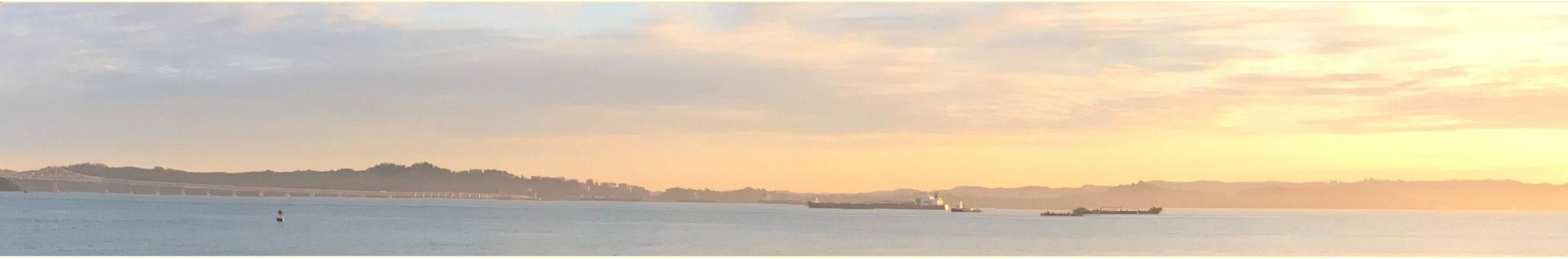
Community Particulate Matter Discussion

February 27, 2020

PM Summit Timeline

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Major Sources of Fine Particulate Matter in the Bay Area



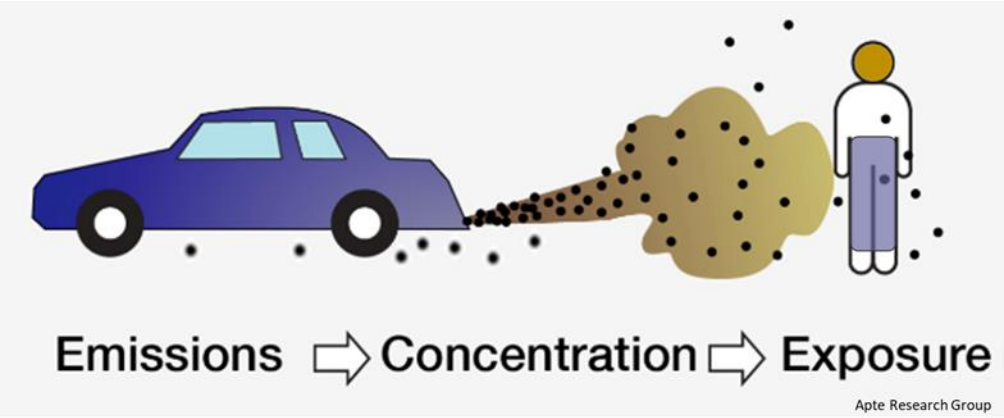
Phil Martien, PhD
Director - Assessment, Inventory, & Modeling Division

Major Sources of Fine Particulate Matter ($PM_{2.5}$)

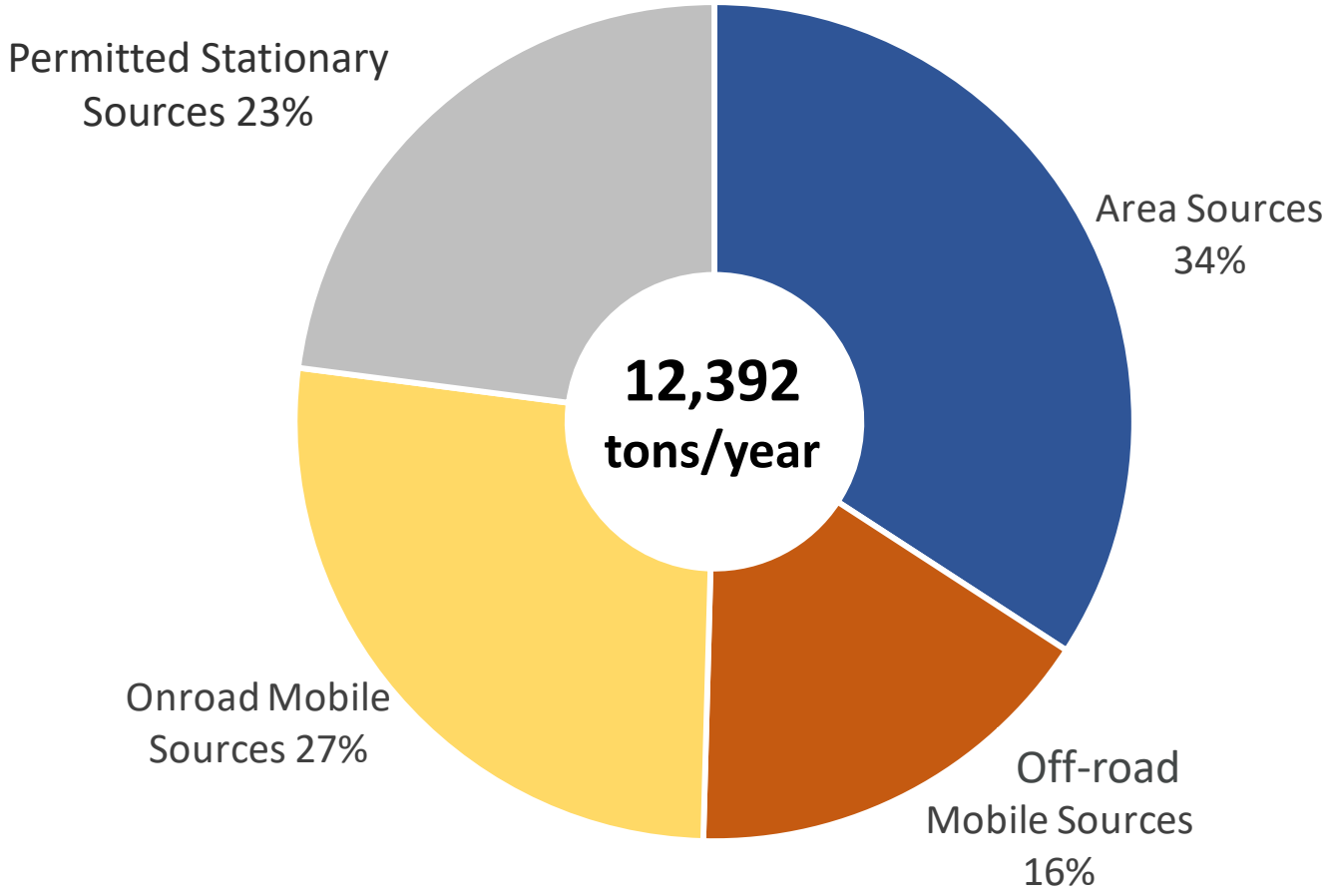
- What we identify as major sources can be different if we are considering emissions in

