

# Community Particulate Matter Discussion

February 27, 2020

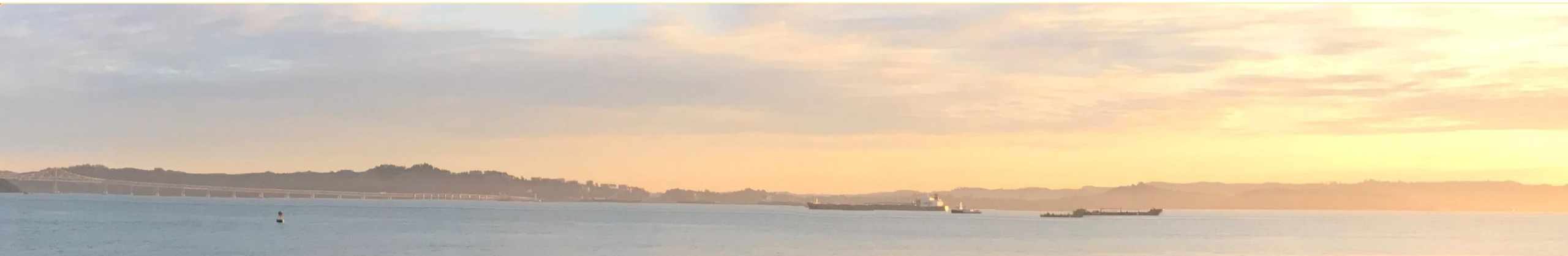
# PM Summit Timeline





BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT

# Major Sources of Fine Particulate Matter in the Bay Area



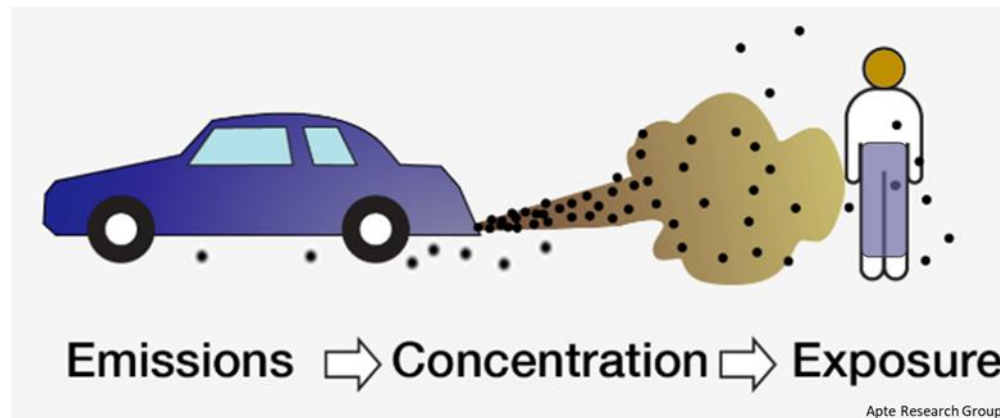
**Phil Martien, PhD**

**Director - Assessment, Inventory, & Modeling Division**

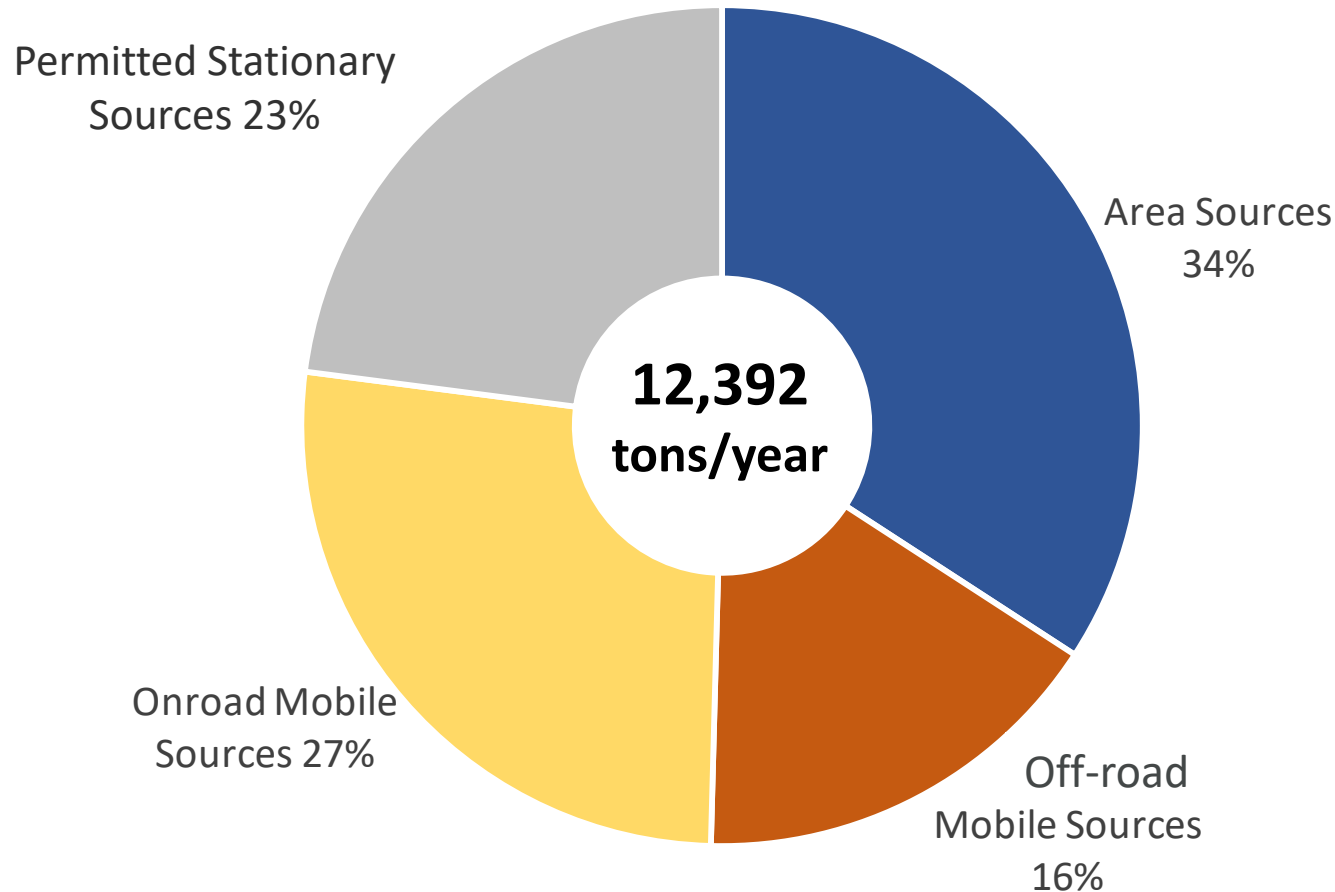
# Major Sources of Fine Particulate Matter (PM<sub>2.5</sub>)



