Bay Area Air District

APPENDIX A

Indirect Source Presentation Materials from March 2024, September 2024, November 2024, and March 2025 Stationary Source Committee Meetings

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson John Bauters and Members of the Stationary Source Committee

From: Philip M. Fine
Executive Officer/APCO

Date: March 13, 2024

Re: Indirect Source Regulations

RECOMMENDED ACTION

None; receive and file.

BACKGROUND

This presentation provides an overview of indirect emissions sources and current status of related rules, regulations, and policies. An Indirect Source (IS) is defined in the Clean Air Act as "…a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution." In correlation with the growth of e-Commerce, and in response to growing concerns regarding the increase in warehouses, logistics centers, distribution centers and port activity, staff is providing an overview and update on the status of Indirect Source Regulations (ISR) and efforts throughout the State. This presentation covers trends in goods movement in California, air quality impacts from indirect sources (including those in overburdened communities), the current regulatory landscape at the State and local levels, and regulatory and technical implementation challenges.

DISCUSSION

Indirect sources and their impacts on nearby communities have continued to increase throughout California, with changes in goods movement being further accelerated during the COVID-19 pandemic. Existing goods movement infrastructure and future planned warehouse projects in the San Francisco Bay Area can result in a number of air quality impacts, including impacts in AB 617 and other overburdened communities. This presentation provides information on current rules, regulations, policies, and ordinances that address indirect sources, including those from the California Air Resources Board, other air districts (including South Coast AQMD and San Joaquin Valley APCD), and local governments. This presentation also covers implementation challenges faced by existing and future indirect source efforts, including both legal and technical implementation challenges, as well as next steps and future opportunities.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Philip M. Fine
Executive Officer/APCO

Prepared by: Christopher Easter
Reviewed by: David Joe

ATTACHMENTS:

None

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

AGENDA: 6

Indirect Source Regulations Overview

Stationary Source & Climate Impacts Meeting
March 13, 2024

Dr. Philip M. Fine
Executive Officer/APCO
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Presentation Outcome

- Informational item
- Provide background on indirect sources and current regulatory landscape and discuss next steps

Outline

- Introduction and Background
- Air Quality Issues
- Current Regulatory/Legal Landscape
- Next Steps Discussion

Introduction and Background

Clean Air Act - 42 U.S.C. § 7410(a)(5)

Any State may include in a State implementation plan, but the Administrator may not require as a condition of approval of such plan under this section, any indirect source review program....

For purposes of this paragraph, the term “indirect source” means a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution

Introduction and Background

California Code, Health and Safety Code - HSC § 40716

(a) In carrying out its responsibilities pursuant to this division with respect to the attainment of state ambient air quality standards, a district may adopt and implement regulations to accomplish both of the following:

(1) Reduce or mitigate emissions from indirect and areawide sources of air pollution.

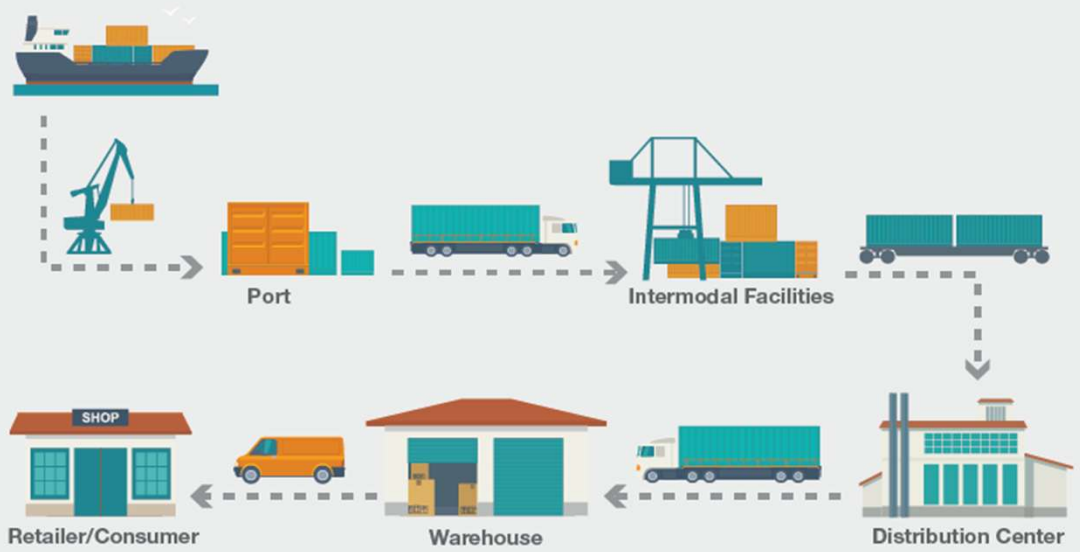
(2) Encourage or require the use of measures which reduce the number or length of vehicle trips.

(b) Nothing in this section constitutes an infringement on the existing authority of counties and cities to plan or control land use, and nothing in this section provides or transfers new authority over such land use to a district.

Goods Movement in California

Figure 1

Example Pathway for How Goods Move From Production to Consumers



LAO, "Overview of California's Ports," August 23, 2022.

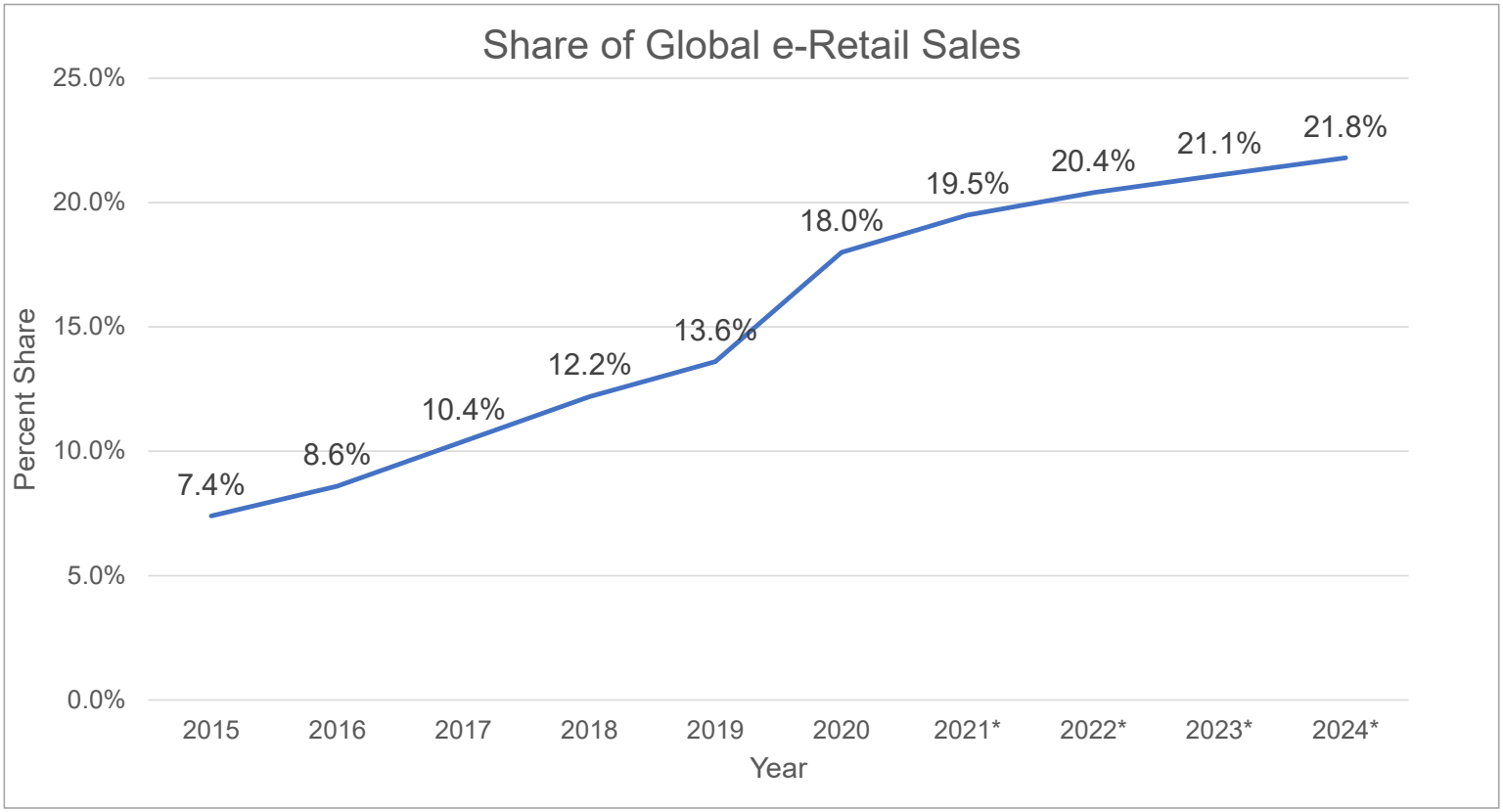
Indirect Emissions Infrastructure

- California ports account for approximately one-third of all US containerized imports
- Growth of indirect source facilities associated with growth in goods movement and port activities

PORT	OPERATING ENTITY	TOTAL TONS OF CARGO, 2020
Port of Richmond	City of Richmond	21,050,741
Port of Oakland	City of Oakland	19,439,762
Port of Benicia	Amports	Unknown

LAO, “Overview of California’s Ports,” August 23, 2022.

Growth of e-Commerce



Source: International Trade Association. "Impact of Covid Pandemic on e-Commerce," 2023.

COVID Impacts on e-Commerce

- The pandemic significantly expedited the growth of e-commerce
- e-Commerce experienced approximately a 32 percent increase in year-over-year increase in share of retail (2020 vs 2021)
- Accelerated e-commerce growth and technological advances in retail and on-line communications
- These changes in retail infrastructure appear persistent and permanent

Source: International Trade Association. "Impact of Covid Pandemic on e-Commerce," 2023.

Recent Indirect Source Projects in the Bay Area

- With growth in e-commerce, there is associated growth in distribution centers and warehouses
- Recent CEQA notices/documents issued for projects in the Bay Area:

Project	Date
3600 Alameda Avenue Project NOP	May 2022
455 Piercy Road Industrial Warehouse Project MND	July 2022
3636 Enterprise Avenue Industrial Project MND	August 2022
5853 Rue Ferrari Project MND	August 2022
San Francisco Gateway Project NOP	August 2022
San Francisco Gateway Project DEIR	December 2023
880 Doolittle Industrial Project NOP	December 2023

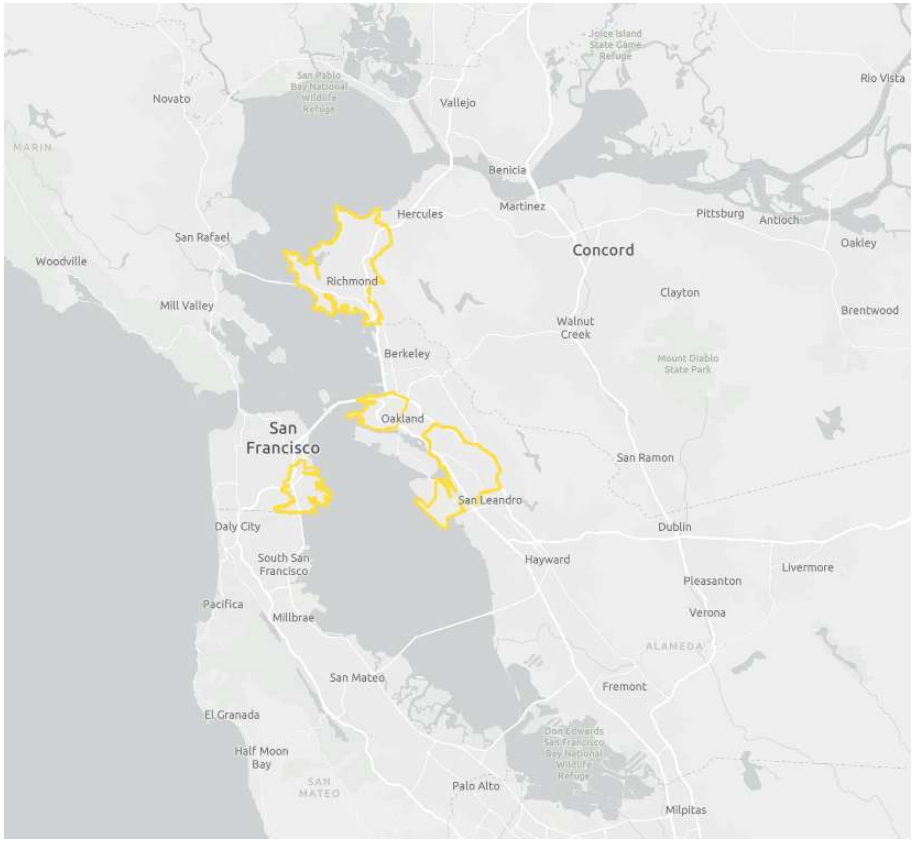
Air Quality Impacts from Indirect Sources

- Emissions from vehicle and equipment activity
  - On-site activity, operation, and idling at facilities
  - Increased vehicle activity, idling, and congestion in nearby communities
  - Particulate matter (PM), diesel PM (DPM), nitrogen oxides (NOx)
- Locations in and around overburdened communities
  - Historical land use compatibility issues
  - Environmental justice and equity challenges

Indirect Source Impacts on AB 617 Communities

Indirect Sources Impacting AB 617 Communities:

- Port of Richmond – *Richmond - North Richmond - San Pablo*
- Port of Oakland – *West Oakland*
- Proposed Amazon DC (SF Gateway) in Bayview (2.1 Million sq ft) – *Bayview Hunter's Point*
- Proposed 3600 Alameda Ave – *East Oakland*
- Proposed 880 Doolittle – *East Oakland*



Current Regulatory Landscape

- California Environmental Quality Act (CEQA) Guidelines
- CEQA Best Practices Document
- CARB Regulations
- Other air districts
  - SCAQMD
  - SJVAPCD
- Local Ordinances

California Environmental Quality Act (CEQA)

- Air District published updated CEQA guidelines in 2022
- Includes new chapter with best practices for centering Environmental Justice, Health, and Equity
- Identifies ways to assess and improve EJ practices in CEQA review for all projects
- By using this guidance, lead agencies should be able to:
  - Inform, consult, or engage overburdened and/or AB 617 communities in CEQA analysis and decision making;
  - Identify projects located in overburdened and/or AB 617 communities;
  - Analyze project-level impacts on overburdened and/or AB 617 communities; and
  - Determine whether the project is centering nondiscrimination and environmental justice through its mitigation plan, cumulative impact analysis, and alternatives analysis.

