands zoom feature and we will answer questions in the order we receive them.
- Please continue to add pins and information to the Community Map
- For more information, contact Aneesh Rana at [arana@baaqmd.gov](mailto:arana@baaqmd.gov)

# East Oakland Environmental Justice Announcements and Updates

Co-Chairs: Aiyahna Johnson, Charles Reed, Mykela Patton

# Feedback on Meeting & Next Steps

Fill out the post-meeting survey:

- English: <https://forms.gle/B2SYLBNg6aUorF5u6>
- Spanish: <https://forms.gle/Du8m9thM85jyCy7p7>

Fill out the In-person/ Hybrid Meeting Accessibility Poll

- English: <https://forms.gle/3q6EVTVMXkxA62R8>
- Spanish: <https://forms.gle/2VFfpxino9XzfZeU9>

Next Meeting will be held **Thursday, September 14th, 2023**

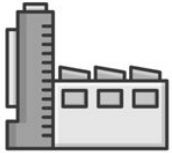
**Thank You!**

See You Soon!!



# Appendix

# What datasets and methods are used to build the emissions inventory?



## Point Sources

- At each facility, emissions are estimated annually at the process/device level and submitted to the Air District
- Emissions estimates are based on a variety of data, including samples of pollution collected from a stack or vent



## Area Sources

- Emissions are estimated at the county level by the Air District or CARB, usually based on activity data (e.g., gallons of fuel burned)
- County-level emissions are allocated to communities using representative data (e.g., population density)

# What datasets and methods are used to build the emissions inventory?



## On-road Mobile Sources

- Emissions are estimated by combining data from CARB's Emission FACtor (EMFAC) model with Bentley's Streetlytics traffic data
- Annualized emissions estimates are prepared for each individual link (or road segment)
- Emissions are categorized by mode (e.g., running exhaust, brake wear, road dust), vehicle type, and road type

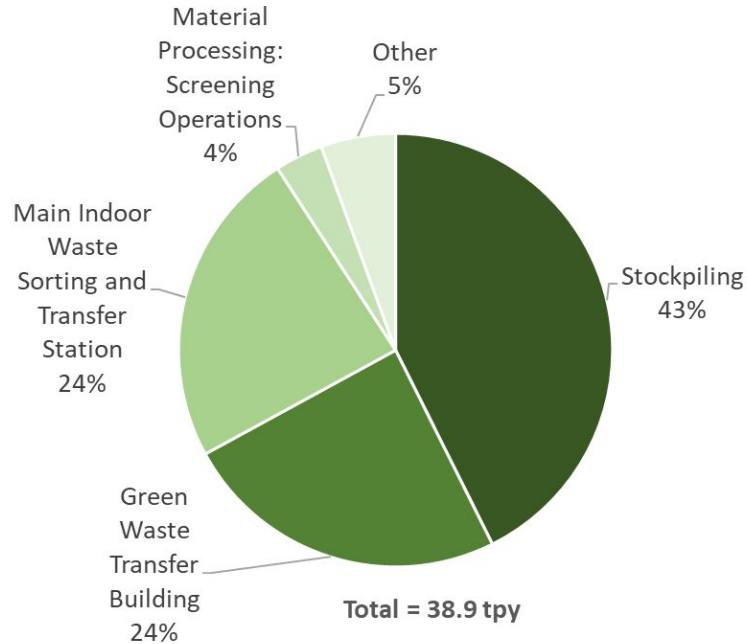


## Off-road Mobile Sources

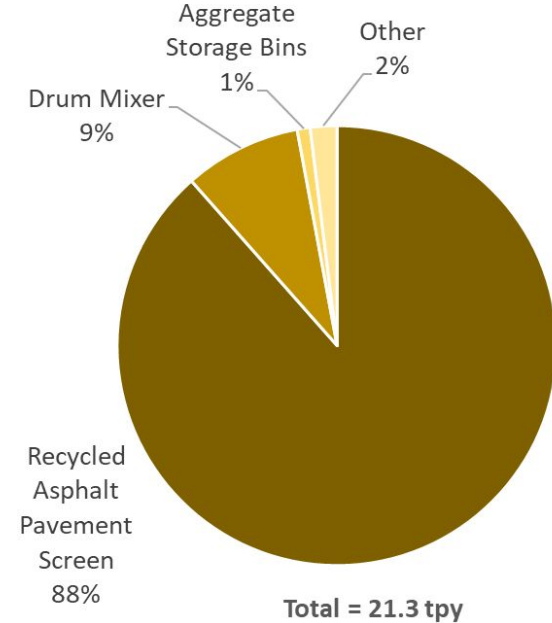
- Emissions are generally estimated by CARB using their OFFROAD model
- Airport-related emissions are estimated using the Federal Aviation Administration's (FAA) Aviation Environmental Design Tool (AEDT)