- What we identify as major sources can be different if we are considering emissions in
  - The **Bay Area region as a whole** or in a **specific community**
- Determining the **major sources causing exposures** is more important than identifying the biggest contributors to emissions totals

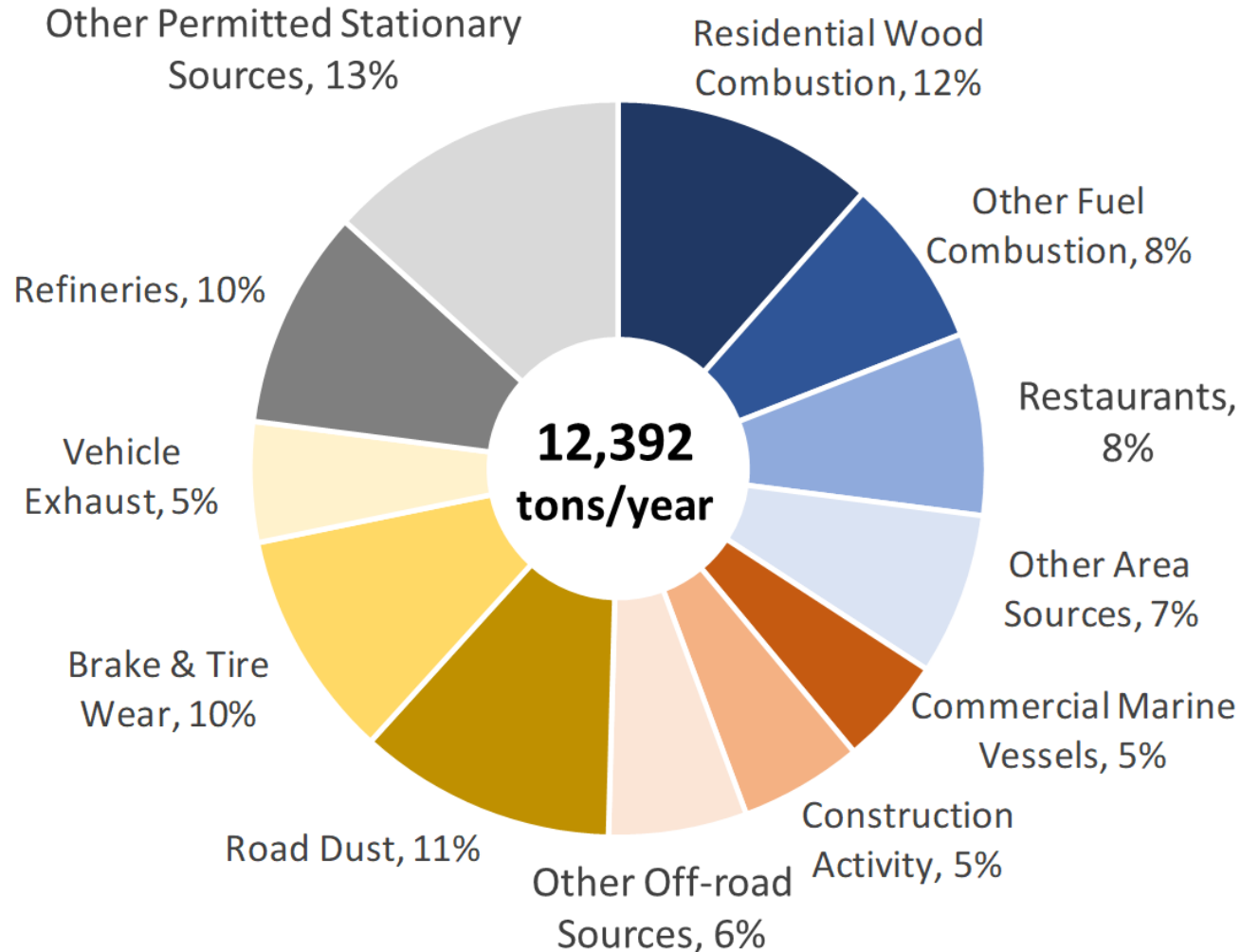


# What Are Major Sources of PM<sub>2.5</sub> for the Bay Area Region?



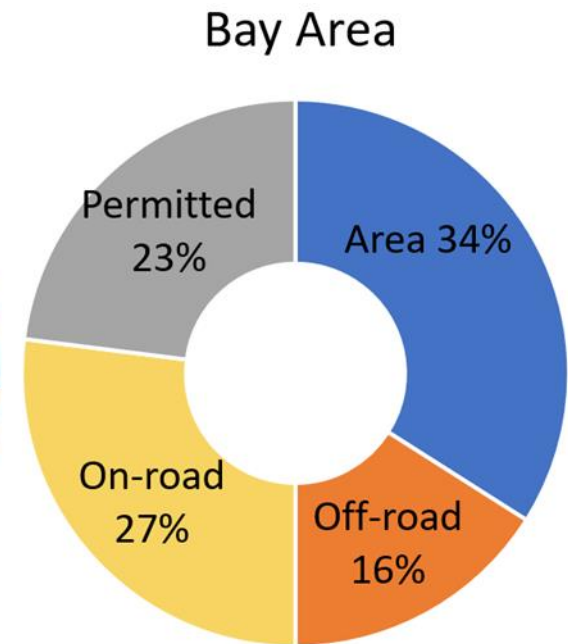
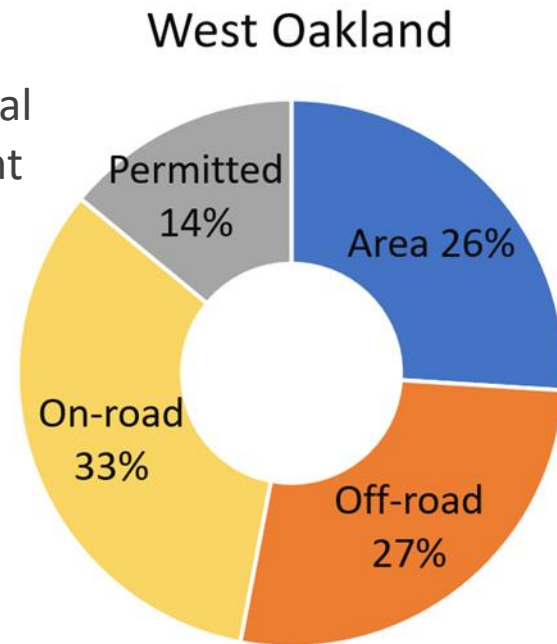
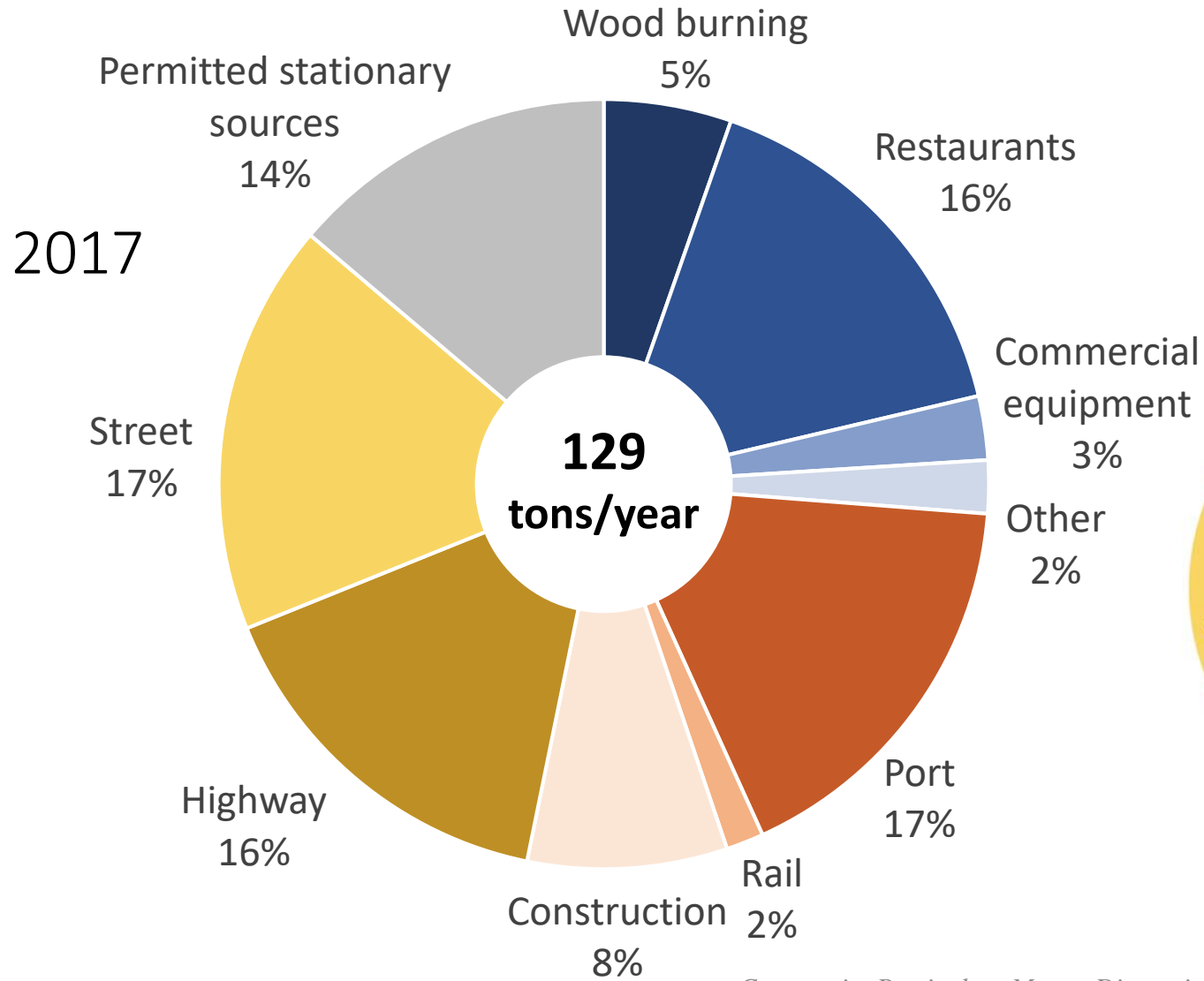
2016 annual average, directly emitted PM<sub>2.5</sub> emissions