  -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

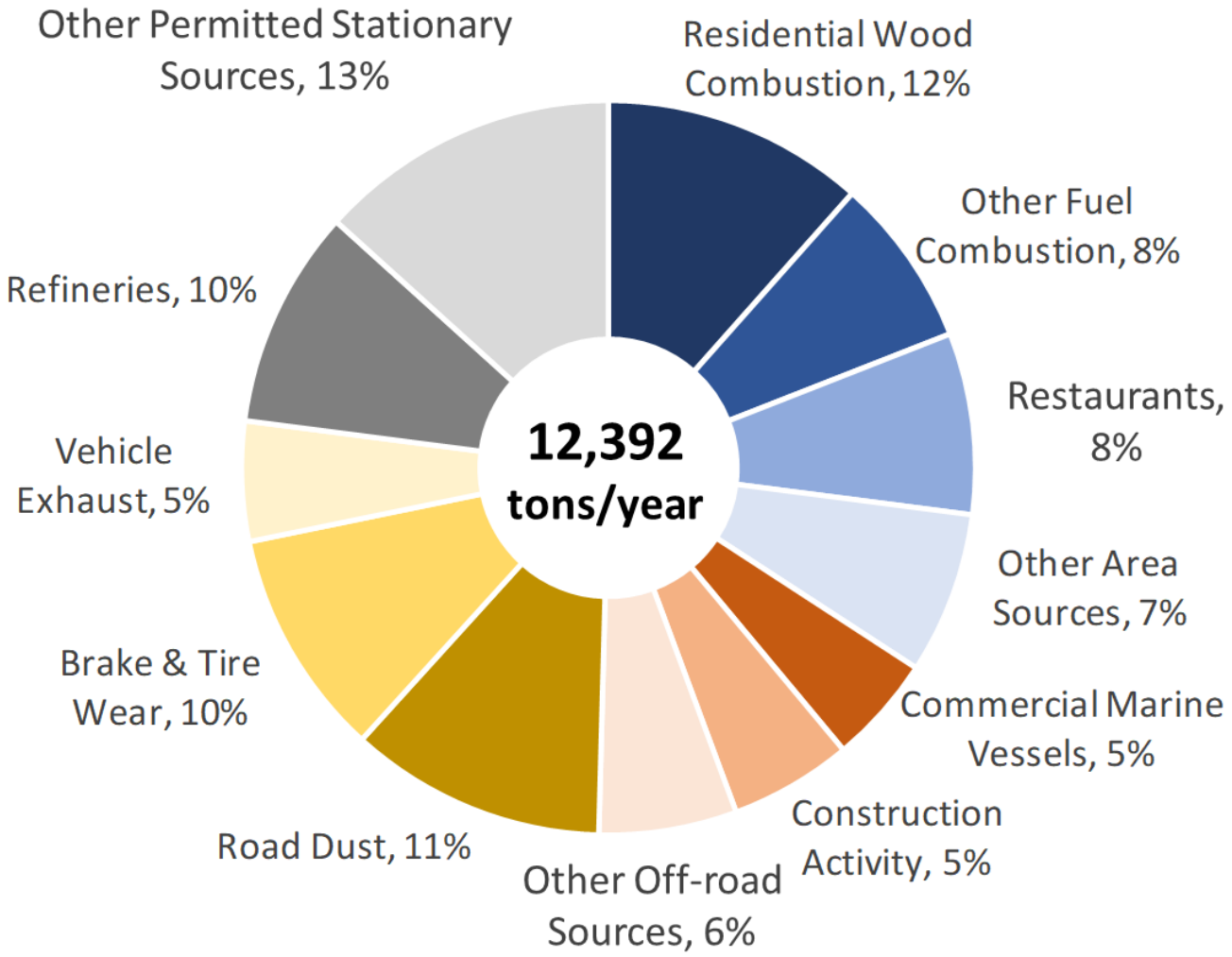


What Are Major Sources of $PM_{2.5}$ for the Bay Area Region?