# A Closer Look at PM<sub>2.5</sub> (facility scale)

## Davis St. Transfer Station



## Gallagher & Burk, Inc.



Assessing emissions at the process level can help identify appropriate control strategies.



# Health & Public Health

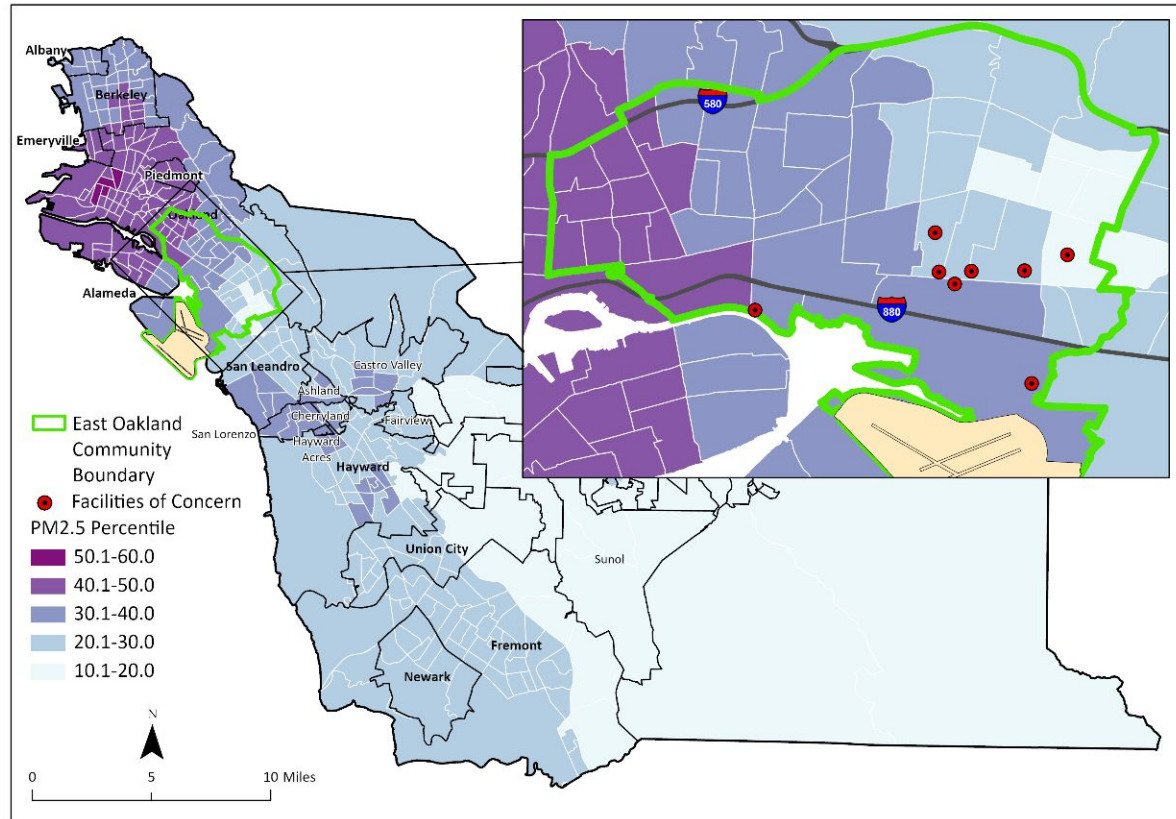
WHO defines health as “a state of physical, emotional, mental and social well-being; it is not merely the absence of disease, dysfunction or infirmity.”

AND

Public health is “the science and art of preventing disease, prolonging life, and promoting health through the organized efforts and informed choices of society, and organizations, public and private communities, and individuals.”