CEQA Best Practices

- California Attorney General's Bureau of Environmental Justice released CEQA best practices and mitigation measures for warehouse projects (2022)
- Assist lead agencies in pursuing CEQA compliance and promoting environmentally-just development
- Community engagement, siting and design considerations, impact analysis best practices and mitigation
- Key Air Quality and Greenhouse Gas Analysis and Mitigation Components:
  - Analysis Best Practices – Cumulative impacts, quantitative air quality studies, health risk assessments
  - Construction Mitigation – Tier 4 engines, electrical power on site, idling restrictions
  - Operational Mitigation – Zero emissions equipment and vehicles, idling restrictions, solar requirements, EV charging stations, energy efficiency requirements

CARB Regulations

Medium and Heavy Duty Vehicles

- Advanced Clean Trucks:
  - Requirement to sell zero-emission trucks as an increasing percentage of California sales from 2024 to 2035
  - 2035: Zero-emission truck/chassis sales would need to be 55% of Class 2b – 3 truck sales, 75% of Class 4 – 8 straight truck sales, and 40% of truck tractor sales
- Advanced Clean Fleets:
  - Accelerating the deployment of zero-emission medium and heavy-duty trucks in order to achieve a zero-emission California truck and bus fleet by 2045
- Zero Emission Transport Refrigeration Unit (TRU):
  - Transition truck TRUs to zero-emission
  - Impose a stricter diesel PM emission standard for newly manufactured TRUs in the remaining categories
  - Require the use of lower global warming potential refrigerant and include facility reporting requirements

CARB Regulations (cont.)

Cargo Handling

- Mobile Cargo Handling Equipment (CHE) Regulation adopted in 2005
  - Reductions in toxic and criteria emissions, fully implemented by the end of 2017
  - CARB is currently assessing the availability and performance of zero-emission technology to further reduce emissions
- Governor's Executive Order N-79-20 signed in September 2020
  - Zero Emissions Forklift requirements
  - CARB proposed draft regulatory concepts in August 2021, currently in progress

Rail Activities

- In-Use Locomotive Regulation adopted in 2023
  - Operators required to pay into a spending account based on operator emissions
  - Companies will be able to use the funds to upgrade to cleaner locomotive technologies
  - Locomotives also will have a 30-minute idling limit
  - Switch, industrial and passenger locomotives built in 2030 or later required to operate in zero-emissions configurations while in California, and in 2035 for freight line haul

CARB Regulations (cont.)

Port Activities

- At-Berth Regulation (2007)
  - Affects ships at six California ports, including Oakland and San Francisco
  - Vessel visit limit requirements
  - 80% emissions reduction requirement
- Updated “At-Berth Regulation” (2020)
  - Achieve further emission reductions by including smaller fleets, additional vessel types (such as roll-on/roll-off vehicle carriers and tankers), and additional operations
- Advanced Clean Fleets Regulation (2023)
  - Includes Drayage Truck Requirements for seaports and railyards
  - Progress toward the directive of Executive Order (EO) N-79-20, which set a goal for 100 percent zero-emission drayage trucks in the State by 2035

South Coast AQMD

- **Specific Authority:** California Health and Safety Code section 40440 – SCAQMD may "provide for indirect source controls in those areas of the south coast district in which there are high-level, localized concentrations of pollutants or with respect to any new source that will have a significant effect on air quality."
- **Rule 2305:** Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program
  - Applies to new and existing warehouses greater than or equal to 100,000 square feet in indoor floor space in a single building;
  - Menu-based point system;
    - Options include fleet electrification, charging infrastructure, mitigation fees, etc.
  - Rule phased in by warehouse size, increasing stringency
  - *California Trucking Association v. SCAQMD* ruling issued in December 2023
- **Proposed Rule 2304:** Indirect Source Rule for Commercial Marine Ports
  - Emissions controls for container terminals
  - NOx limits on ocean-going vessels and cargo handling equipment

San Joaquin Valley APCD

- **Specific Authority:** California Health and Safety Code section 40604: The San Joaquin Valley Unified Air Pollution Control District "shall adopt . . . a schedule of fees to be assessed on areawide or indirect sources of emissions that are regulated . . . By the district to recover the costs of district programs related to these sources."

- **Rule 9510:** Indirect Source Review (ISR)
  - New sources only
  - Size thresholds based on project type (heavy industrial, office, residential, etc.)
  - Emission reduction requirements for NOx and PM_{10}
    - On-site project design elements or off-site fees

Local Ordinances

- County and City ordinances/guidelines:
  - North Richmond Heavy Distribution Use Prohibition (2023)
    - Zoning IS emissions sources away from sensitive land uses
  - Western Riverside Council of Governments (WRCOG) - Good Neighbor Guidelines For Siting New and/or Modified Warehouse/Distribution Facilities (2020)
    - Establishes best practices for IS sources
    - Idling restrictions
    - Education on health effects of DPM
  - City of Fontana Ordinance 1840 (2021)
    - Buffering zones and routing IS sources away from residential

Implementation Challenges – Case Law

National Association of Home Builders v. San Joaquin Unified Air Pollution Control District, 627 F.3d 730 (9th Cir. 2010)
"Emissions from any indirect source come from the direct sources located there…If an indirect source review program were not allowed in some circumstances to impute direct sources of emissions to an indirect source as a whole, there could be no regulation of the emissions from indirect sources and no indirect source review program could exist."

California Building Industry Association v. San Joaquin Valley Air Pollution Control District, 178 Cal.App.4th 120 (2009)
"[T]he District is not attempting to do 'indirectly' that which it is prohibited from doing directly. The District is specifically authorized to both regulate and assess fees on developments that attract mobile sources of pollution, i.e., emissions generated by motor vehicles."

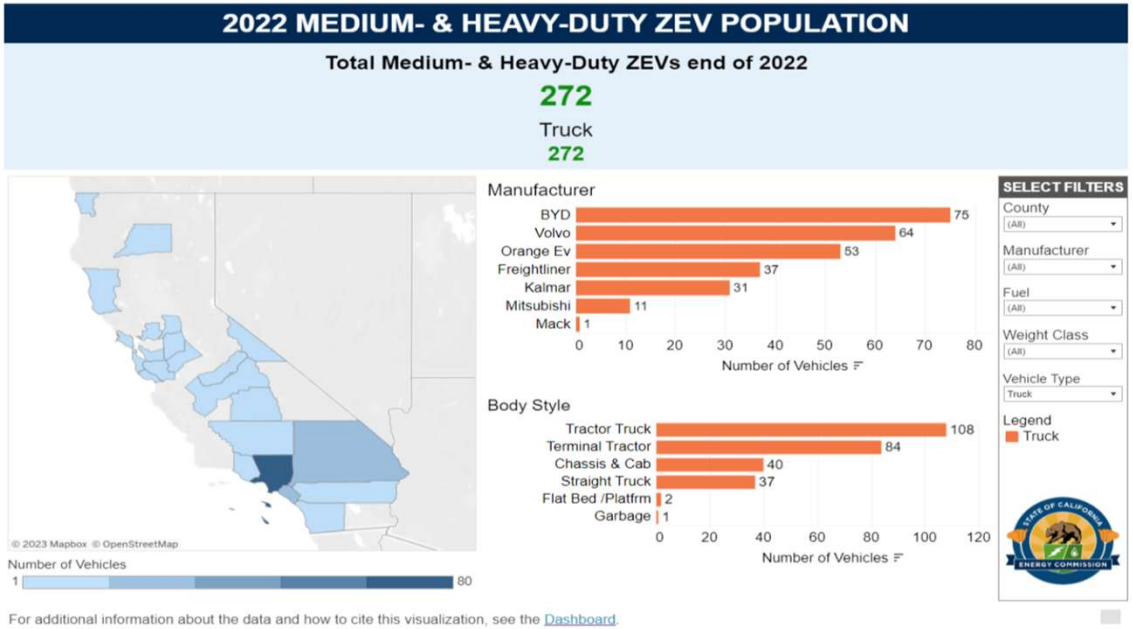
76 Ops. Cal. Atty. Gen. 11 (Mar. 11, 1993)
"Although the ability to issue permits might well be helpful in ensuring timely or effective compliance with regulations pertaining to indirect sources, that alone is insufficient . . . . Because of the controversial nature of indirect source review and the statutory reference to permits solely in connection with stationary sources, imposition of a permitting system upon indirect sources lacks the definitive indication of legislative intent required by the courts."

Patrick Del Duca & Daniel Mansueto, Indirect Source Controls: An Intersection of Air Quality Management and Land Use Regulation, 24 Loy. L.A. L. Rev. 1131 (June 1991)
"[I]ndirect source controls . . . directly impact land use by attempting to reduce emissions by shifting the transportation demand function."

Source: CLA Annual Environmental Law Conference, Session 6: Regulating Indirect Sources, October 2023.

Implementation Challenges – ZEV Availability and Adoption

- Slow adoption: At end of 2022, only 272 ZEV trucks operated in California out of an estimated 504,000 Class 4-8 trucks
- 0.05% of trucks statewide are ZEVs



Source: CLA Annual Environmental Law Conference, Session 6: Regulating Indirect Sources, October 2023.

Implementation Challenges – Electrification Infrastructure

- ZEVs require charging infrastructure
- Sufficient electricity transmission infrastructure/supply currently does not exist at all sources
- Some charging facilities and infrastructure cannot be developed without utility upgrades
- Timeline and approvals for utility upgrades

Source: CLA Annual Environmental Law Conference, Session 6: Regulating Indirect Sources, October 2023.

Next Step Discussion

- Continue to follow and track landscape and implementation of State and local programs
- Collaborate with local governments and other agencies on supporting development of policies, ordinances, and regulations
- Strategic efforts to look for opportunities and gaps in the landscape to leverage expertise and authority, including ISR

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Vice Chairperson Mark Ross and Members of the Stationary Source Committee

From: Philip M. Fine
Executive Officer/APCO

Date: September 11, 2024

Re: Update on Indirect Sources

RECOMMENDED ACTION

Informational only; no action requested at this time.

BACKGROUND

This presentation provides an update on indirect sources, rule development opportunities, and other policy tools, and serves as an opportunity to receive feedback and discuss next steps. An Indirect Source (IS) is defined in the Clean Air Act as "…a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution." Staff provided a presentation at the Stationary Source Committee meeting in March 2024, providing an overview and update on the status of Indirect Source Regulations (ISR) and efforts throughout the State. Committee discussion highlighted concerns about warehouses as indirect sources. Staff committed to consulting with South Coast Air Quality Management District (SCAQMD) on their ISR efforts and following up with the Committee on potential approaches for addressing impacts from indirect sources. In response, this presentation covers the regulatory landscape for ISR, provides an overview of indirect source emissions, and discusses potential rule development (including resource needs), as well as local action to address indirect emissions impacts.

DISCUSSION

Indirect sources and their impacts on nearby communities have continued to increase throughout California, with goods movement activities and related emissions as a key issue. Concerns have been raised by the public, AB 617 Community Steering Committees, and the Board about air quality impacts from goods movement infrastructure and future planned warehouse projects in the San Francisco Bay Area, including concerns about impacts in AB 617 and other overburdened communities.

Regulatory Landscape
There exist various rules, regulations, policies, and ordinances that address impacts from indirect sources (including trucks, ships, and locomotives) to different degrees. Some air districts have rules directly addressing indirect sources, including SCAQMD, which has rules adopted and in development for several different sectors (including warehouses, freight rail yards, and commercial marine ports). State and federal agencies have regulations governing different categories of mobile source equipment.