2016 annual average, directly emitted $PM_{2.5}$ emissions

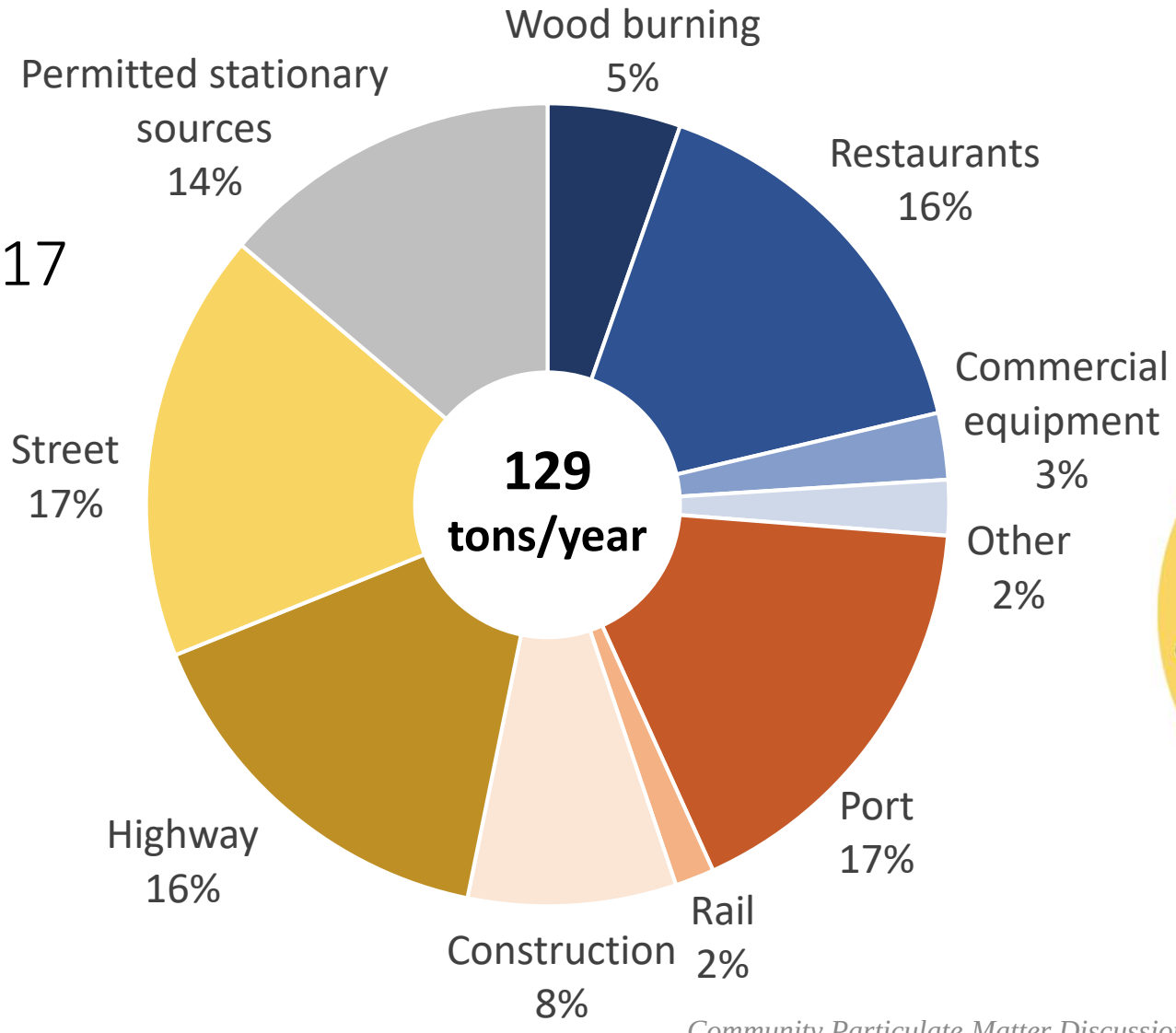
What Are Major Sources of $PM_{2.5}$ for the Bay Area Region?