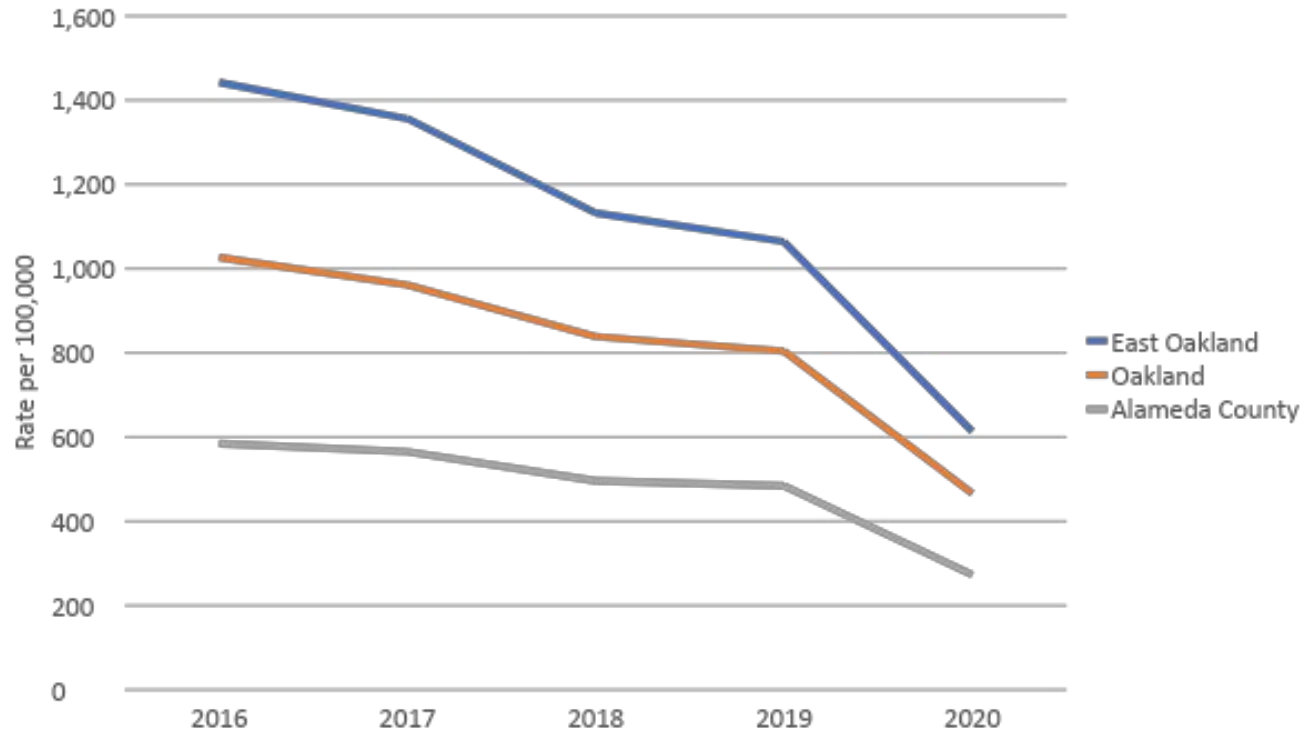
- CEA Winslow

# CES PM2.5

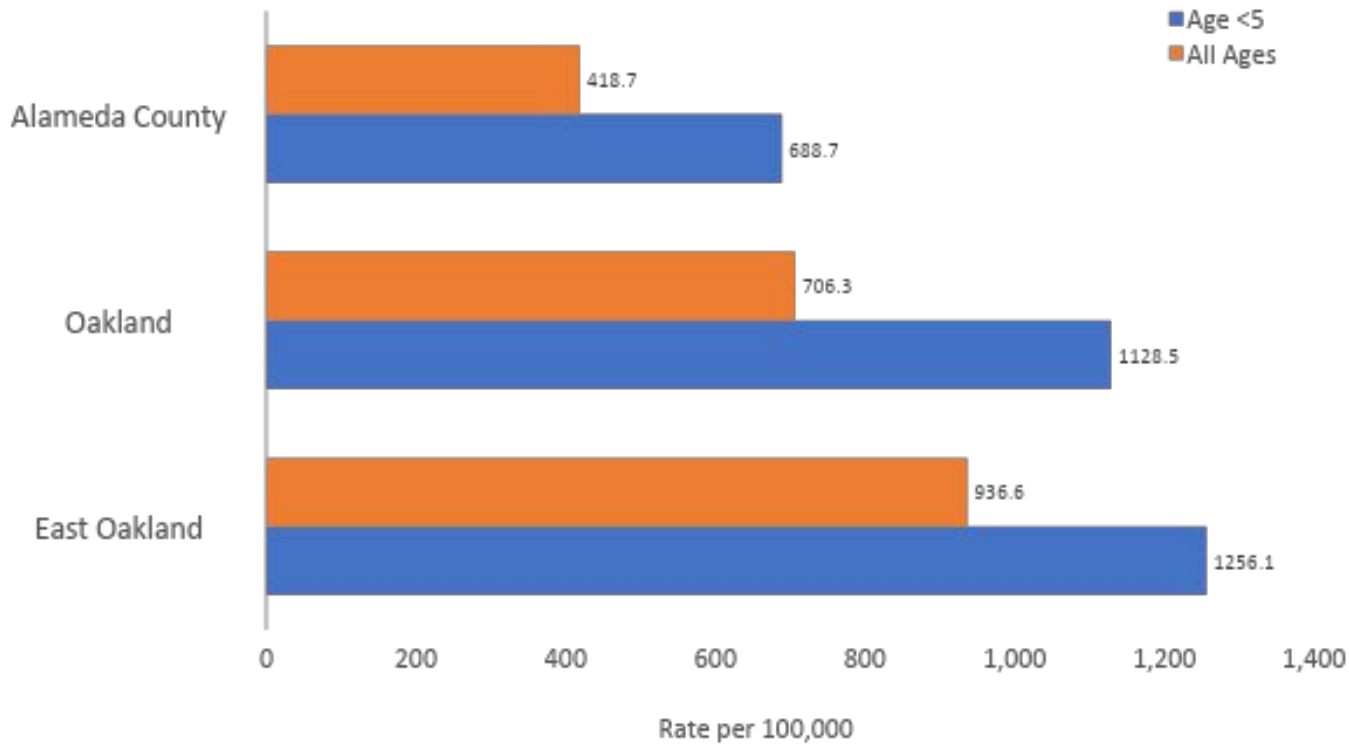


Source: ACPHD CAPE, with data from CES 4.0.