For warehouses, the predominant sources of indirect emissions are medium- and heavy-duty trucks. The California Air Resources Board (CARB) has several regulations directly affecting trucks (including Advanced Clean Trucks and Advanced Clean Fleets) that are expected to provide significant emissions reductions over the next five to 15 years and beyond.

Assembly Bill (AB) 98 (Carrillo) – Planning and zoning: logistics use: truck routes was recently introduced and approved by the state legislature. AB 98 is awaiting the Governor's signature and approval. AB 98 prescribes statewide warehouse design and building standards for new or expanded logistics use developments, and would require facilities to submit and implement truck routing plans. The bill would also require cities and counties to update the circulation element of their general plans to identify and establish travel routes for transport of goods to avoid residential areas and concentrations of sensitive receptors. The bill also includes specific requirements for SCAQMD regarding mobile air monitoring and for receiving community input on how penalties are assessed, collected and spent for violations of the Warehouse Indirect Source Rule (WAIRE).

Emissions
Bay Area emissions estimates for 2025-2040 were analyzed for three major categories of mobile equipment commonly associated with indirect sources: medium/heavy duty trucks, marine sources, and rail sources. The following are some key takeaways:

- When considering scale, total marine emissions are significantly larger than trucks, while rail emissions are smaller.
- For all three source categories, state regulations will bring considerable emissions reductions as they are implemented over time.

Rule Development
For warehouses, a high-level assessment of resource requirements for the Air District to develop an indirect source rule similar to SCAQMD's WAIRE rule was conducted. Resource needs are estimated at three full-time equivalent (FTE) staff for approximately three years, plus significant legal support. Resource needs for ongoing implementation following rule development should also be considered.

Local Actions
Local actions are another approach to addressing indirect source impacts. Potential benefits of local approaches include utilizing local government authority, addressing community concerns beyond solely air quality impacts, and the ability to create customized approaches that fit local needs. The Air District can support local approaches by supporting local long range planning

processes, ordinance development, and local land use decision-making. The Air District provides resources, including screening tools and technical assistance for local jurisdictions to implement such processes, as well. The Air District also provides guidance for incorporating land use best practices to mitigate indirect source impacts in General Plans, zoning requirements, conditional use permits, conditions of approval, and site development standards.

Questions and Next Steps
Several questions stem from the presentation contents, including the following:

- What indirect source sectors and types should be prioritized with respect to emissions benefit opportunities?
- What policy tool(s), including rulemaking and additional support to local jurisdictions, provide the best opportunity to address indirect source impacts, particularly in overburdened communities?
- What are the resource implications of our approach relative to other priorities?

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Philip M. Fine
Executive Officer/APCO

Prepared by: Laura Cackette and Mark Tang
Reviewed by: David Joe and Victor Douglas

ATTACHMENTS:

1. Indirect Sources - Update Presentation

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

AGENDA: 5

Indirect Sources - Update

Stationary Source Committee Meeting
September 11, 2024

Laura Cackette
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Mark Tang
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Presentation Outcome

- Informational item
- Provide update on indirect sources, rule development opportunities, and other policy tools – and discuss next steps

Outline

- Recap of March Presentation, Background, Objective
- Regulatory Landscape
- Emissions Overview
- Rule Development as a Tool
- Local Action to Address Indirect Sources
- Next Steps Discussion

Recap of March Presentation

- **Presentation Contents**
  - Overview of indirect emissions sources, growth, and current regulatory landscape
  - Impacts on air quality, especially Assembly Bill (AB) 617 and overburdened communities
  - Challenges related to existing and future indirect source efforts, including both legal and technical implementation challenges
- **Committee Discussion**
  - Concern about warehouses as indirect sources
  - Consult with South Coast Air Quality Management District (SCAQMD) on their Indirect Source Regulations (ISR) efforts
  - Follow up with committee on potential approaches for addressing impacts from indirect sources

Recap of Background

- Clean Air Act: “Indirect source” means a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution
  - Trucks, Cargo Handling Equipment, Ships, Trains, Cars, etc.

- Existing Regulations
  - Existing statewide "direct" regulations for mobile sources
  - Additional federal/international "direct" regulations for some mobile sources
  - Regional and local rules, ordinances, and policies from air districts and local governments addressing indirect sources

Recap of Objective

- Conduct a Preliminary Analysis for a Bay Area Indirect Source Rule
  - Including assessment for warehouses

- Assessment covers
  - Regulatory Landscape
  - Emissions
  - Resource Needs
  - Other Tools

Regulatory Landscape – Air Districts

- Indirect Source Regulations from Other Air Districts
  - SCAQMD, San Joaquin Valley Air Pollution Control District (APCD), San Diego APCD (in development)

- SCAQMD
  - Rule 2305: Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program
    - Adopted and currently being implemented
  - Rule 2306: Freight Rail Yards
    - Adopted August 2, 2024
  - Proposed Rule 2304: Commercial Marine Ports – Container Terminals
    - Under development

Regulatory Landscape – Statewide [California Air Resources Board (CARB)]

- For warehouses, the predominant source of emissions is trucks
- CARB Regulations for Medium- and Heavy-Duty Trucks
  - Truck and Bus Rule – Port and Non-Port Trucks
    - Final deadline in the regulation was January 1, 2023: required upgrade of existing trucks to 2010 or newer model year engines
  - Advanced Clean Trucks
    - Requirement to sell zero-emission trucks as an increasing percentage of California sales from 2024 to 2035
  - Advanced Clean Fleets
    - Accelerating the deployment of zero-emission medium and heavy-duty trucks in order to achieve a zero-emission California truck and bus fleet by 2045
- State regulations are **expected to provide significant emissions reductions over the next 5-15 years**, and beyond

Regulatory Landscape – New Legislation

Assembly Bill (AB) 98 (Carillo) would require:

- Statewide warehouse design and building standards
- Truck routing plans
- Updates to City and County General Plan Circulation Elements
- SCAQMD:
  - Establish a process for receiving community input for WAIRE penalties
  - Deploy mobile air monitoring at warehouse developments, conduct air modeling analysis, and evaluate impact to sensitive receptors

Approved by State Legislature
For Governor's Approval and Signature

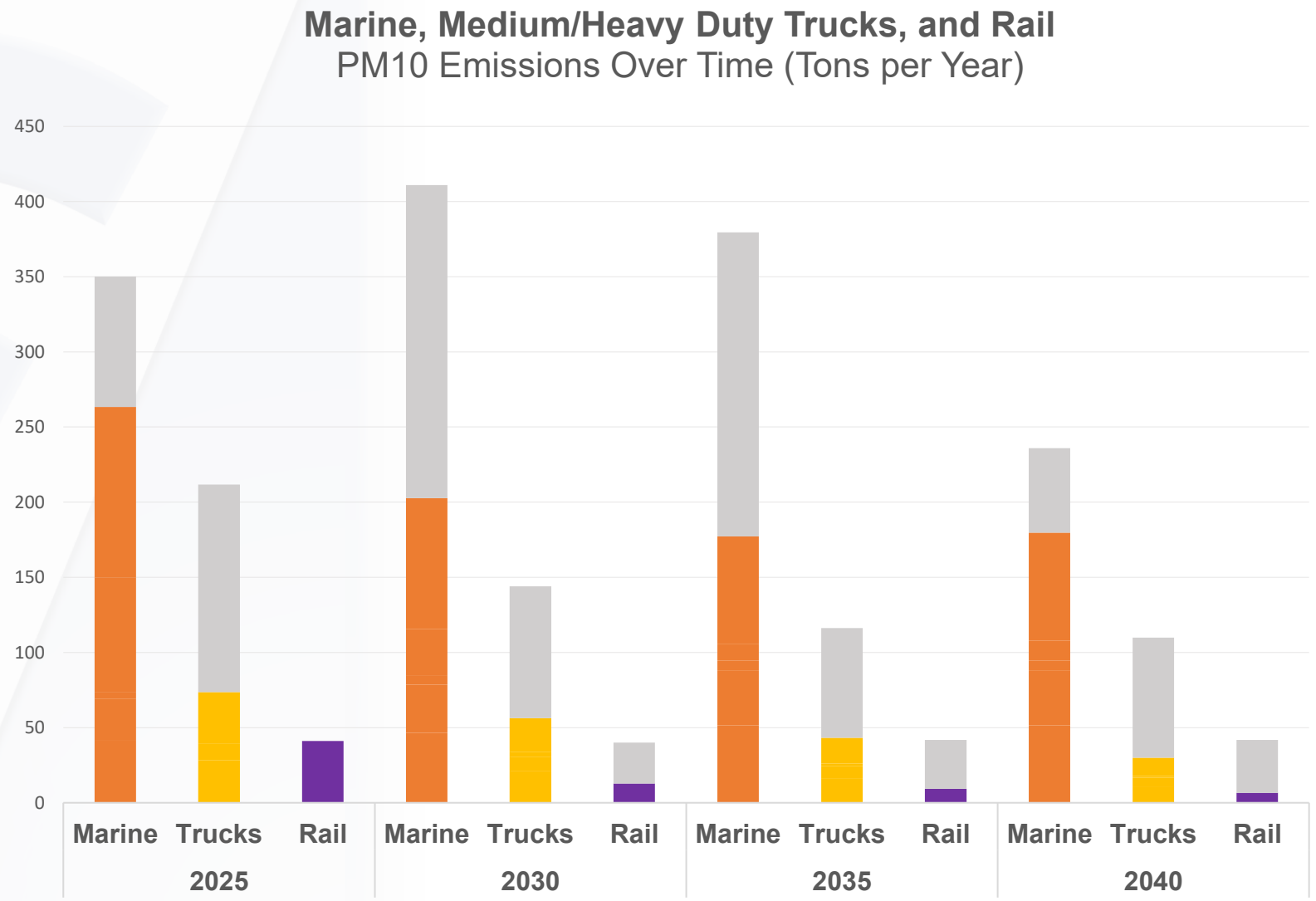
Emissions Data

Emissions context:

- Various types of equipment associated with indirect sources
- Trucks, Marine, Rail

Implementation & Remaining Emissions:

- Gray = reductions from implementation of state regulations
- Colors = remaining emissions or the emissions left after implementation

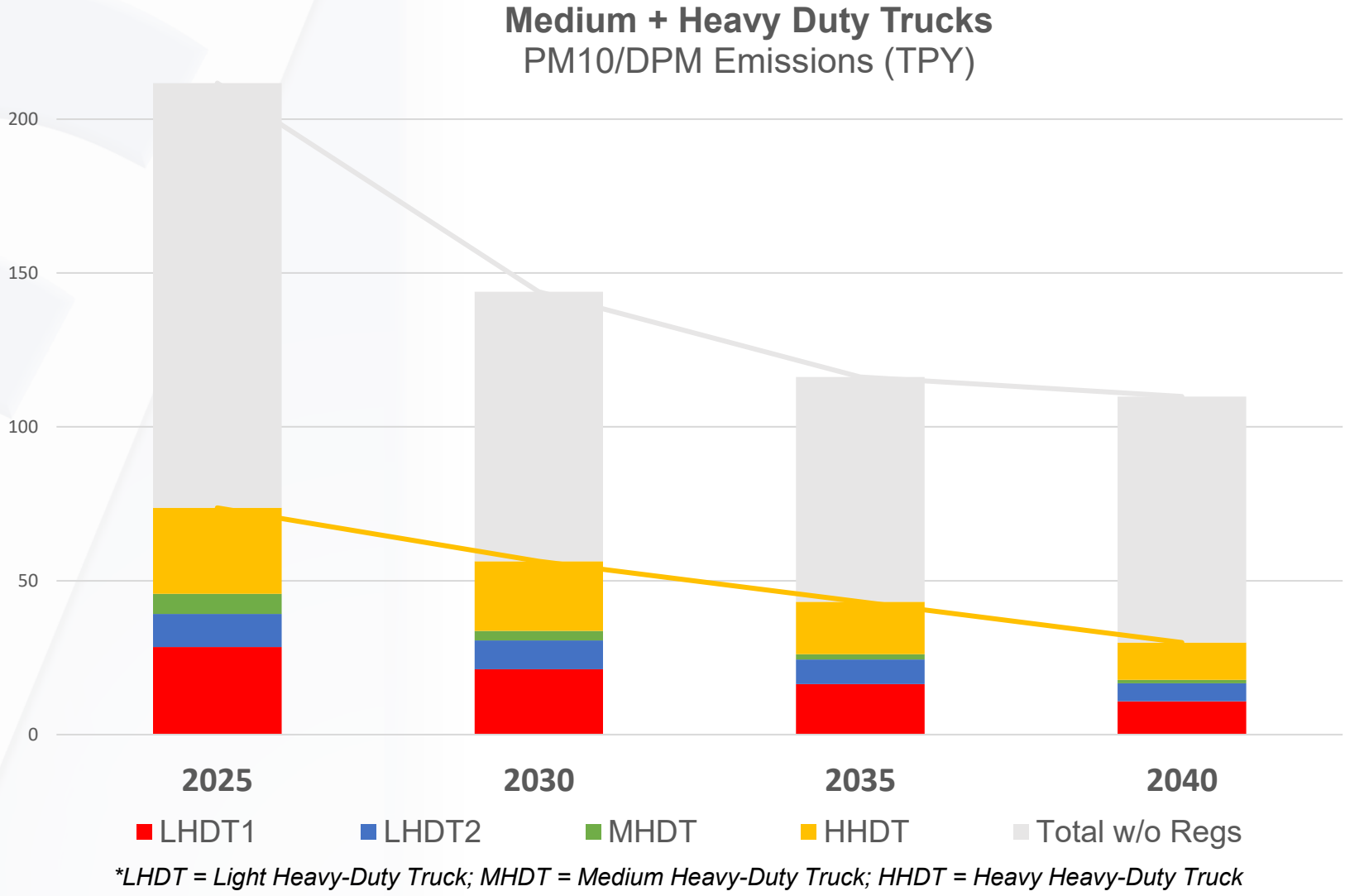


Gray= without emissions reductions from regulations; Color = emissions with regulations in place)

Emissions Data - Trucks

- Medium and Heavy-duty trucks
- Diesel Particulate Matter (PM_{10} exhaust) Emissions
  - Reductions from normal fleet turnover
  - Reductions from CARB rules
- Q: Are additional reductions feasible given stringency of CARB rules?