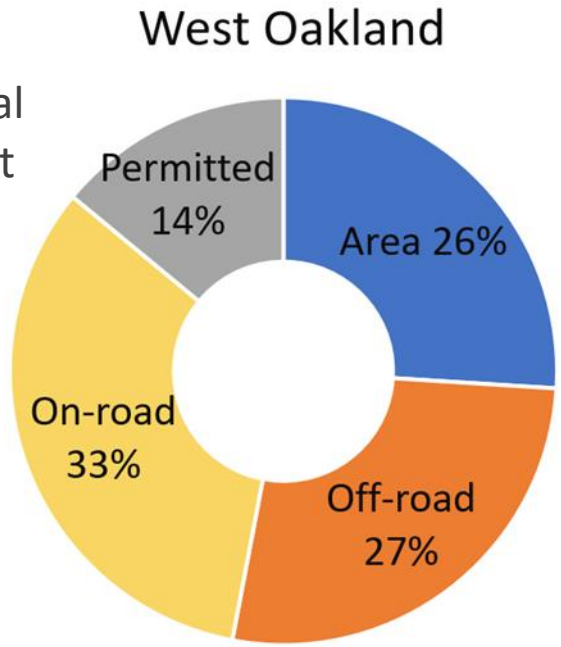


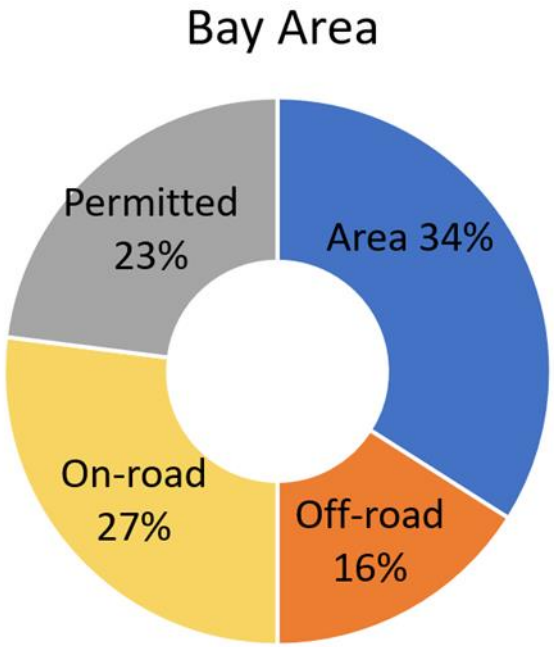
2016 annual average, directly emitted $PM_{2.5}$ emissions

What Are Major Sources of $PM_{2.5}$ for West Oakland?