# What Are Major Sources of PM<sub>2.5</sub> for the Bay Area Region?



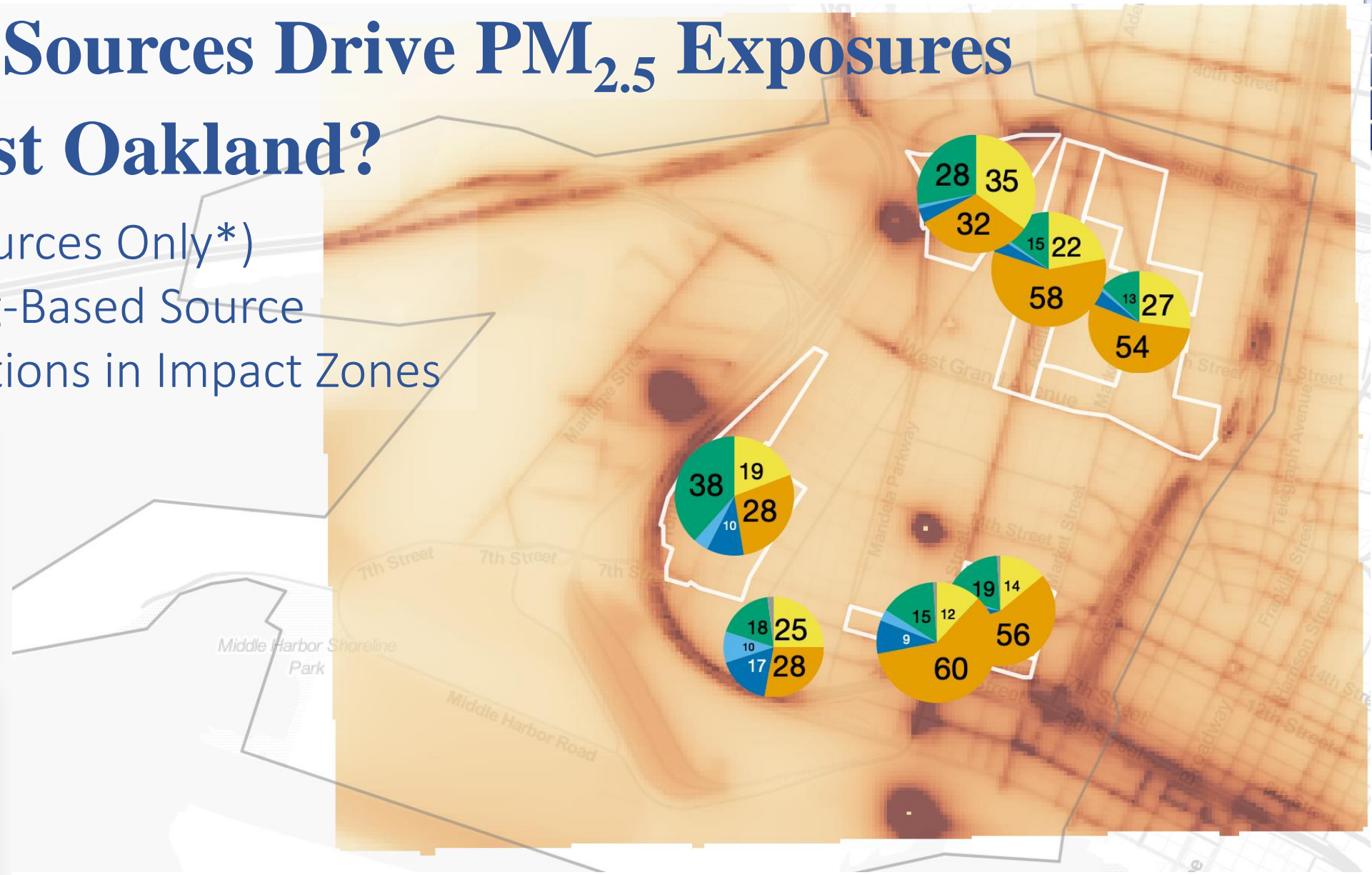
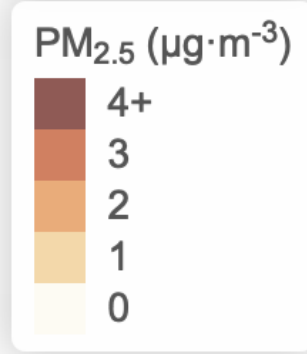
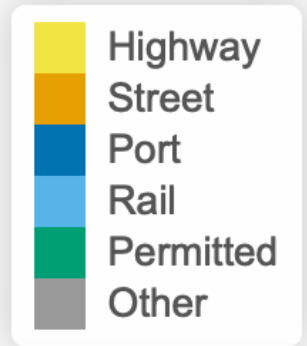
2016 annual average, directly emitted PM<sub>2.5</sub> emissions