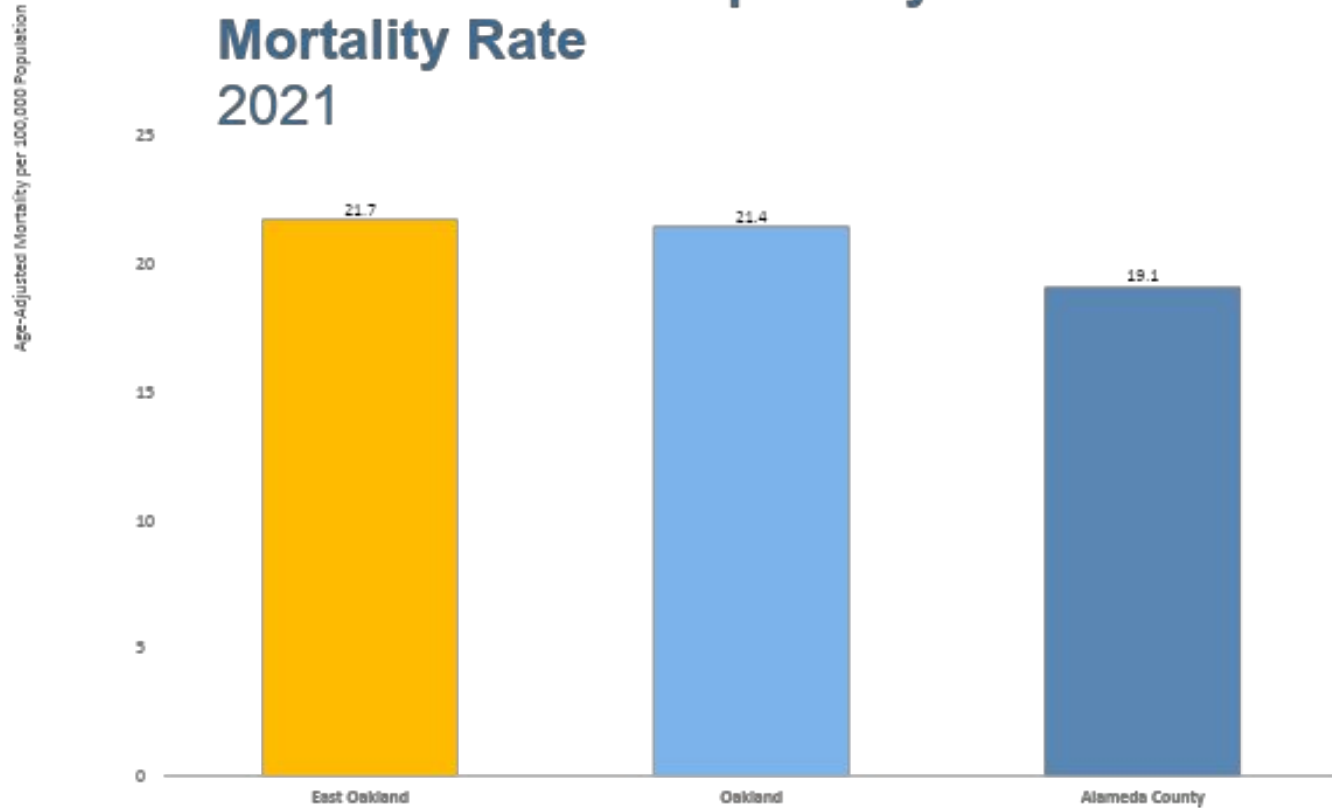
# Asthma Emergency Department visit and Hospitalization Rates, 2016-2020