<u>With and Without CARB Regulations</u>



**LHDT = Light Heavy-Duty Truck; MHDT = Medium Heavy-Duty Truck; HHDT = Heavy Heavy-Duty Truck*

Resources Needed for Rule Development and Implementation

For a rule similar to South Coast AQMD Rule 2305: WAIRE Rule:

- Rule development process
  - 3 Full Time Equivalent (FTE) staff (~one-third of rulemaking team), plus significant Legal support
  - Approximately 3 years
- Rule and program implementation
  - Dependent on rule and program details
  - Ongoing plan/reporting review and enforcement
    - South Coast AQMD estimated 5 FTE for ~3,000 facilities
  - Technology Infrastructure needs

Local Action to Address Indirect Sources

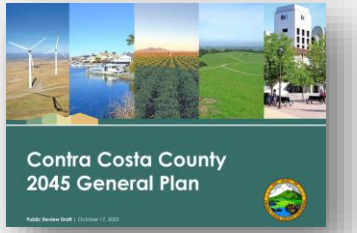
Benefit of local action:

- Local governments have direct land use authority
- Local governments can address community concerns beyond air quality
- Local action can be customized to address specific concerns

Local approaches the Air District can support:

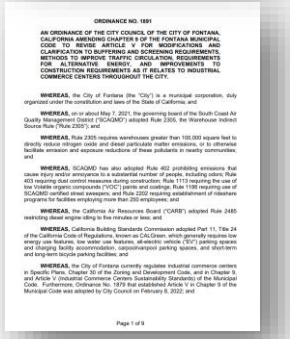
- Proactive long-range planning and ordinance development
- Local land use decisions

Proactive Long-Range Planning



General Plan policies to guide local planning and infrastructure decisions (Draft Contra Costa County 2045 General Plan)

Good Neighbor Guideline recommendations for air quality, noise and neighborhood character (Western Riverside Council of Governments)



Local Ordinance requirements related to construction and operations (City of Fontana Industrial Commerce Center Sustainability Standards)

Example: Draft Contra Costa County 2045 General Plan

Health and Safety Policy (HS-P)1.8

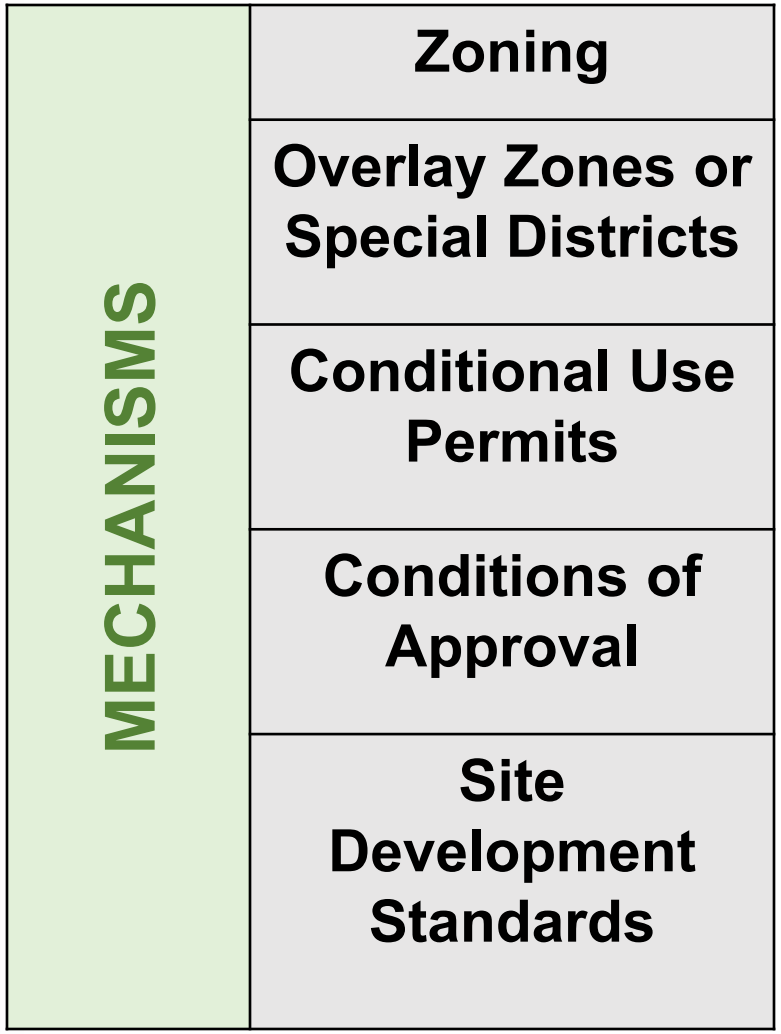
Require new or expanded commercial and industrial projects exceeding 25,000 square feet of gross floor area to be near zero-emissions (NZE) operations, including the facilities themselves and the associated fleets. Require all necessary measures, such as the following, to achieve NZE:

(a) Reduce on-site energy consumption and increase on-site energy generation and energy storage.
(b) Provide adequate on-site ZE vehicle-capable parking for all anticipated truck traffic to prevent idling and off-site queuing.
(c) Provide electrified loading docks with receptacles allowing plug-in of refrigerated trailers.
(d) Use heavy-duty trucks that are model year 2014 or later and expedite a transition to ZE trucks by establishing a clear timeline for electrification of trucks as they become commercially available. Ensure contracts with motor carriers include air quality incentives or requirements, such as providing incentives to fleets that meet United States Environmental Protection Agency (US EPA) SmartWay standards or requiring use of ZE or NZE trucks.
(e) Use a "clean fleet" of delivery vehicles as they become commercially available, but no later than 2025.
(f) Use ZE yard equipment, such as forklifts, pallet trucks and jacks, and stackers.
(g) Implement practices to control and remove fugitive dust and other contaminants from paved areas.
(h) Uses with fewer than five vehicles domiciled on-site are exempt from this policy.

Local Land Use Decisions

Local land use decisions can consider:

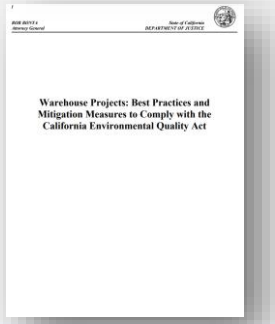
- > **Spatial Distribution**
- > **Design**
- > **Operations**



Local Land Use Decisions (cont.)

In complying with California Environmental Quality Act (CEQA), lead agencies can follow best practices for evaluating air quality and greenhouse gas impacts and adopt feasible, enforceable and effective mitigation measures.

The Air District's 2022 CEQA Guidelines includes guidance on analysis and mitigation of air quality and climate impacts, and includes a chapter with best practices for centering Environmental Justice, health, and equity in the siting, design, and development of land use projects



The California Attorney General's Bureau of Environmental Justice's Warehouse Projects: Best Practices and Mitigation Measures to Comply with the California Environmental Quality Act includes guidance on the analysis and mitigation of air quality, greenhouse gas, noise, traffic and other significant environmental impacts

Example Best Practices for Indirect Sources

- ✓ Require a buffer zone between indirect sources and sensitive receptors (e.g., 1,000 ft)
- ✓ Locate loading docks, truck entries, and truck drive aisles away from sensitive receptors
- ✓ Provide screening and buffering using trees, ground landscaping and solid decorative walls between indirect sources and sensitive receptors
- ✓ Design, clearly mark and enforce truck routes to keep trucks out of residential neighborhoods
- ✓ Provide adequate on-site electric vehicle (EV) capable parking for anticipated truck and passenger vehicles

Electric vehicle charging stations.
Bay Area Air Quality Management District.

Example Best Practices for Indirect Sources (cont.)

Truck equipped with zero-emission transportation refrigeration unit. Courtesy Mark Tang.

- ✓ Electrify loading docks and required plug-in of refrigerated and other trailers
- ✓ Require “clean fleets” of delivery vehicles
- ✓ Use only zero-emission yard equipment, such as forklifts, pallet trucks and jacks, and stackers
- ✓ Ensure contracts with motor carriers include air quality incentives or requirements for using zero-emission (ZE) or near zero-emission (NZE) trucks

Next Steps Discussion

CONSIDERATIONS

What indirect source sectors and types should be prioritized with respect to emissions benefit opportunities?

What policy tool(s), including rulemaking and additional support to local jurisdictions, provide the best opportunity to address indirect source impacts, particularly in overburdened communities?

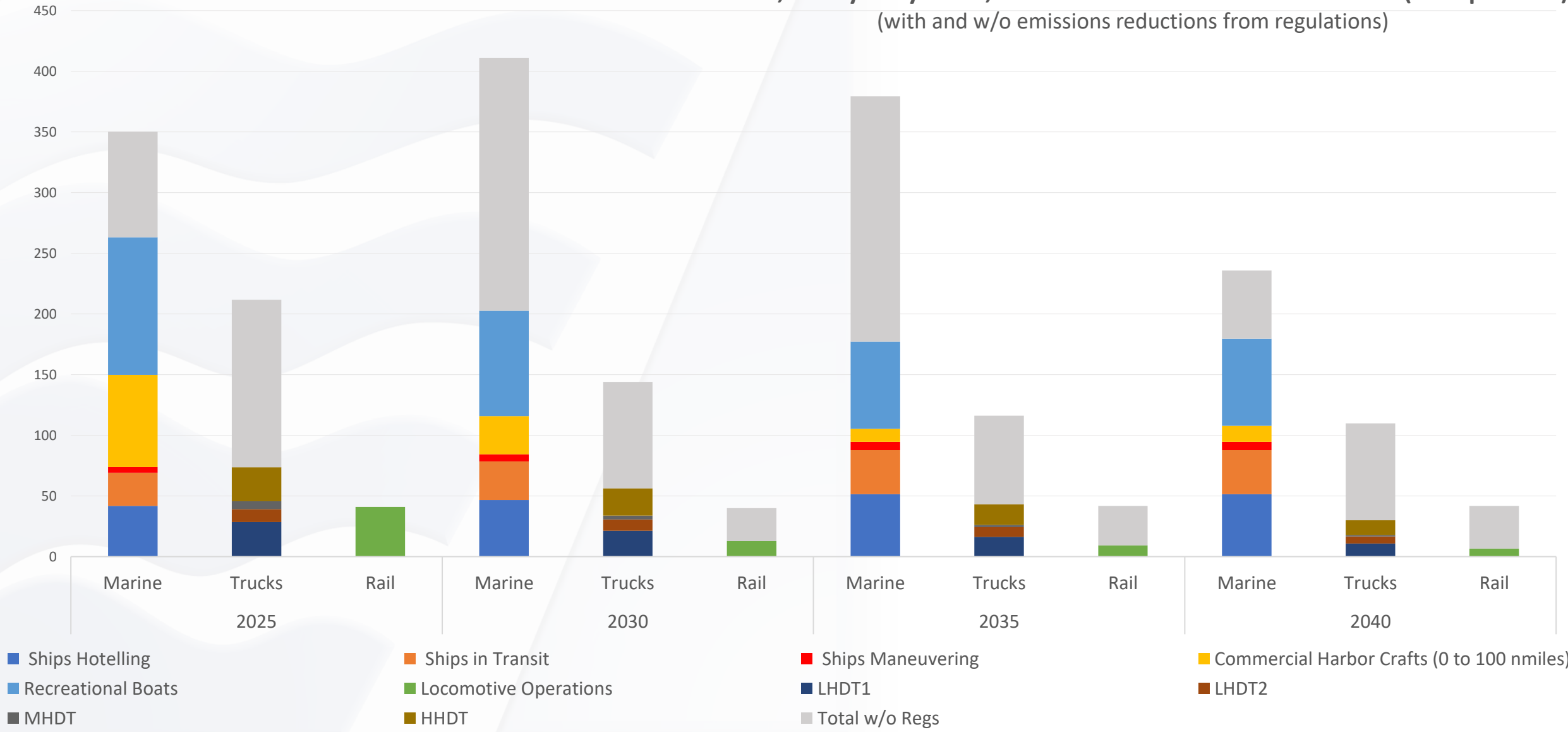
What are the resource implications of our approach relative to other priorities?