# What Are Major Sources of PM<sub>2.5</sub> for West Oakland?



# What Sources Drive PM<sub>2.5</sub> Exposures in West Oakland?

(Local Sources Only\*)  
Modeling-Based Source Contributions in Impact Zones



\* 30% of PM<sub>2.5</sub> sources not modeled, including construction, residential wood burning, and restaurants





# Clarifying Questions



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# Current & Potential Rules to Reduce Particulate Matter

**Jacob Finkle**  
**Senior Air Quality Specialist**

*Community Particulate Matter Discussion – February 27, 2020*  
*Bay Area Air Quality Management District*

# Current & Potential Actions



- Area Source Efforts
- Permitted Stationary Source Efforts
- Other Emission Source Efforts

# Current & Potential Actions



Source Type	Rule Development Effort	Phase in Development
Area Source	Commercial cooking equipment	Information gathering
	Residential wood combustion	Information gathering
Permitted Stationary Source	Permit reform	Stakeholder engagement
	Fluidized catalytic cracking units	Draft rule development
	Backup generators	Information gathering
	Portland cement production	Information gathering
Other Emission Source	Construction activities	Information gathering
	Magnet source efforts	Legislative initiative

# Area Sources



## Efforts Being Considered:

- **Commercial cooking equipment (Rule 6-2)**
  - Rule development status: information gathering
- **Wood burning devices**
  - Rule Development status: information gathering



Cooking emissions.  
Source: Pixabay



Chimney emissions.  
Source: BAAQMD

# Permitted Stationary Sources



**Permit Reform:** Changing the way the Air District issues permits

- **Goal:** Reduce emissions of particulate matter when applicants want to install/modify equipment (Regulation 2)
- **Rule Development status:** Meeting with community organizations to understand priorities



# Permitted Stationary Sources



## Efforts Being Considered:

- **Fluidized catalytic cracking units** at petroleum refineries (Rule 6-5)
  - Rule Development status: preparing for public workshop on concepts
- **Backup generators** (Rule 9-8)
  - Rule Development status: information gathering
- **Portland cement manufacturing** (Rule 9-13)
  - Rule Development status: beginning technical assessment



Backup generator. Source: Wikimedia Commons



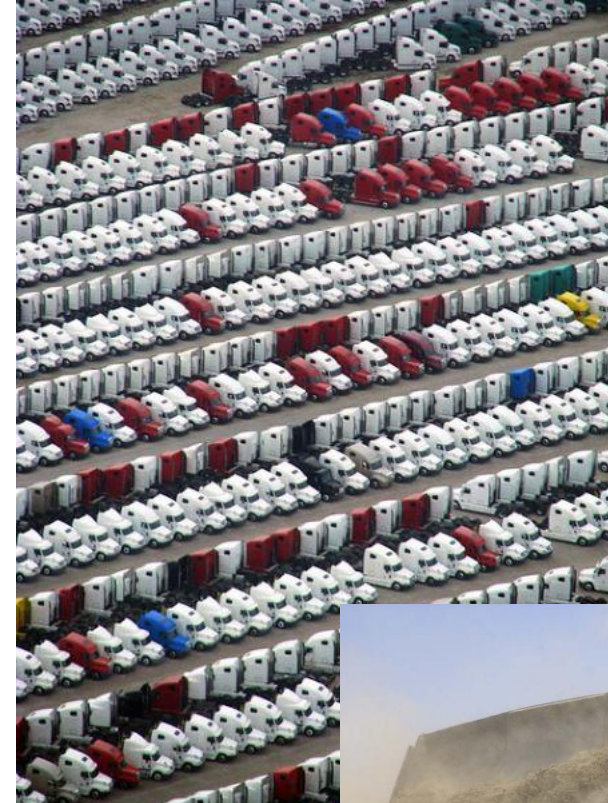
A fluidized catalytic cracking unit.  
Source: Wikimedia Commons

# Other Sources



## Efforts Being Considered:

- **Construction dust (Rule 6-1)**
  - Rule Development status: information gathering
- **Magnet Source Rule(s)**
  - “Magnet Source” = A facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution.
    - Examples: US Post Office facilities, warehouses and distribution centers
  - Potential rule(s) to address emissions associated with magnet sources?
    - Mobile source reporting?
    - Rule Development status: seeking changes to Air District authority at the State level



Trucks in a parking lot. Source: Flickr

Construction dust. Source: Wikimedia Commons





# Rule Development Process



## The Air District Rulemaking Process

### 1 Internal Scoping Meeting

Air District staff meets to discuss an identified air pollution problem.

### 2 Technical Assessment

Air District staff drafts a document that explores options for addressing the problem and determines if a new rule or changes to an existing rule are needed.

### 3 Stakeholder Meeting

Air District staff consults with business and other interested parties that may be affected by the new rule or changes to an existing rule.

### 4 Draft Rule

After meeting with stakeholders, Air District staff develops a draft rule or proposed changes to an existing rule.