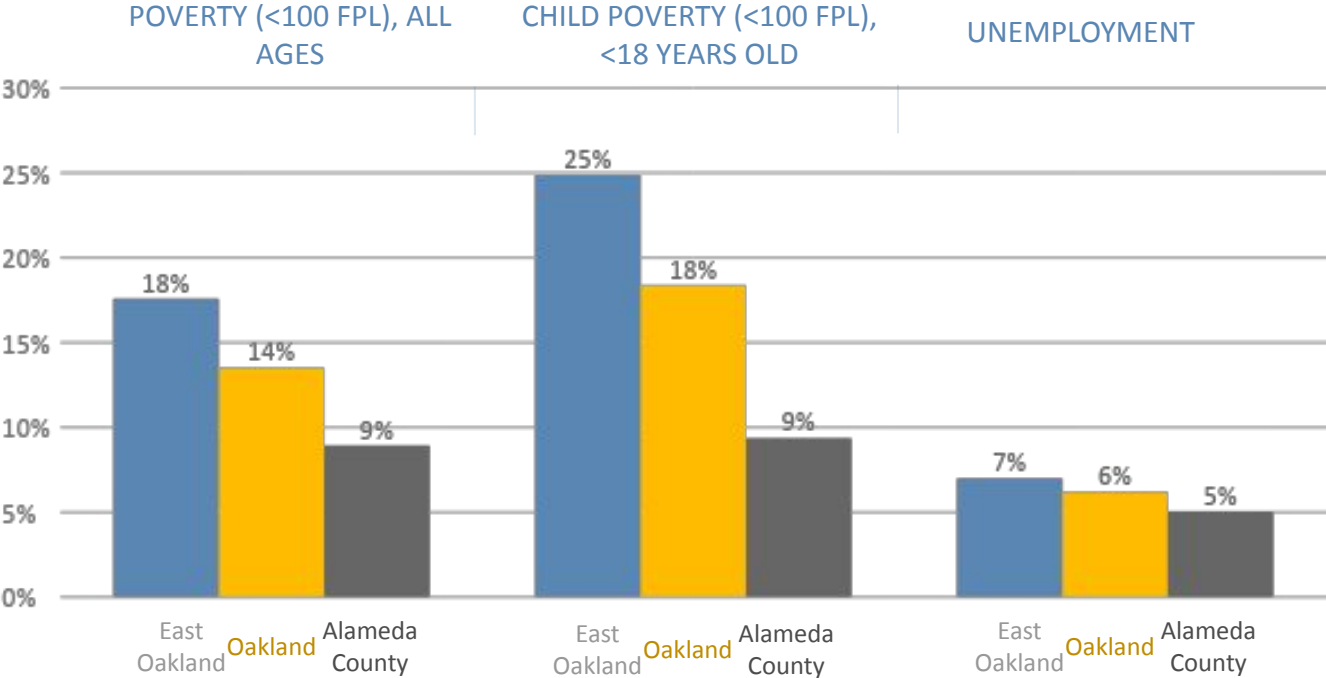
# Asthma Emergency Department and Hospitalization Rates Young Children and All Ages, 2018-2020