2017

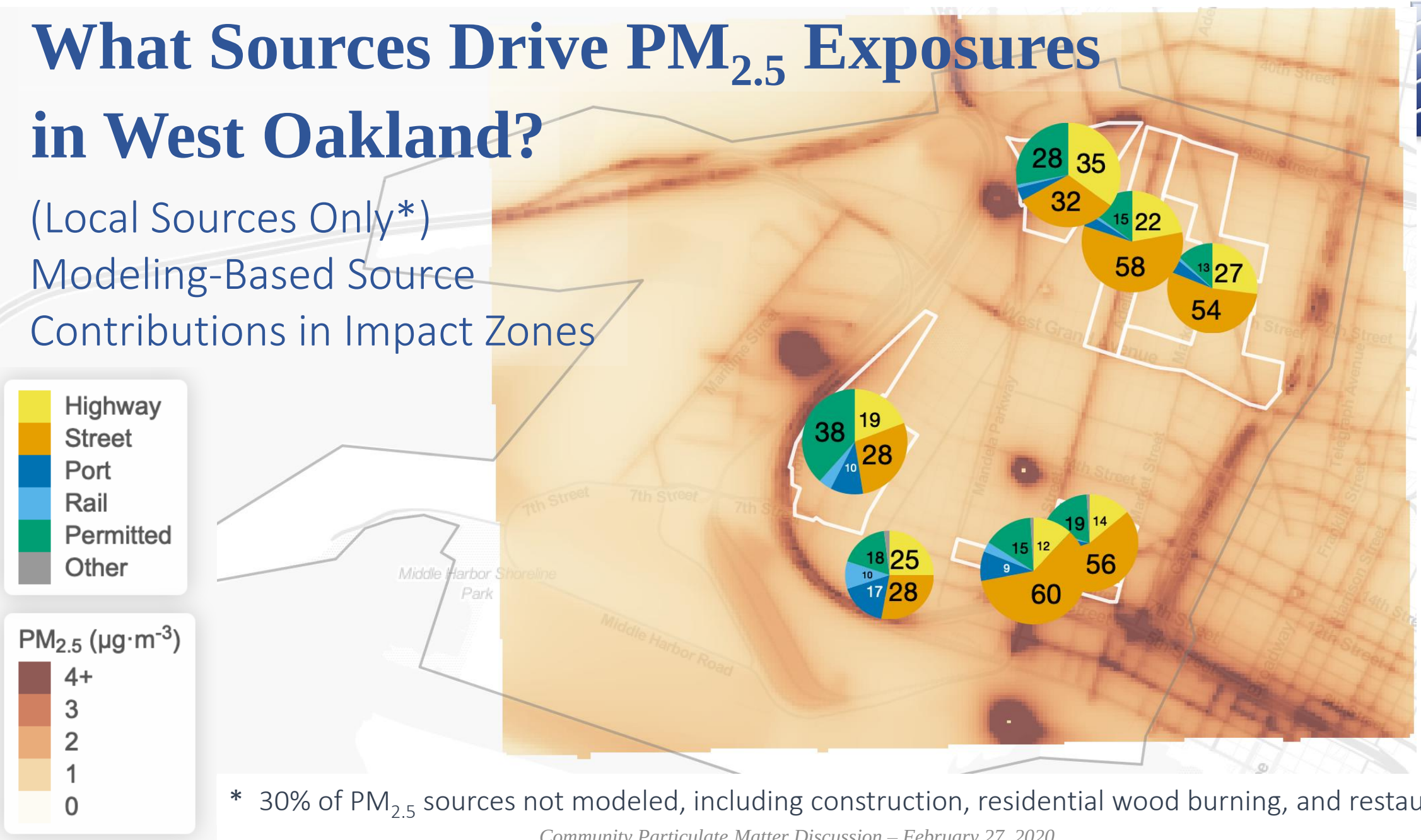






What Sources Drive $PM_{2.5}$ Exposures in West Oakland?

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



* 30% of $PM_{2.5}$ sources not modeled, including construction, residential wood burning, and restaurants

Clarifying Questions

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Current & Potential Rules to Reduce Particulate Matter

Jacob Finkle
Senior Air Quality Specialist

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

A fluidized catalytic cracking unit. Source: Wikimedia Commons

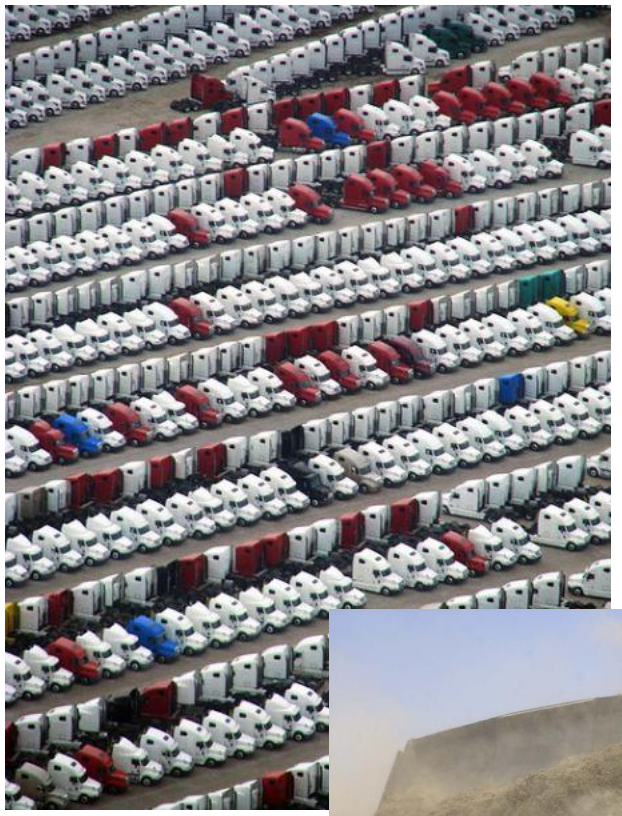
Backup generator. Source: Wikimedia Commons

Other Sources

Efforts Being Considered:

- **Construction dust** (Rule 6-1)
  - Rule Development status: information gathering