Other thoughts?

Extra Slide: Detailed Emissions

Marine, Heavy Duty Truck, and Rail PM10 Emissions Over Time (Tons per Year)

(with and w/o emissions reductions from regulations)



BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Vice Chairperson Mark Ross and Members of the Stationary Source Committee

From: Philip M. Fine
Executive Officer/APCO

Date: November 13, 2024

Re: Update on Indirect Sources and Questions on Marine Source Impacts

RECOMMENDED ACTION

None; the Committee will discuss this item, but no action is requested at this time.

BACKGROUND

During the September 11, 2024, Stationary Source Committee Meeting, staff presented an overview of rule development opportunities on indirect sources. Indirect sources are defined in the Clean Air Act as "… a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution." Staff previously presented existing regulations, policies, and ordinances that address impacts from different indirect sources such as warehouses, freight yards, and commercial marine ports. These sources are serviced by trucks, ships, and locomotives, and the California Air Resources Board has made a concerted effort to reduce their emissions by adopting comprehensive regulations of activities, fuel use, and control technology. While these regulations are effective, ships have not experienced the same magnitude of reductions as compared to trucks and locomotives. Committee members asked for additional information concerning impacts from ships that berth and maneuver in areas near Assembly Bill (AB) 617 and other overburdened communities in the Bay Area.

DISCUSSION

Air District staff will address specific questions raised at the September Stationary Source Committee Meeting concerning exposure impacts from marine ships at AB 617 communities. Staff will provide estimates of marine source impacts using examples taken from the recently adopted Path to Clean Air Emissions Reduction Plan for Richmond-North Richmond-San Pablo and the West Oakland Community Action Plan. Both communities have active ports that residents have raised air quality concerns about. Staff will use the modeled air concentrations based on base year emissions inventories from these community assessments to illustrate the exposure impacts from marine ships. Staff will also discuss how the exposure impact from marine sources compares to that of other significant sources (e.g., trucks, locomotives, and stationary sources) identified in the communities.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Philip M. Fine
Executive Officer/APCO

Prepared by: Virginia Lau
Reviewed by: Song Bai

ATTACHMENTS:

1. Indirect Sources and Marine Source Impacts Pesentation

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Agenda 5

Indirect Sources - Update

Stationary Source Committee Meeting
November 13, 2024

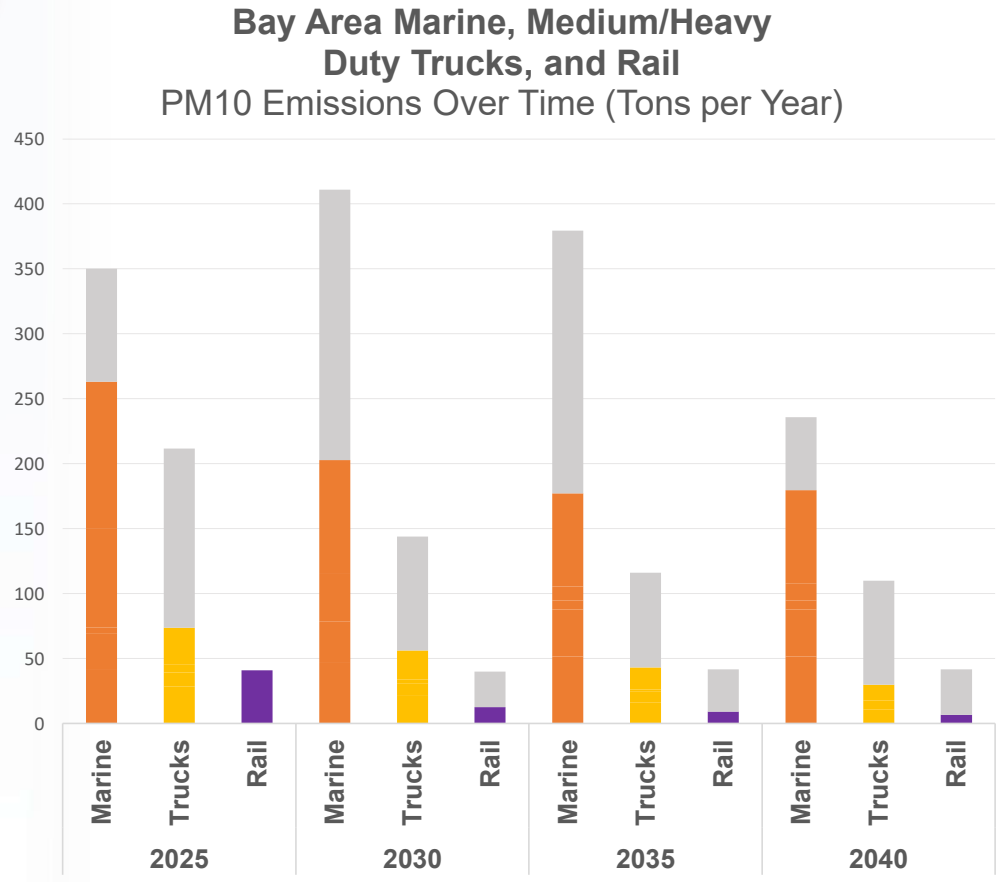
Virginia Lau
Assessment, Inventory & Modeling, Manager
vlau@baaqmd.gov

Outline

- Recap of September Stationary Source Meeting
- Responses to questions concerning marine sources
  - Brief overview of California Air Resource Board (CARB) regulations on marine sources
  - Marine source emissions impact on Assembly Bill (AB) 617 communities

Recap of September Stationary Source Meeting

- How many truck-related businesses/warehouses are in the Bay Area?
- What is the projected growth of these businesses?
- What are the marine source impacts to AB 617 communities?
- Are the health impacts different when ships are berthing versus maneuvering?



Gray= without emissions reductions from regulations; Color = emissions with regulations in place)

California Air Resources Board Regulations on Marine Sources

Ocean-going Vessel (OGV) At-Berth Regulation
Requires containers, reefers, cruise vessels (for visits to all regulated terminals) to use shore power by 2023

Commercial Harbor Craft Regulation
Multiple requirements starting in 2023 for use of renewable diesel, annual activity data reporting, upgrading engines, idling limits, and use of shore power

OGV Fuel Regulation
Phased requirement using progressive lower sulfur distillate grade marine fuels starting in 2009

OGV At-Berth applies to roll-on-roll vessels

OGV At-Berth applies to tankers

Key Takeaways

Regional Level

- Marine sources are significant contributors to the regional emissions inventory; nitrogen oxide (Nox) emissions from ships are twice as much of those from all stationary sources in the Bay Area
- Marine sources are major contributor to secondary particulate matter (PM), which has important health impacts

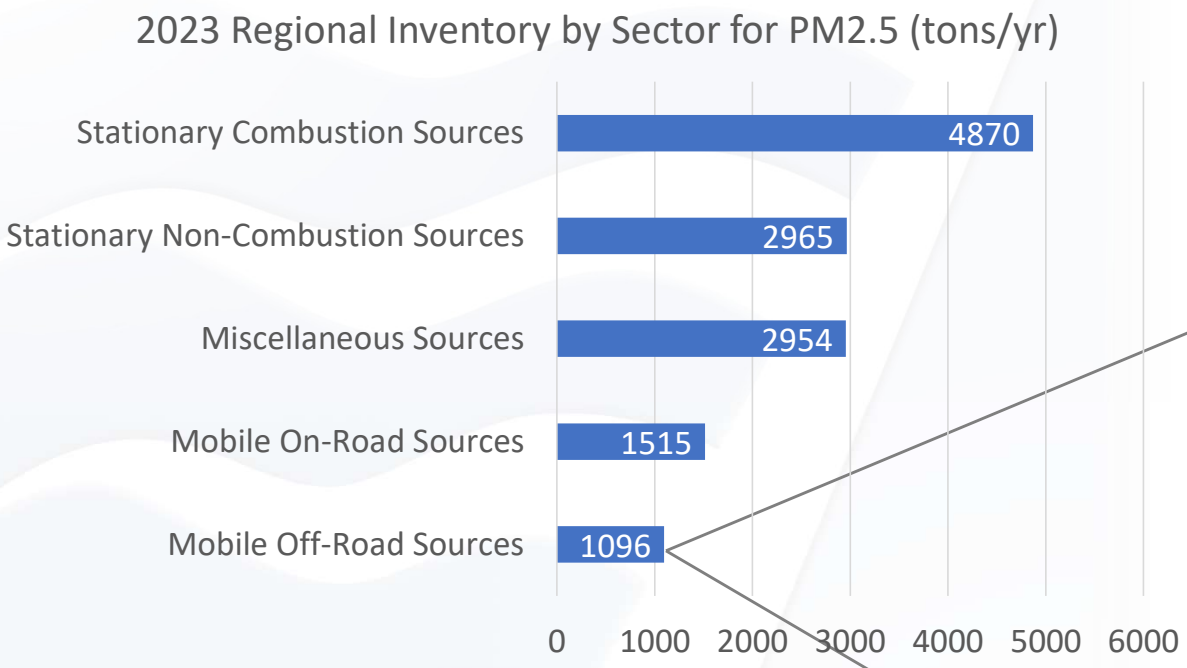
Local Level

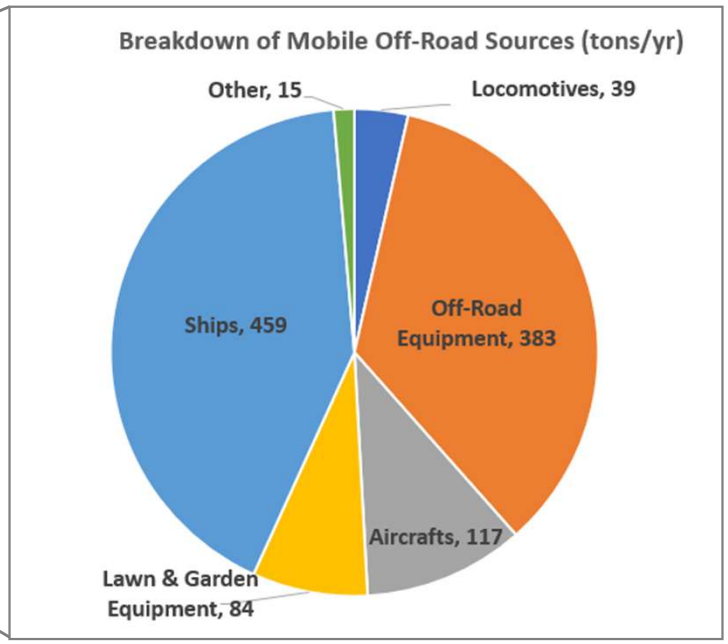
- Exposure analysis for communities indicate that marine sources have lower impacts per ton of emissions than trucks or locomotives (mainly due to proximity differences)

Emissions/Impact Reduction

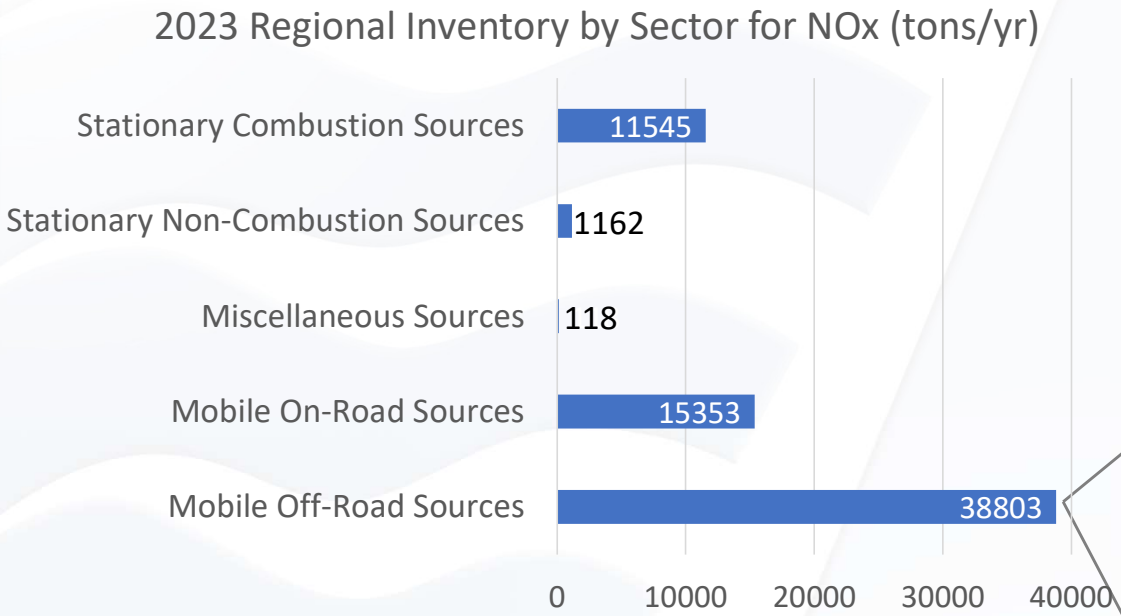
- CARB At-Berth regulations and new Environmental Protection Agency (EPA) grant will further reduce ship emissions when fully implemented