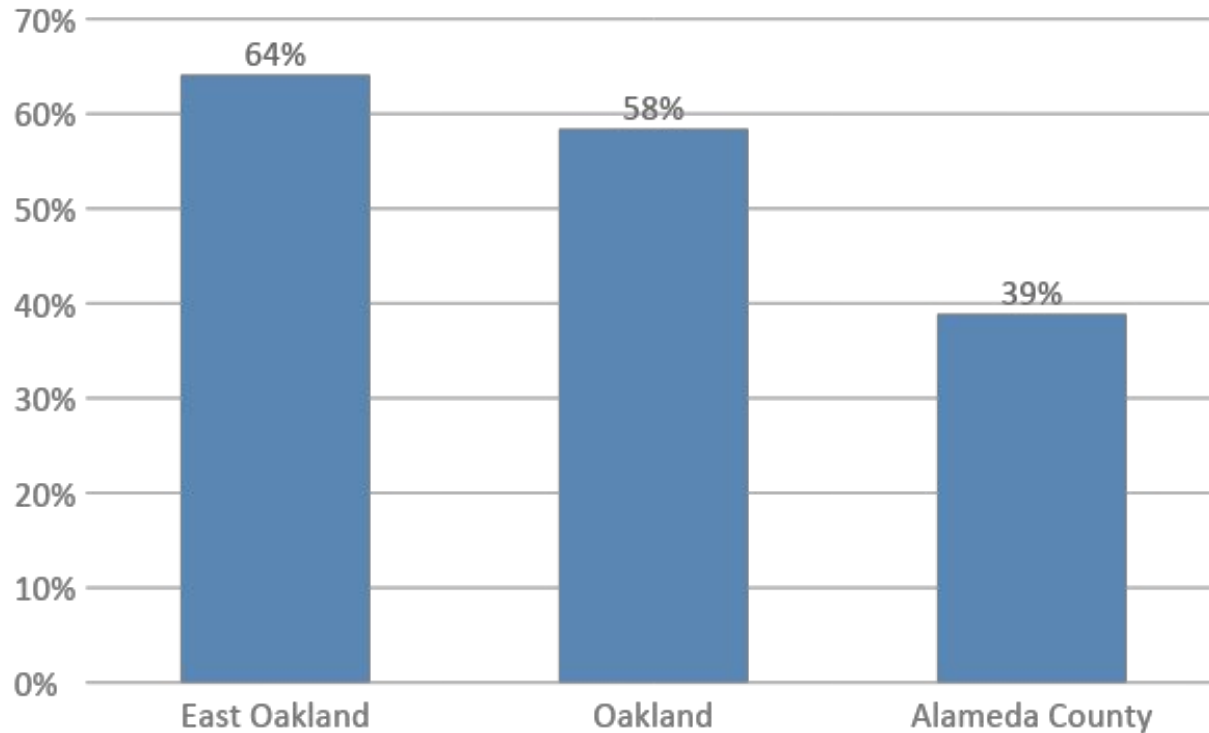
# Chronic Lower Respiratory Disease Mortality Rate 2021