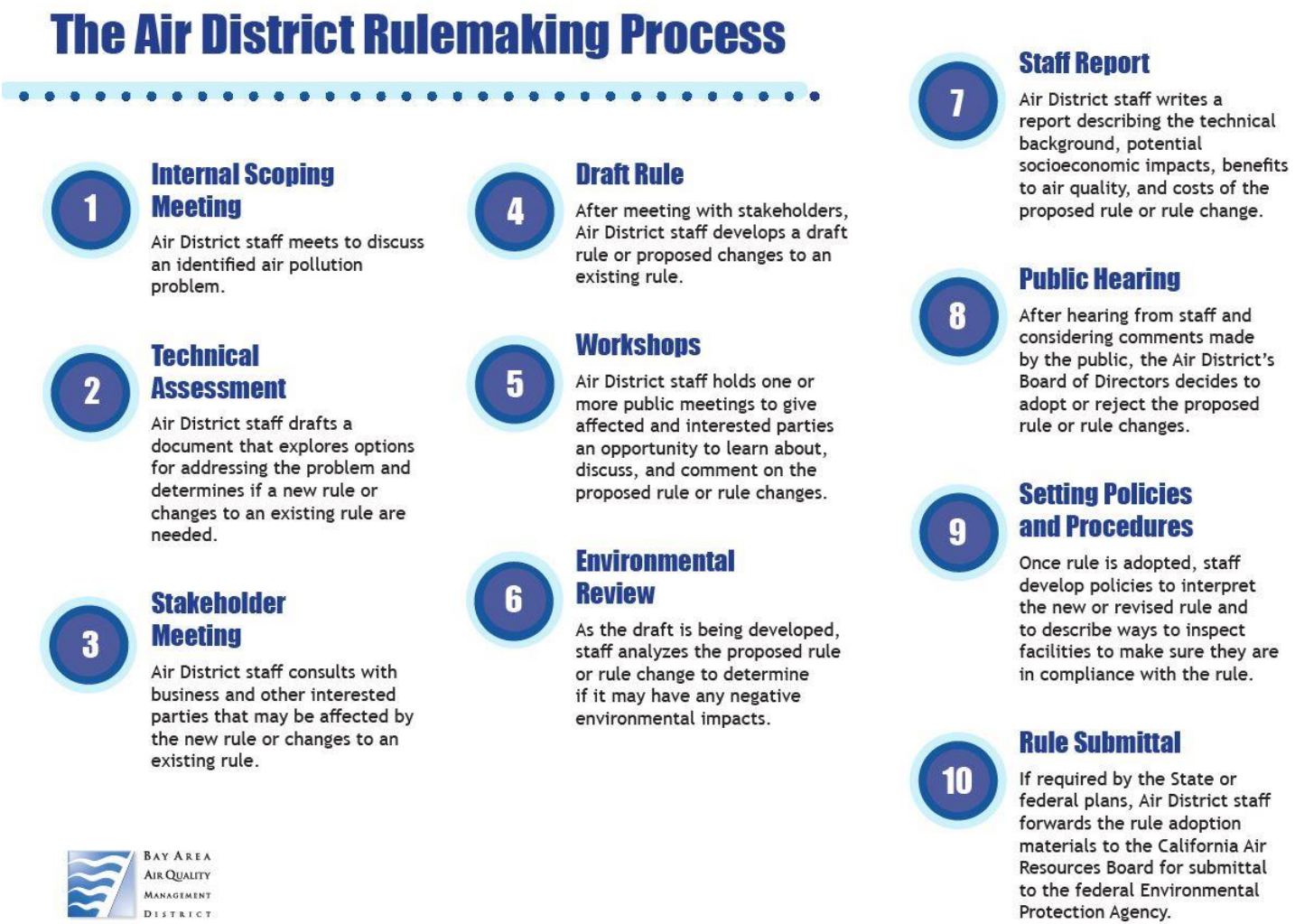
- **Magnet Source Rule(s)**
  - "Magnet Source" = A facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution.
    - Examples: US Post Office facilities, warehouses and distribution centers
  - Potential rule(s) to address 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



Discussion & Clarifying Questions

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Policy Approaches for Particulate Matter