### 5 Workshops

Air District staff holds one or more public meetings to give affected and interested parties an opportunity to learn about, discuss, and comment on the proposed rule or rule changes.

### 6 Environmental Review

As the draft is being developed, staff analyzes the proposed rule or rule change to determine if it may have any negative environmental impacts.

### 7 Staff Report

Air District staff writes a report describing the technical background, potential socioeconomic impacts, benefits to air quality, and costs of the proposed rule or rule change.

### 8 Public Hearing

After hearing from staff and considering comments made by the public, the Air District's Board of Directors decides to adopt or reject the proposed rule or rule changes.

### 9 Setting Policies and Procedures

Once rule is adopted, staff develop policies to interpret the new or revised rule and to describe ways to inspect facilities to make sure they are in compliance with the rule.

### 10 Rule Submittal

If required by the State or federal plans, Air District staff forwards the rule adoption materials to the California Air Resources Board for submittal to the federal Environmental Protection Agency.





# Discussion & Clarifying Questions



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# Policy Approaches for Particulate Matter

Victor Douglas  
Rule Development Manager

# Overview

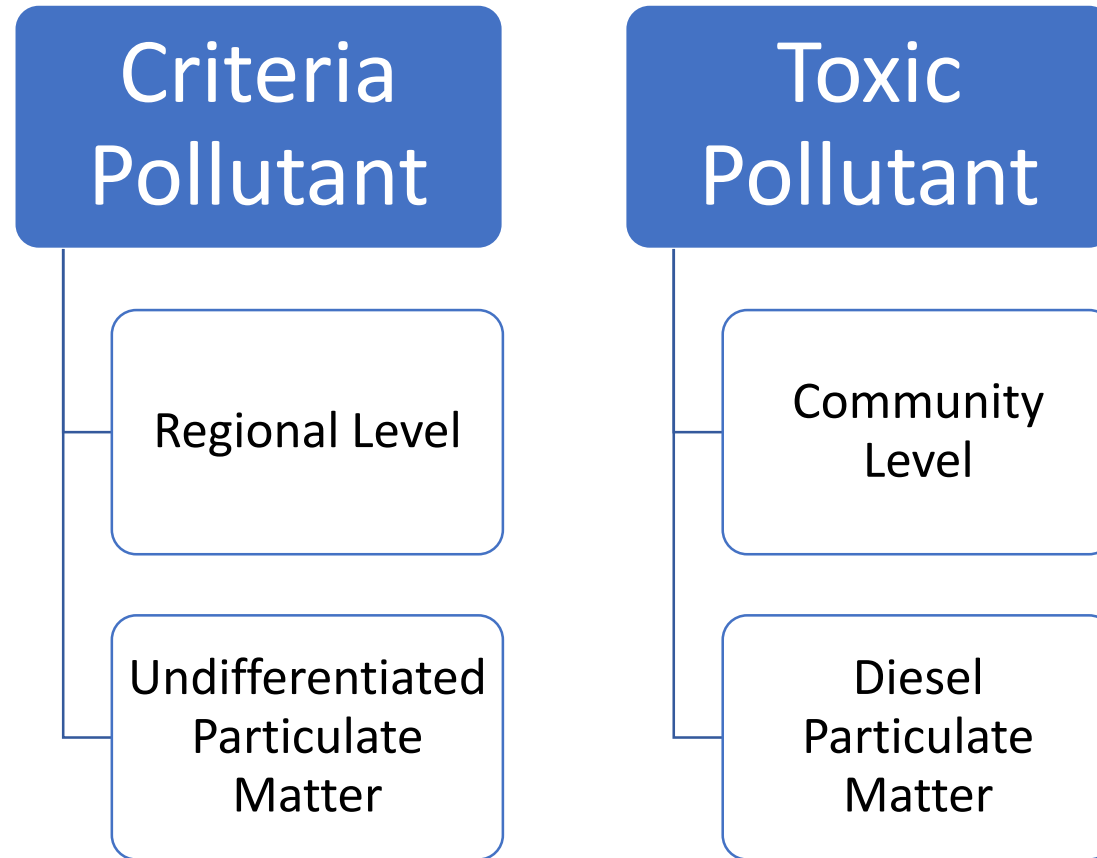


- Current Approaches to Particulate Matter Control
- Gaps in Regulating Particulate Matter
- Potential Approaches to further Regulate Particulate Matter
- Other Options
- Conclusion

# Control of Particulate Matter



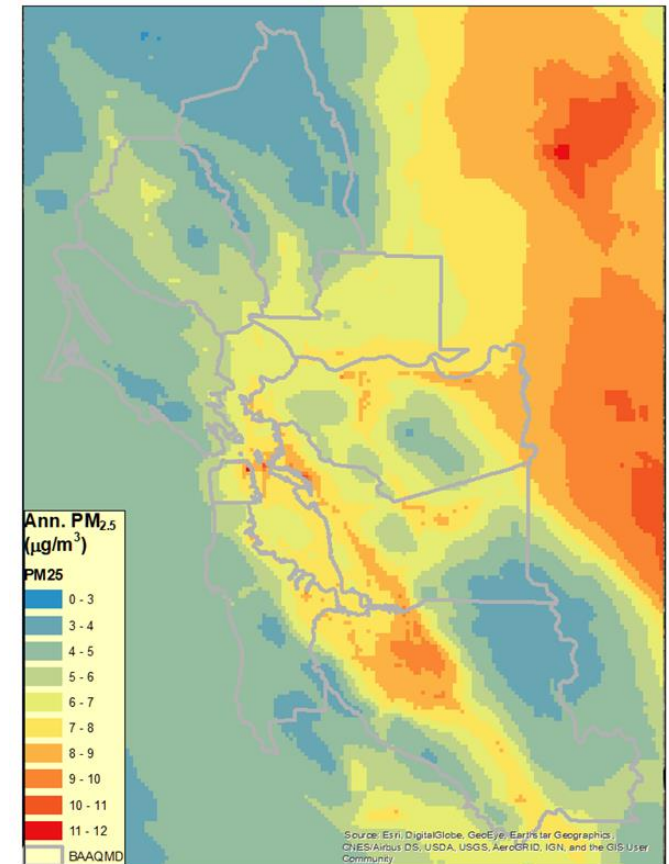
## Particulate Matter Regulatory Perspectives:



# Regional Approach



- Attainment of ambient air quality standards
  - Set a target air quality standard
  - Model how to get there
  - Rule development effort
- Control of Primary PM



# Health Impacts of PM



## Diesel Particulate Matter

- Stationary Sources: Diesel Primary and Back-up Engines (generators)
- Mobile Sources: Diesel trucks, trains, buses, bay (ferries, tugs) and some ocean-going vessels (oil tankers, cargo ships)

## Fine Particulate Matter has Severe Health Impacts

- Combustion
- Woodburning Devices
- Construction
- Commercial Cooking (restaurants)
- Road Dust

# Regulatory Gaps



## Gaps in Authority to Regulate Particulate Matter

- Fine PM as Toxic Pollutant
- Additional PM Reduction Goals
- Magnet Sources of all forms of PM



# Reducing Health Impacts From Fine PM



- Develop health-based evaluation tools for fine PM
  - Community-level health exposure assessments
  - Health-Benefit Analyses
- Regulatory framework for localized PM impacts
  - Limiting impacts from new and modified sources in Permitting
  - Community-focus Rule Development for Sources of fine PM

# Regional PM Air Quality Goals



## Glide Path to Reduce PM

- Regional Reduction Goal / Targets
- Development of Air Quality Plan
  - Identify Rule Development Needs
  - Incentives
  - Legislative Changes if necessary (e.g.: Magnet Source Rule)