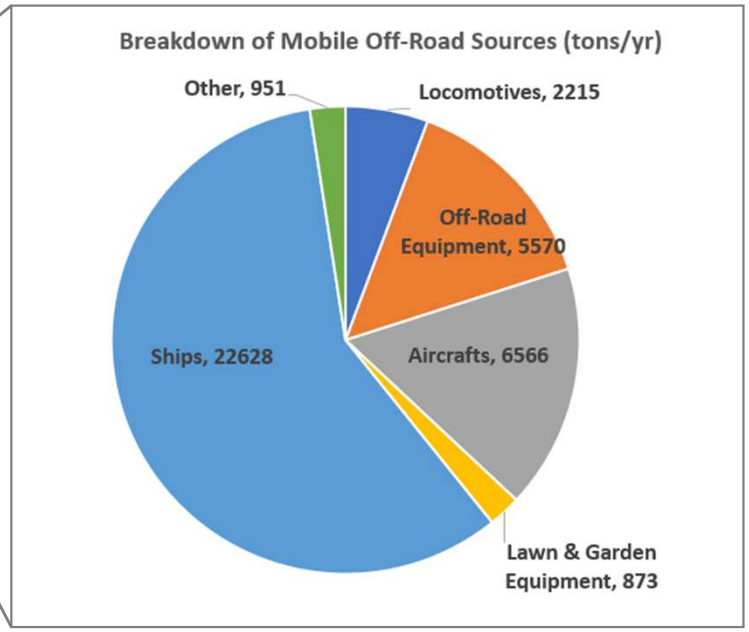
Regional Emissions Inventory for the Bay Area ($PM_{2.5}$)



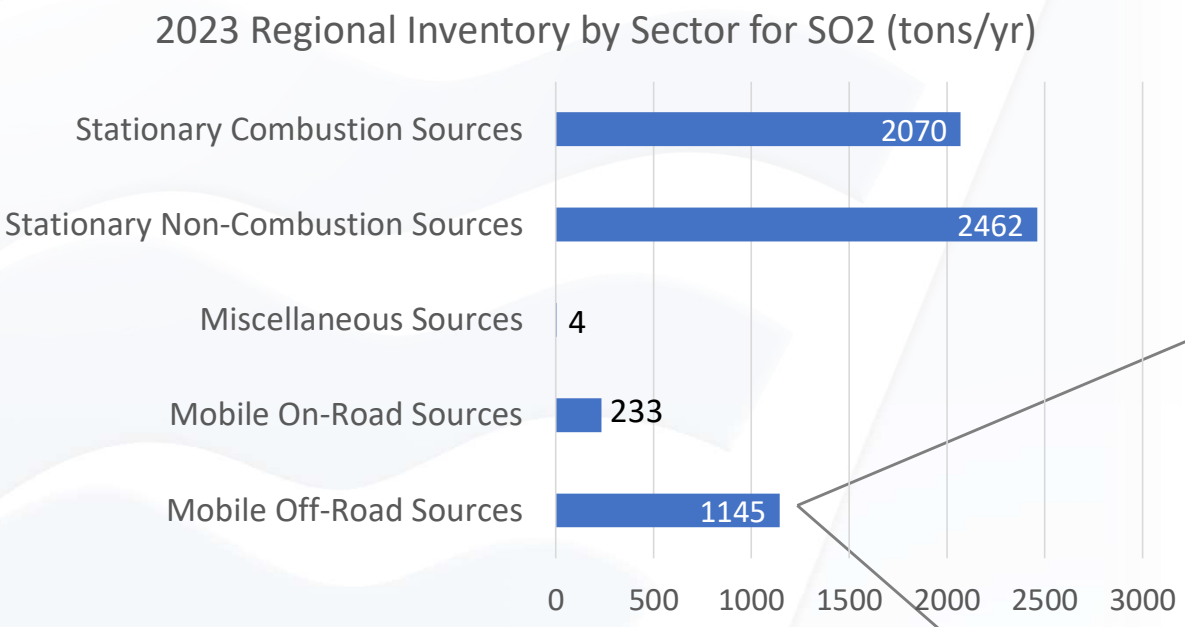


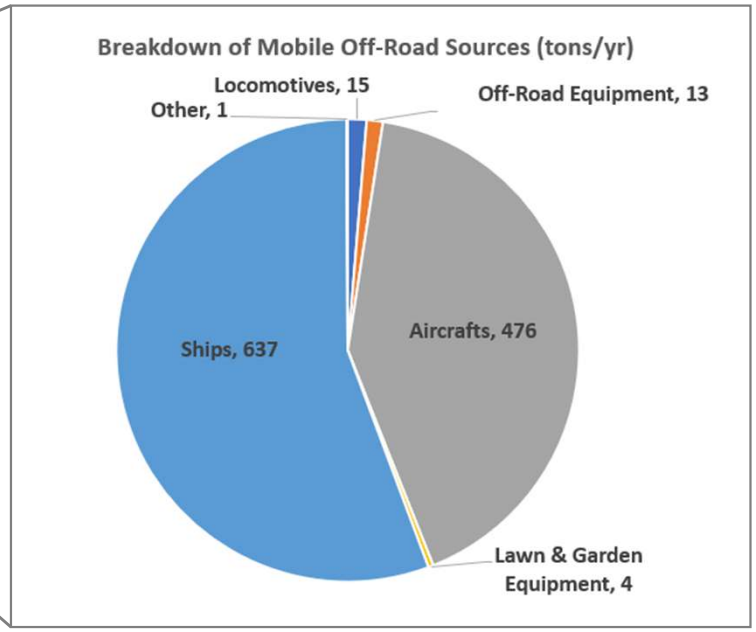
Regional Emissions Inventory for the Bay Area (NOx)





Regional Emissions Inventory for the Bay Area [(Sulfur Dioxide (SO_2)]

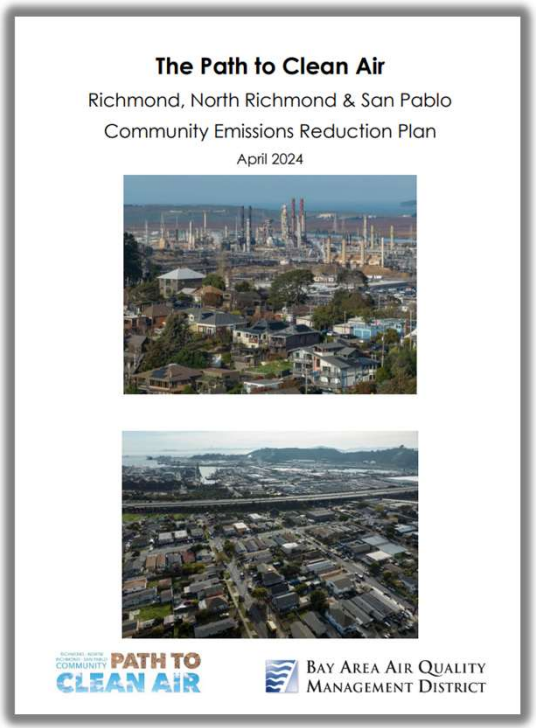




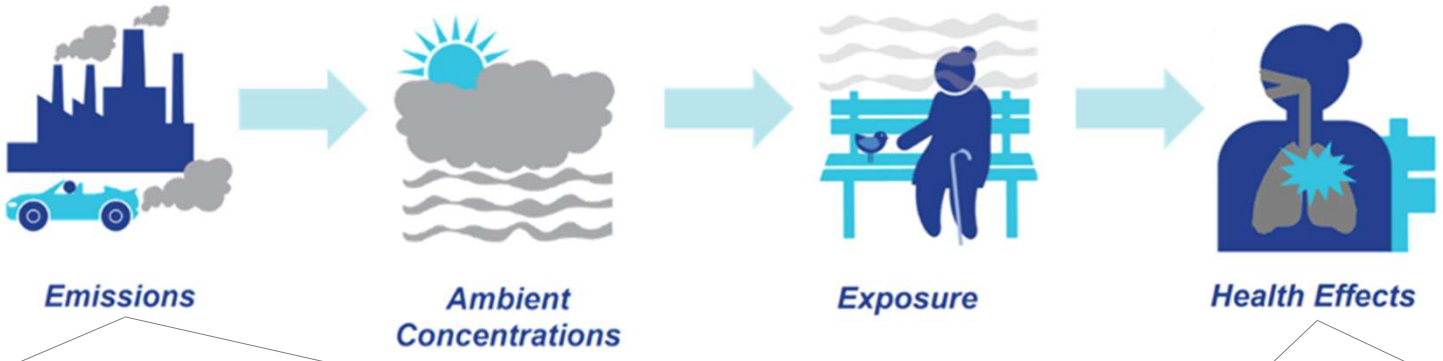
Assembly Bill (AB) 617 Community Assessments

West Oakland Community Action Plan (2019) and Fifth Year Annual Report (2024)

Richmond, North Richmond, and San Pablo Community Emissions Reduction Plan (2024)



General AB 617 Assessment Methodology



Port of Oakland
Trucks, ships, harbor craft, locomotives, cargo-handling equipment, and other off-road equipment

Trains
Passenger and freight

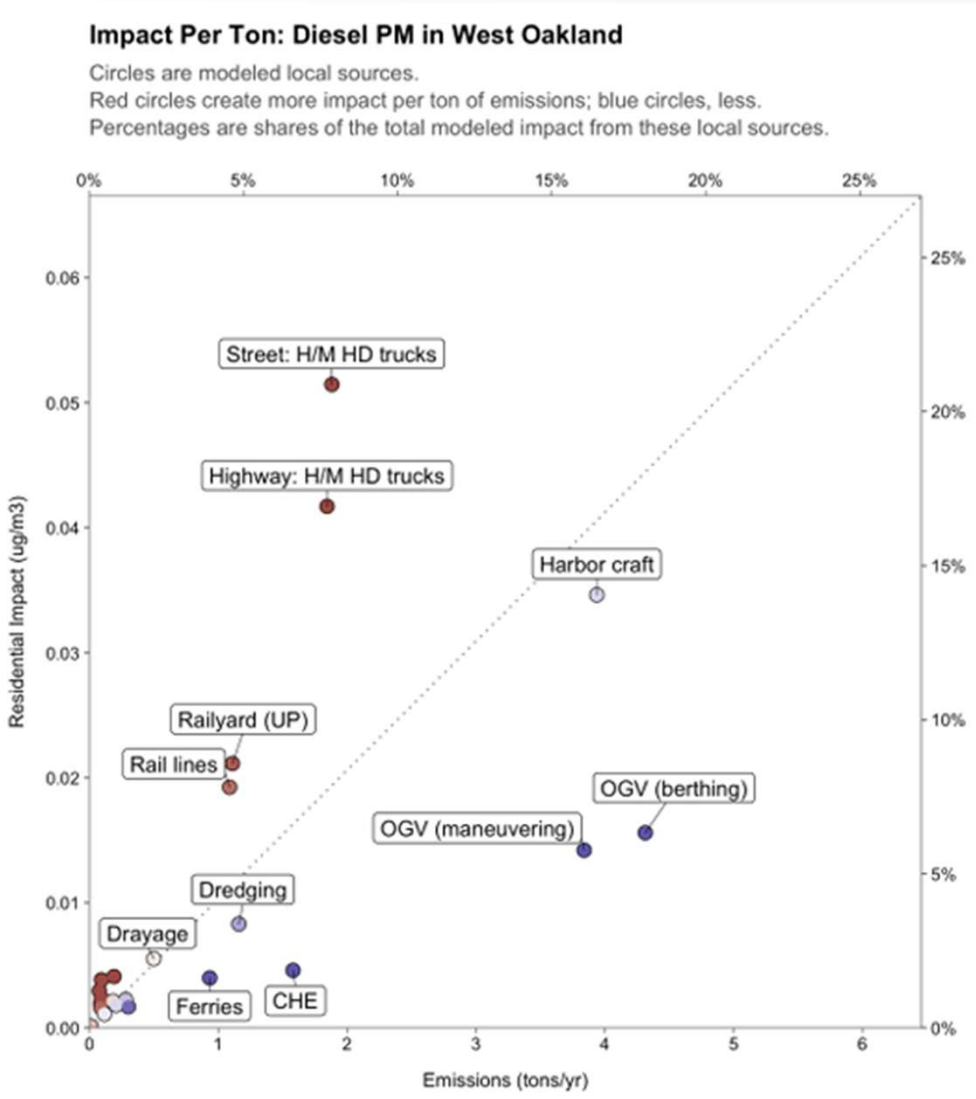
Permitted stationary sources
Metal melters, scrap handlers, diesel engines, backup generators, boilers, and gas stations

Cars and trucks
Freeways and surface streets

Truck-related businesses
Distribution centers, parking, recyclers, scrap handlers

Ships, ferries, harbor craft

Modeled Annual Average $PM_{2.5}$ Concentrations (ug/m^3)