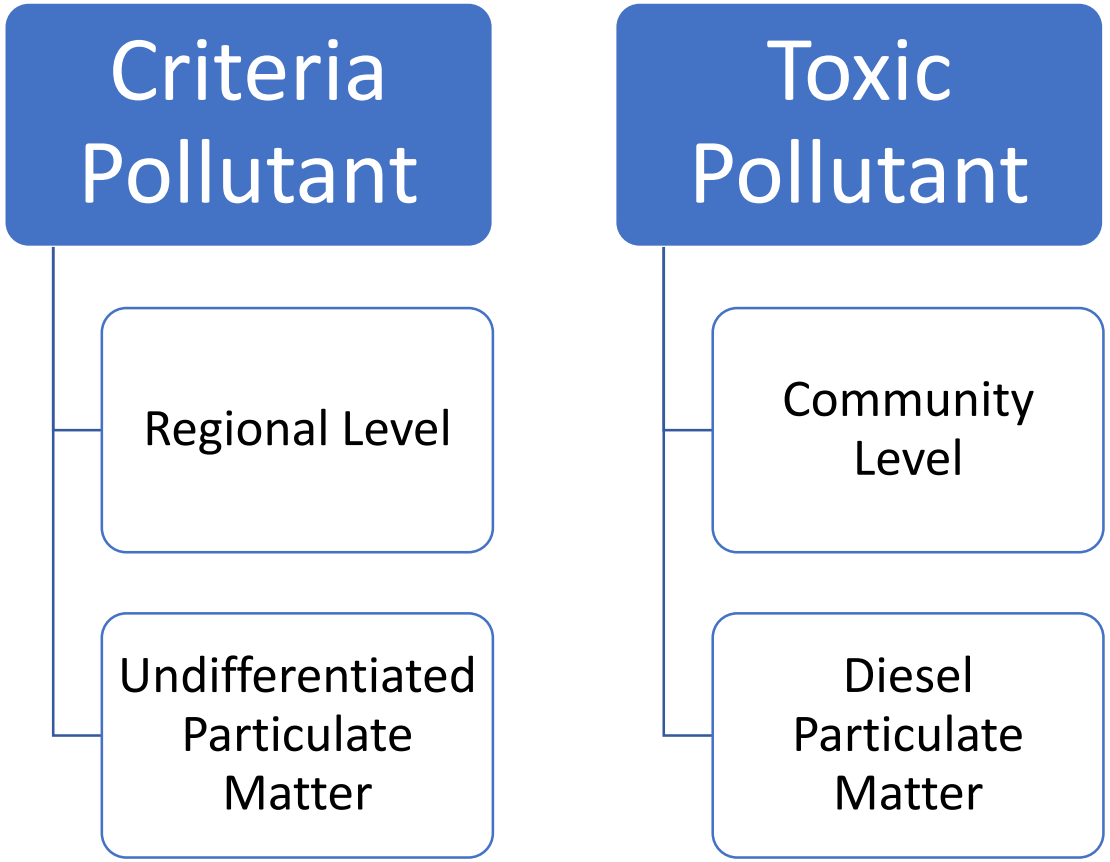
Victor Douglas
Rule Development Manager

Overview

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

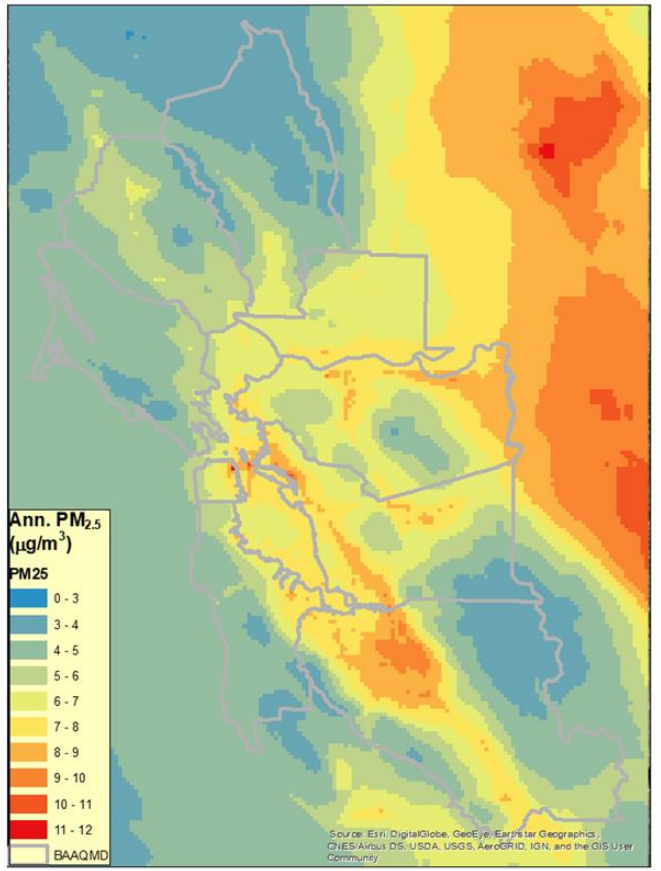
Control of Particulate Matter

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

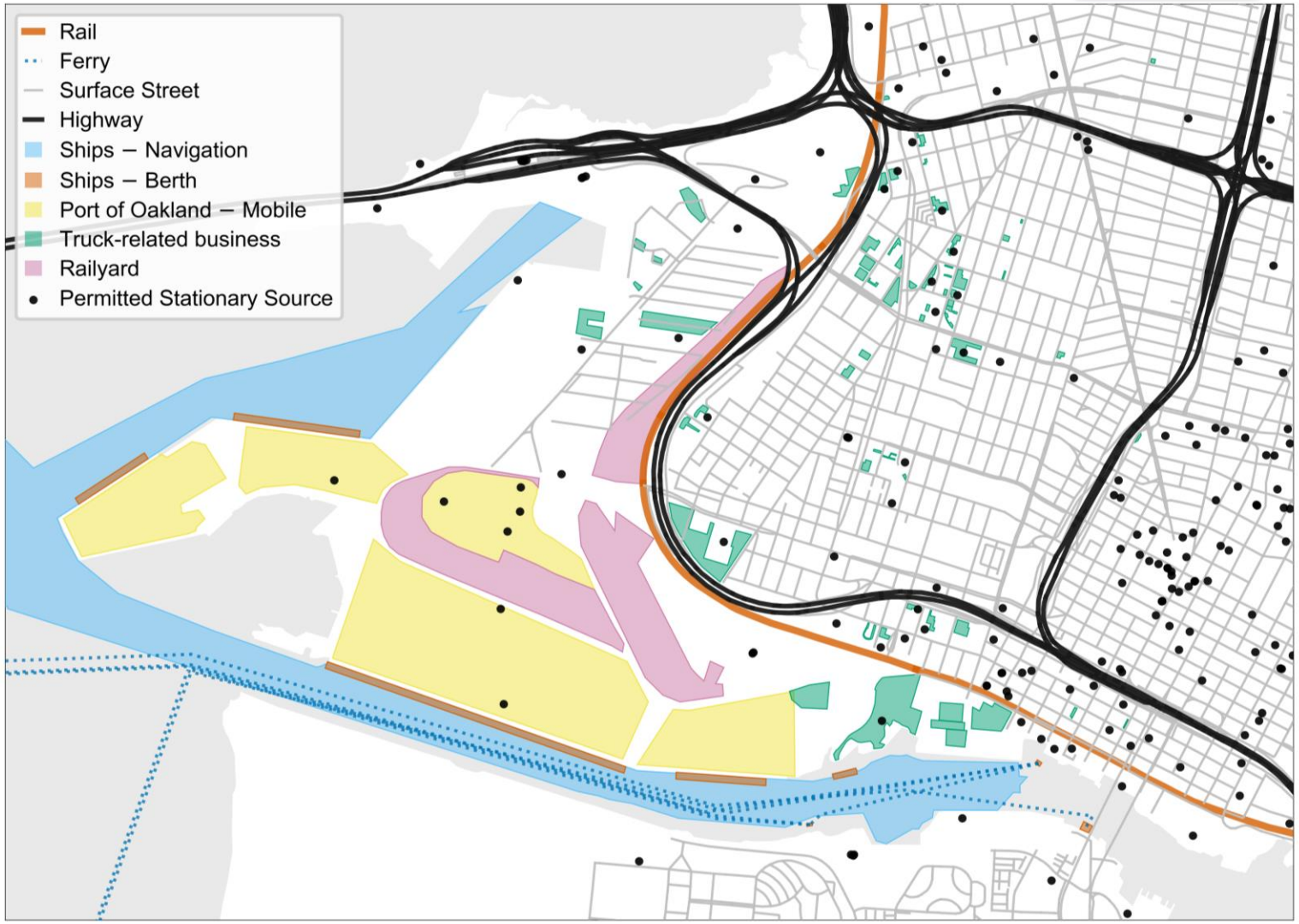
Community-Scale Modeling Links Emissions to Exposures