# Paths to Success?



## **Particulate Matter Strategy Elements**

PM Health Impacts Assessments & Benefits Analyses

More stringent PM Rules

Magnet Source Rules

PM Reduction Goals



## **Board Approval**

Community Engagement

Collaboration with the State

Advisory Council

# PM Strategy Schedule





# Community Discussion

# Contact Information



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# Extra Slides

# Community-Scale Modeling Links Emissions to Exposures

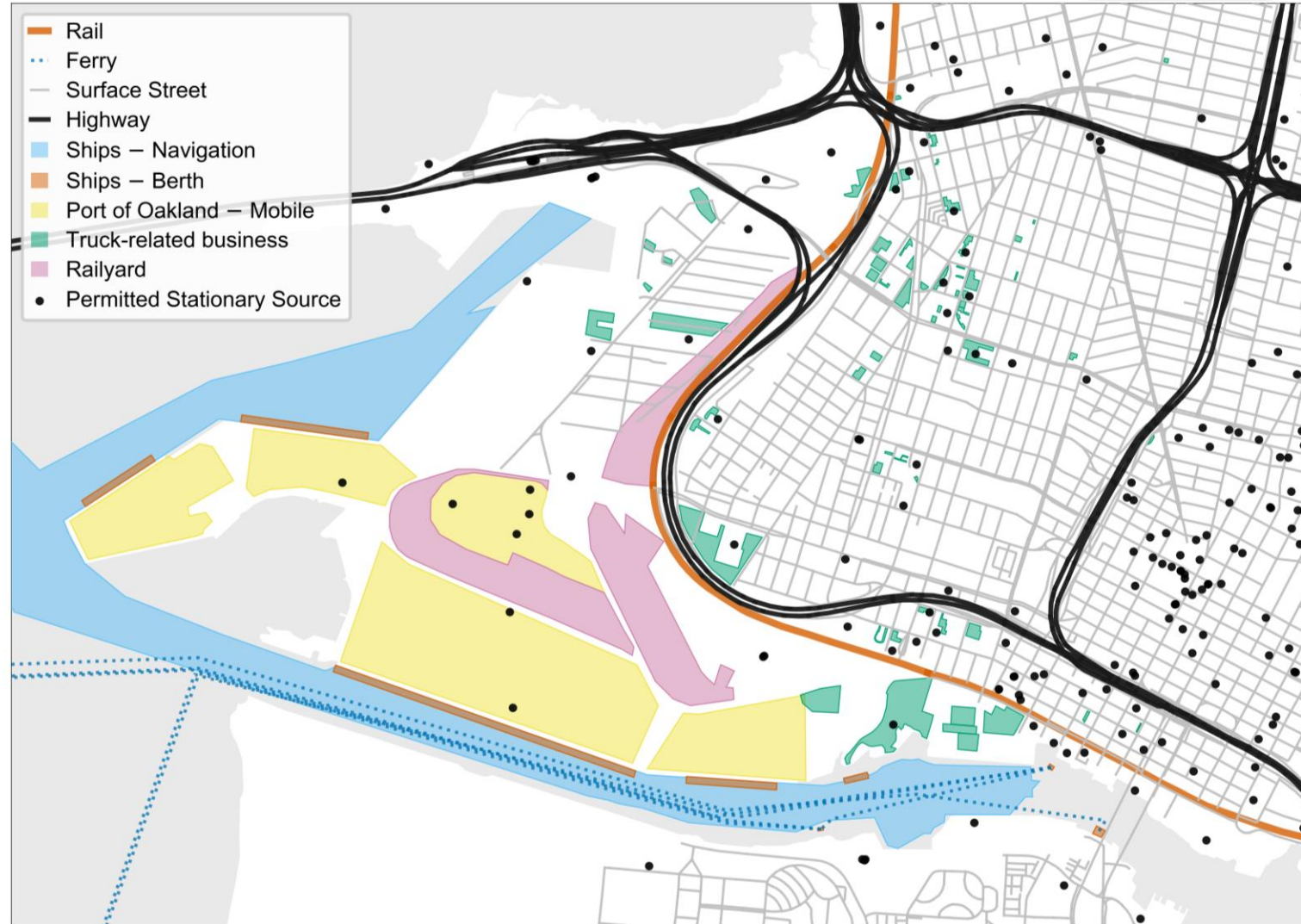


## Sources modeled

- Port and marine
- Railyards and trains
- Freeways and streets
- Truck-related businesses
- Permitted stationary sources

## Not modeled

- Construction, residential wood burning, and restaurants

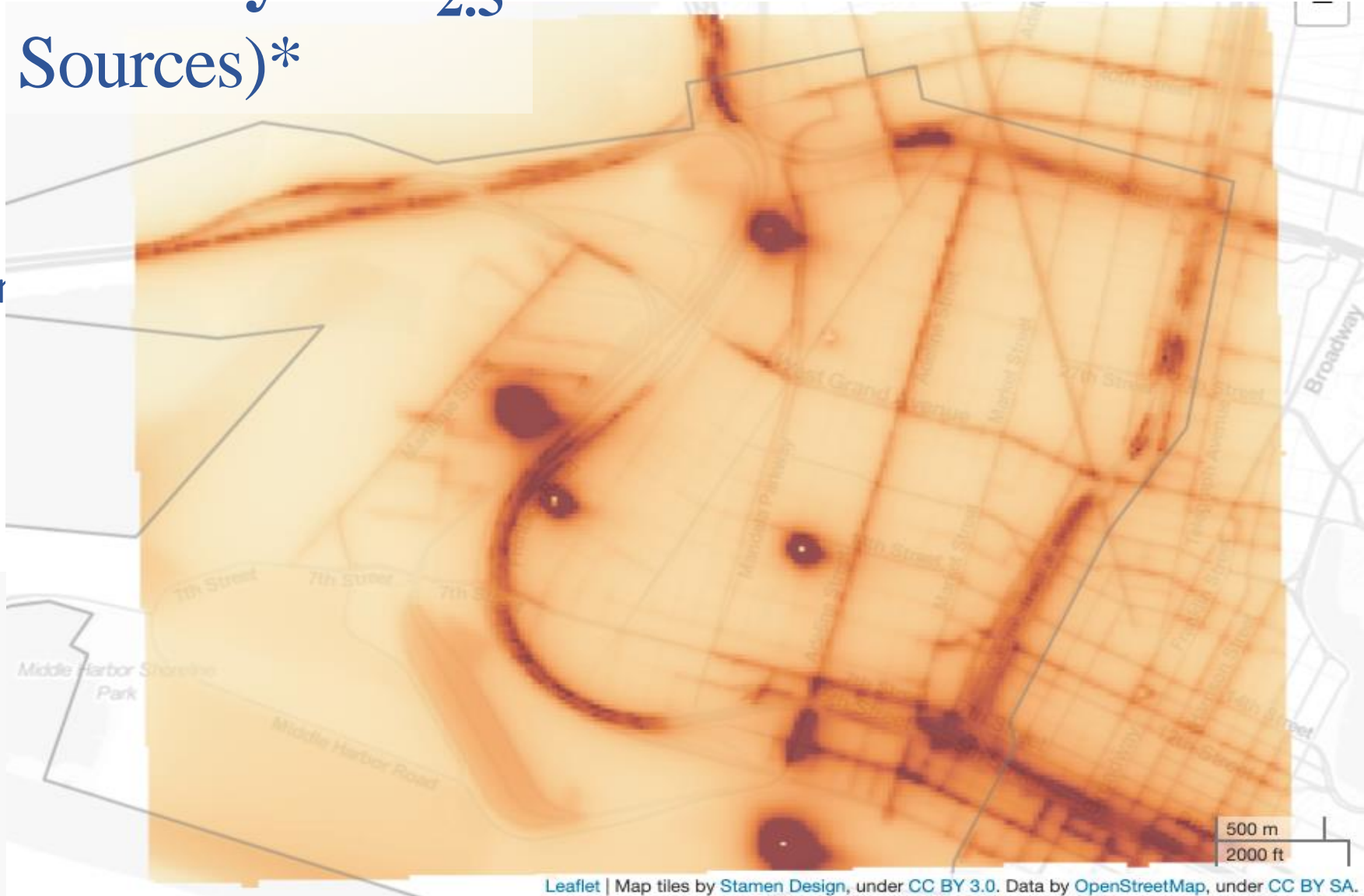




# Modeled Primary PM<sub>2.5</sub> (from Local Sources)\*



\* 30% of PM<sub>2.5</sub> sources not modeled, including construction, residential wood burning, and restaurants





# Regional PM Design Values