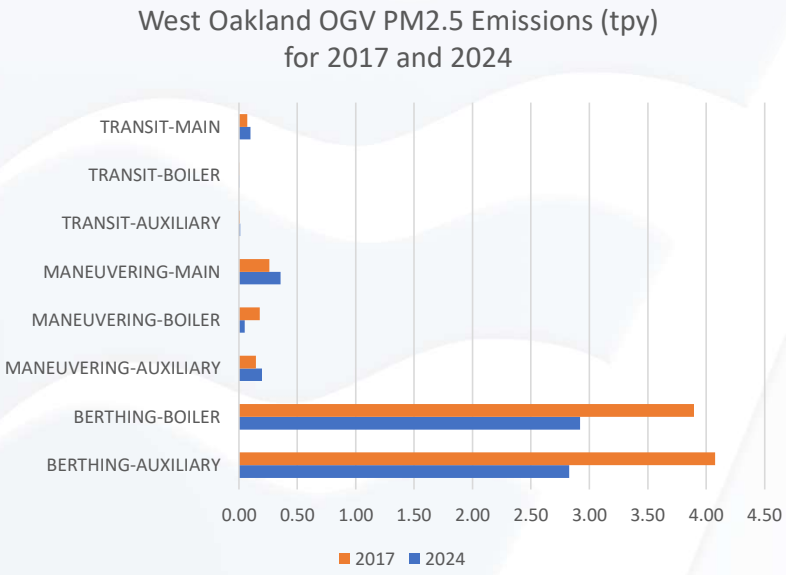


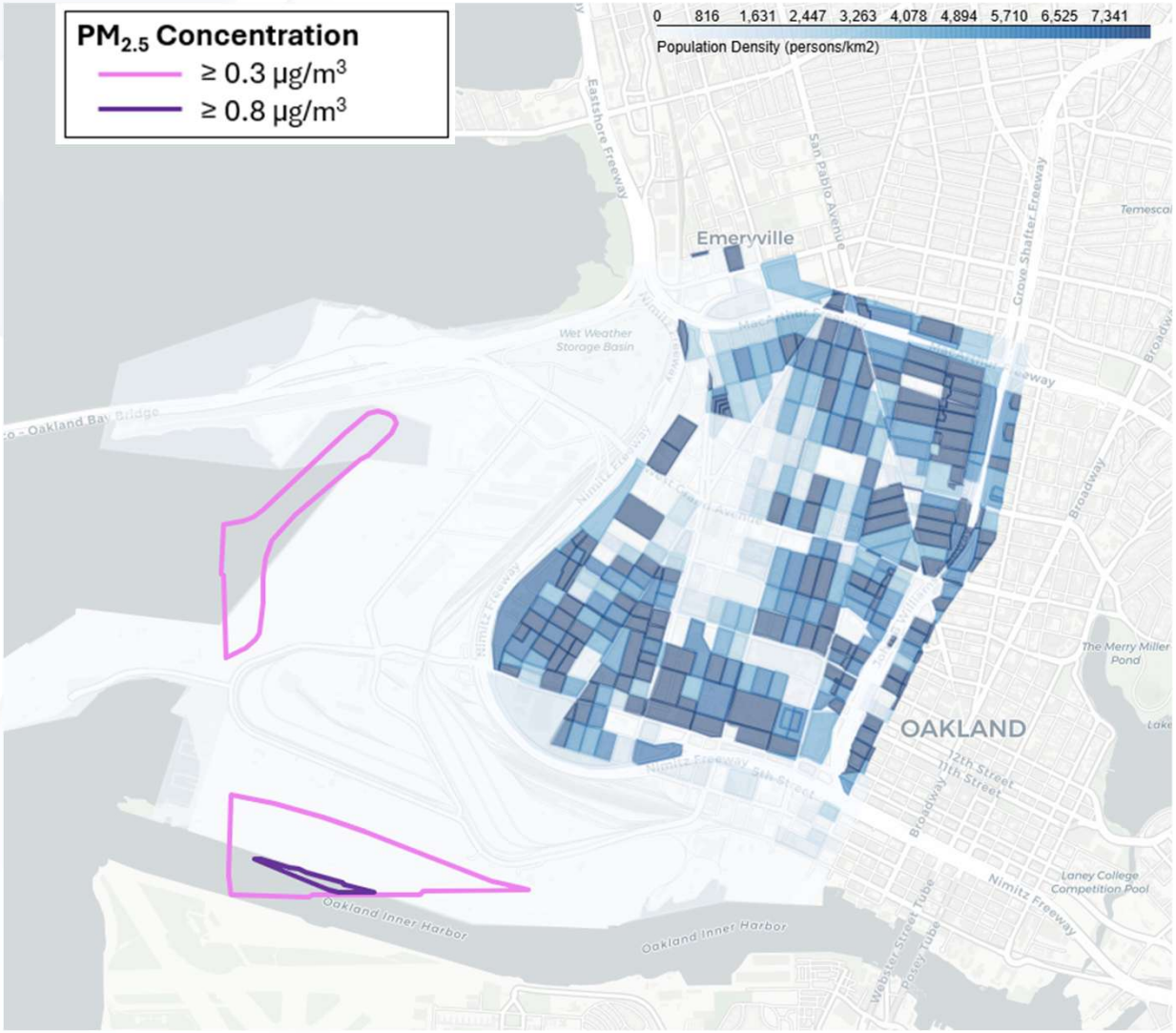
West Oakland Highlights (base year 2017)

- The magnitude of diesel particulate matter (DPM) emissions from trucks, OGV berthing, and OGV maneuvering are similar
- The relative exposure impact of OGV berthing and maneuvering is much lower than trucks, which are 5 x higher than OGV

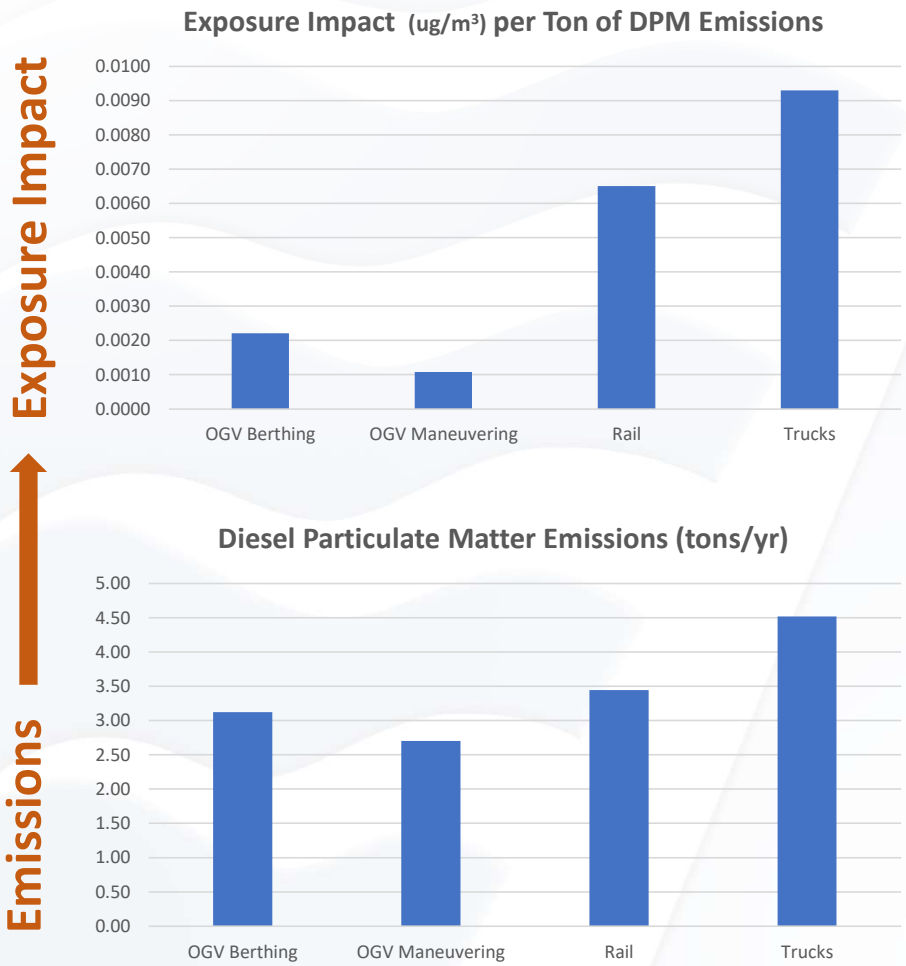
West Oakland OGV Particulate Matter ($PM_{2.5}$) Impacts

Modeled annual average $PM_{2.5}$ concentrations using 2017 emissions against 2020 block level census track data





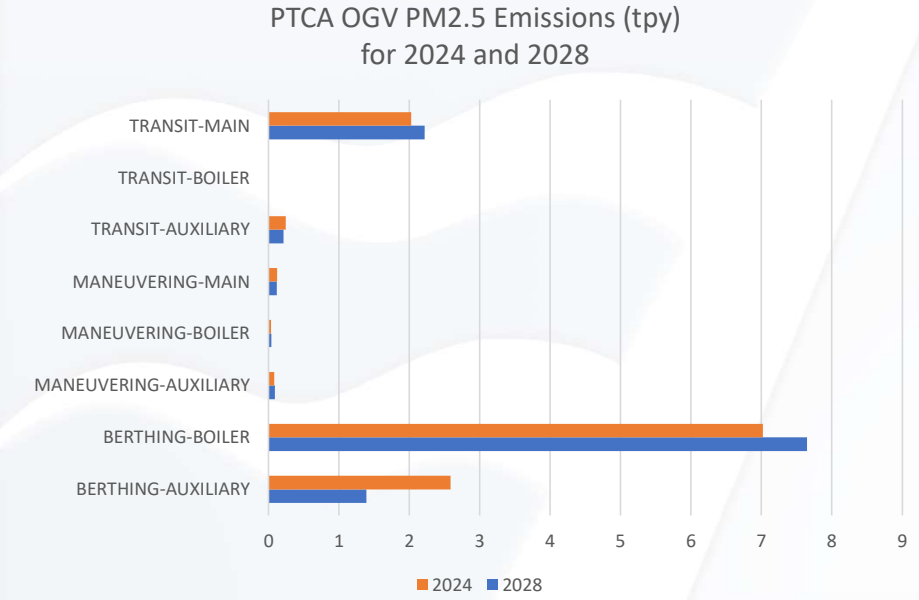
Richmond-North Richmond-San Pablo (Path To Clean Air - PTCA) Recap (base year 2024)

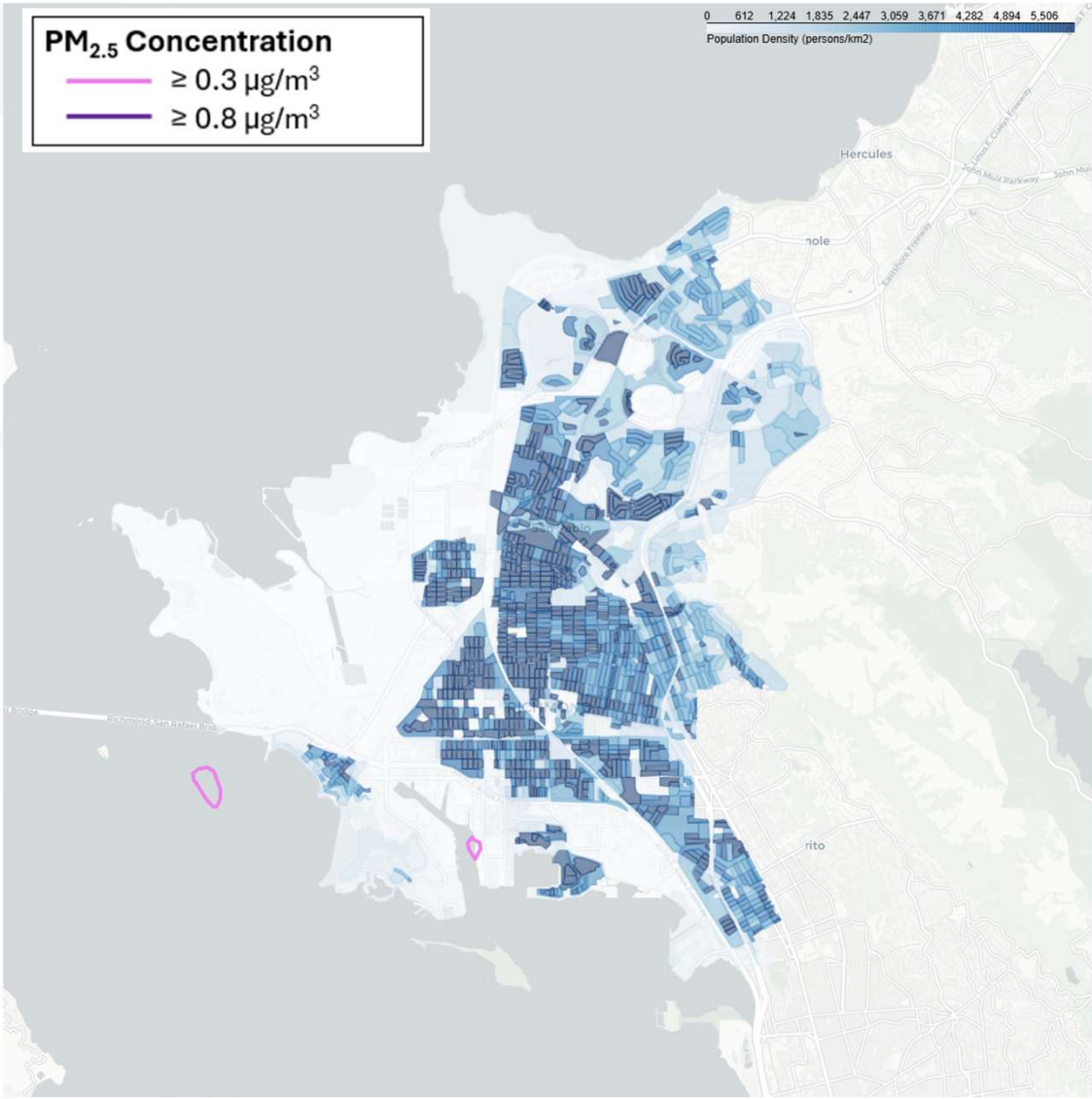


- Most of the $PM_{2.5}$ emissions are associated with Chevron Refinery in the PTCA community
- OGV berthing exposure impacts per ton of DPM emissions are double of those for OGV maneuvering
- Truck exposure impacts per ton of DPM emissions are 4 times higher than OGV berthing exposure impacts and 8 times higher than OGV maneuvering exposure impacts