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 $PM_{2.5}$ (from Local Sources)*

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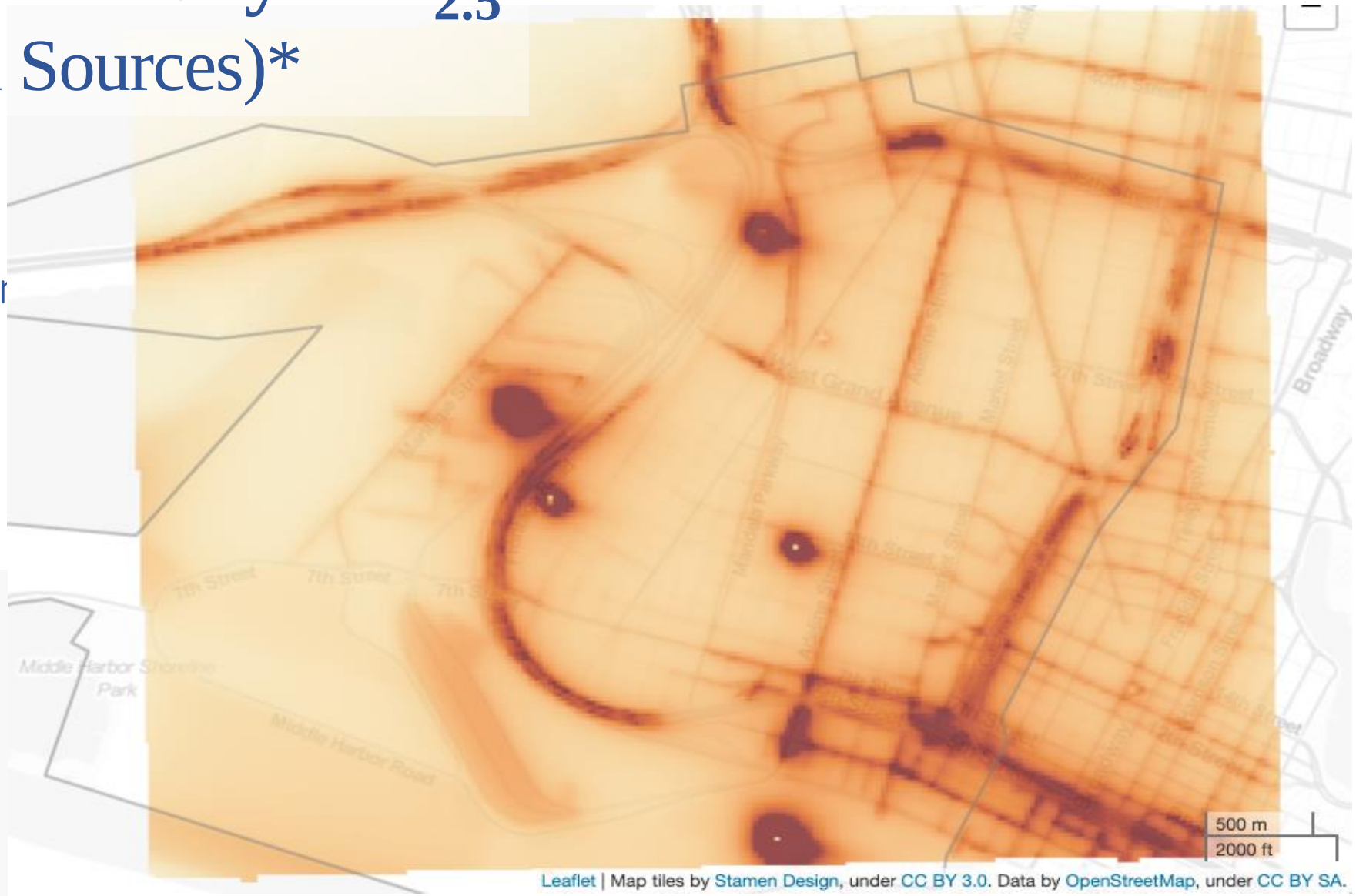

Regional PM Design Values