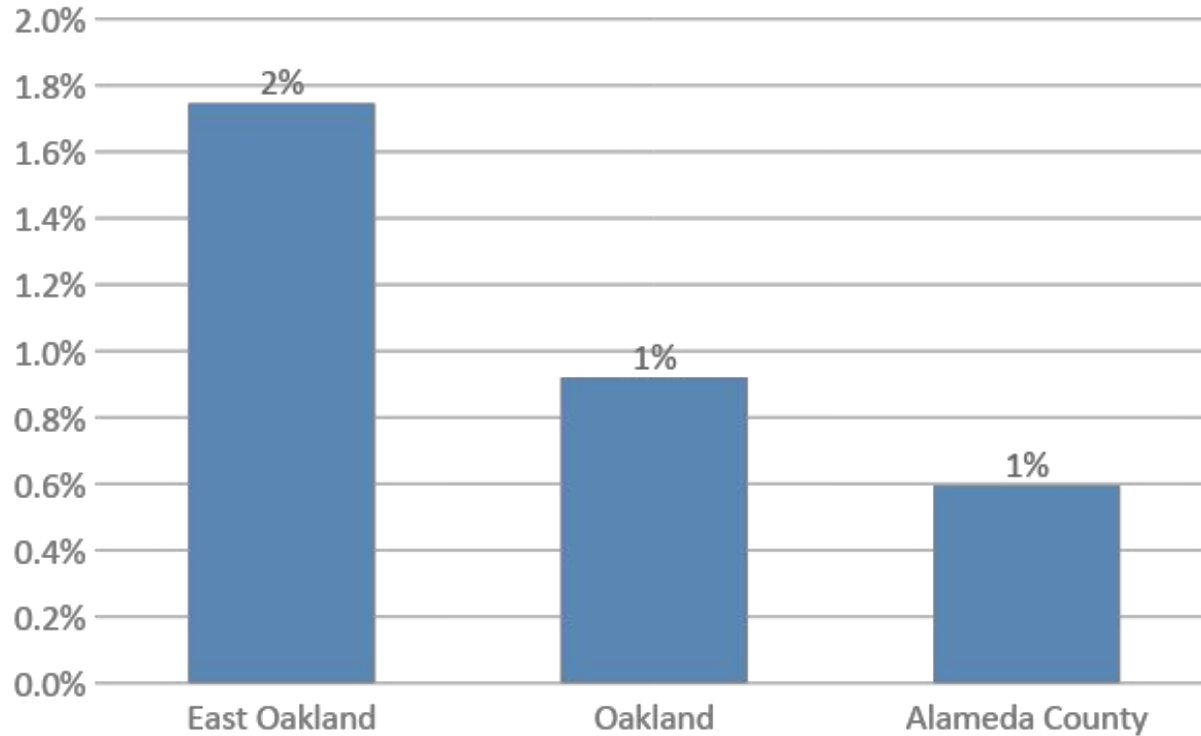
# Disinvestment in high-poverty areas is the main barrier to health



# Housing Units Built Before 1960

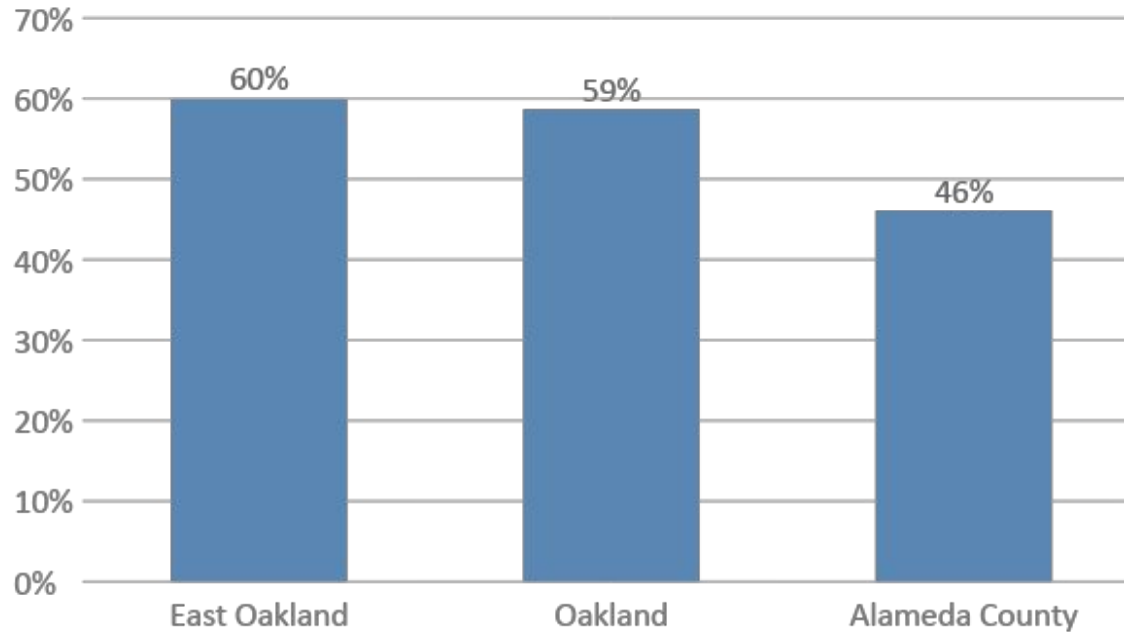


# Households with Two or More Occupants per Room





# Renter-Occupied Housing



# AB 617 provides opportunities to reduce air pollution emissions and maximize health co-benefits in communities like East Oakland