PTCA OGV $PM_{2.5}$ Impacts

Modeled annual average $PM_{2.5}$ concentrations using 2024 emissions against 2020 block level census track data





Recent Headlines for EPA's Clean Port Program

- The awarded $322 million grant will be used to finance zero-emission trucks and cargo handling equipment (CHE) and improve infrastructure:
  - 475 drayage trucks
  - 180 yard tractors
  - 250+ charging stations/infrastructure
- The Port of Oakland project is scheduled to start in Dec 2024 and complete by Nov 2028.
- The Air District has committed to:
  - Continue participation in the West Oakland Sustainable Port Collaborative and Community Electrification Committee
  - Deploy air monitoring to measure the effectiveness of the project and understand the emissions reductions impacts

Port of Oakland awarded historic $322 million EPA grant

October 29, 2024

Grant to fund hundreds of zero-emissions trucks and cargo-handling equipment

Source: https://www.portofoakland.com/port-of-oakland-awarded-historic-322-million-epa-grant/

Follow-up Meeting

- Staff to present findings on the number of truck-related businesses/warehouses and their growth projections by early next year
- Staff plan to further assess secondary PM formation and its impact from various sources (including marine sources) as part of our ongoing PM control strategies development

BAY AREA AIR DISTRICT
Memorandum

To: Chairperson Ken Carlson and Members of the Stationary Source Committee

From: Philip M. Fine
Executive Officer/APCO

Date: March 12, 2025

Re: Warehouse Indirect Source Rule Considerations

RECOMMENDED ACTION

None; the Committee will discuss, but no action is requested at this time.

BACKGROUND

Air District staff will provide an update on indirect sources, rule development opportunities, and other policy tools. It serves as an opportunity to gather feedback and discuss next steps. The Clean Air Act defines an indirect source as "…a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution." Staff previously presented on Indirect Source Regulation (ISR) at the Stationary Source Committee (Committee) meetings in March, September, and November 2024, providing an overview of regulatory efforts across the state and examining emissions from various sources, including trucks, trains and ocean-going vessels.

This presentation responds to the Committee's concerns about warehouses as indirect sources. Air District staff consulted with South Coast Air Quality Management District (SCAQMD) on their ISR efforts and committed to following up with the Committee on potential approaches for addressing emissions impacts from indirect sources, particularly in relation to SCAQMD's Warehouse Actions and Investments to Reduce Emissions (WAIRE), Rule 2305.

This presentation reviews the regulatory landscape for warehouses as indirect sources, evaluates potential emissions reductions, and discusses key considerations for rule development, including resource needs, should a warehouse indirect source rule be pursued.

DISCUSSION

Indirect sources and their impacts on nearby communities have continued to grow across California, with goods movement activities and associated emissions as a key concern. The public, Assembly Bill (AB) 617 Community Steering Committees, and the Board of Directors (Board) have raised concerns about air quality impacts from goods movement infrastructure and planned warehouse developments in the San Francisco Bay Area, particularly in AB 617 and other overburdened communities.

Warehouses in the Bay Area

Air District staff obtained information from a commercial real estate analytics firm to identify the number, size, and location of existing warehouses in the Bay Area. This preliminary, screening-level inventory includes sites classified as warehouses, distribution centers, manufacturing facilities, refrigeration/cold storage locations, truck terminals, and flex spaces.

Based on an initial screening of real estate data, staff estimates that the region contains approximately 16,000 warehouses, ranging in size from less than 1,000 square feet to over 1 million (M) square feet of indoor floor space. Of these, approximately 45 percent of warehouses are located within Overburdened Communities (OBC), as defined by Regulation 2, Rule 1: Permits - General Requirements.

Indirect Source Rules in Other Air Districts

Various rules, regulations, policies, and ordinances address the impacts of indirect sources—such as locations that attract trucks, ships, and locomotives—to varying degrees. Some air districts have adopted rules specifically targeting indirect sources. For example, SCAQMD has developed and implemented rules for multiple sectors, including warehouses, freight rail yards, and commercial marine ports. Additionally, state and federal agencies regulate different categories of mobile source equipment.

The San Joaquin Valley Air Pollution Control District manages emissions growth from new land development in the Central Valley through Rule 9510: Indirect Source Review. In May 2021, SCAQMD adopted Rule 2305, the WAIRE Program. This first-of-its-kind air district rule aims to reduce diesel particulate matter (DPM) and nitrogen oxide (NOx) emissions from the freight sector in the Greater Los Angeles region.

SCAQMD's WAIRE Rule applies to approximately 3,320 warehouses in the greater Los Angeles region, covering all facilities with 100,000 square feet or more of indoor floor space in a single building used for warehousing activities. Affected warehouses must either earn a specified number of points annually by implementing approved emissions reduction measures from a menu or pay a mitigation fee to meet compliance requirements.

Estimating Potential Emissions Reductions in the Bay Area from a Warehouse Indirect Source Rule Similar to SCAQMD WAIRE Program

Air District staff conducted a preliminary assessment of the emissions reduction potential of adopting a local warehouse indirect source rule similar to SCAQMD's WAIRE Rule. This screening-level analysis is intended to provide context for decision-making, with more detailed evaluations to be conducted if rule development is pursued. A comparable rule regulating warehouses of 100,000 square feet or more in the Bay Area would be expected to yield proportional air quality and public health benefits, given the region's smaller number of qualifying warehouses (approximately 1,000 in the Bay Area compared to 3,320 in SCAQMD's jurisdiction).

Based on initial estimates, a local rule could reduce NOx emissions by up to 280 tons per year and particulate matter (PM_{10}), primarily diesel particulate matter, by up to 1.3 tons per year. These reductions would complement existing regulations and provide NOx emissions benefits on a scale similar to recent rulemakings, such as the 2023 building appliance rule amendments.

SCAQMD's WAIRE Rule is primarily focused on NOx reductions to support attainment of National Ambient Air Quality Standards for ozone and $PM_{2.5}$ in the South Coast Air Basin, as NOx is a precursor to the formation of both pollutants. While a local warehouse rule would contribute to reductions in directly emitted $PM_{2.5}$, substantial particulate matter reductions are expected to come from California Air Resources Board (CARB) regulations, potentially limiting the additional impact of a Bay Area indirect source rule following a similar approach to WAIRE.

Relevant Regulatory Activity

For warehouses, the primary sources of indirect emissions are medium- and heavy-duty trucks. CARB has adopted several regulations aimed at reducing truck emissions, including the Truck & Bus Rule, Advanced Clean Trucks Regulation, Low NOx Omnibus Rule, and Heavy-Duty Inspection and Maintenance Regulation. These measures are expected to significantly reduce emissions over the next five to fifteen years and beyond.

CARB's Advanced Clean Fleets (ACF) Regulation, adopted in 2023, requires certain fleets to transition to zero-emission vehicles (ZEVs) through a phased approach. The regulation mandates that targeted fleets gradually adopt ZEVs and that manufacturers produce only ZEV trucks beginning with the 2036 model year. Under the Clean Air Act, California has the authority to seek a waiver from federal preemption, allowing the state to enforce its own emissions standards for new nonroad engines and vehicles. CARB initially submitted a waiver request on November 15, 2023. However, on January 13, 2025, California withdrew its request, affecting specific provisions of the ACF Regulation.

As a result, CARB is not enforcing portions of the ACF Regulation that require a federal waiver, including those applying to high-priority and drayage fleets. However, not all aspects of the regulation are affected; requirements for state and local government fleets remain in place.

Other CARB programs, such as the Advanced Clean Trucks Regulation and heavy-duty truck incentives programs, are expected to continue providing local emissions reduction benefits. The potential emissions reductions presented here, based on a WAIRE Rule-style implementation in the Bay Area, do not account for any emissions reductions from the implementation of the Advanced Clean Fleets Regulation.

Considerations for Next Steps

A high-level assessment of the resources required for the Air District to develop an indirect source rule similar to SCAQMD's WAIRE Rule was conducted. Initial estimates indicate that rule development would require approximately three full-time equivalent staff over a three-year period, in addition to substantial legal support.

Further consideration should be given to the resources needed for ongoing rule implementation following adoption, as well as the prioritization of this effort relative to other rule development and amendment initiatives.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Philip M. Fine
Executive Officer/APCO

Prepared by: Christopher Easter and Julia Luongo
Reviewed by: Jennifer Lam and Victor Douglas

ATTACHMENT(S):

1. Warehouse Indirect Source Rule Considerations

AGENDA: 3

Bay Area Air District

Warehouse Indirect Source Rule Considerations

Stationary Source Committee

March 12, 2025

Christopher Easter
Senior Air Quality Specialist
Rules & Strategic Policy

Presentation Outline

- Background
- Warehouses and Distribution Centers in the Bay Area
- Potential Indirect Source Rule (ISR) Impacts and Considerations
- Updates on Relevant Regulatory Activity
- Possible Timeline and Options for Future Actions

Background

What is an Indirect Source?

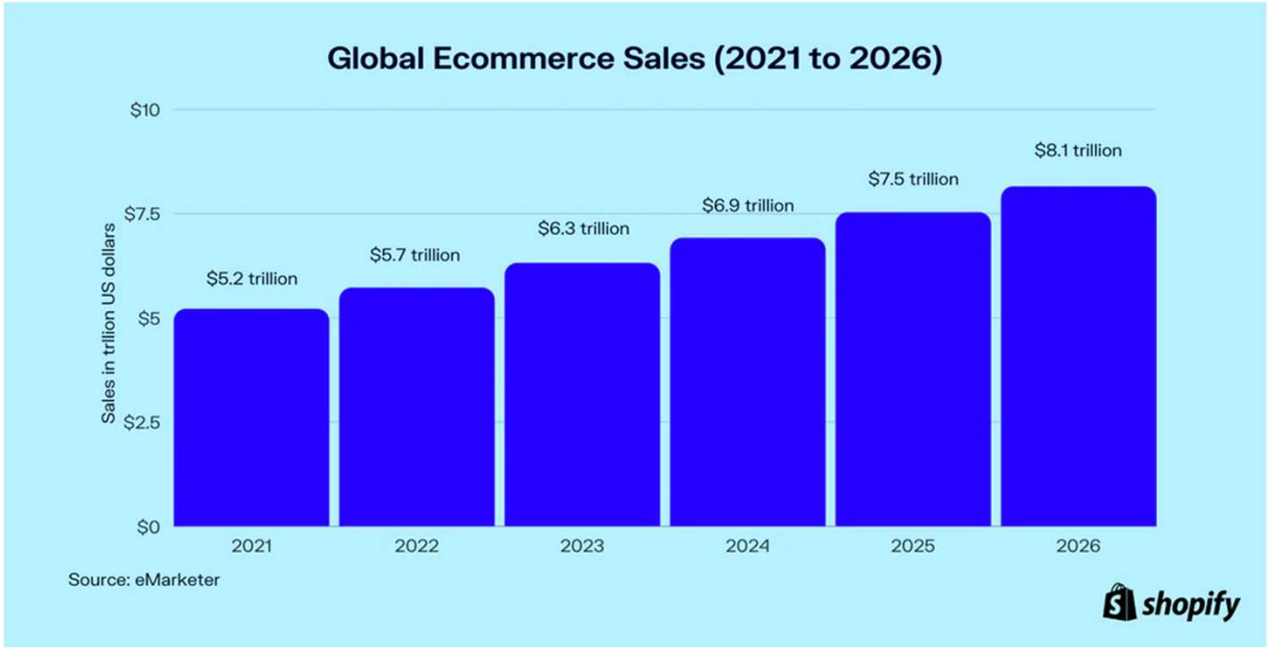
- Any Facility that attracts mobile sources of emissions…defined by United States Environmental Protection Agency (US EPA) within the Clean Air Act as "… a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution."

42 U.S.C. § 7410(a)(5)(C)

Background: Goods Movement

LAO, "Overview of California's Ports, August 23, 2022

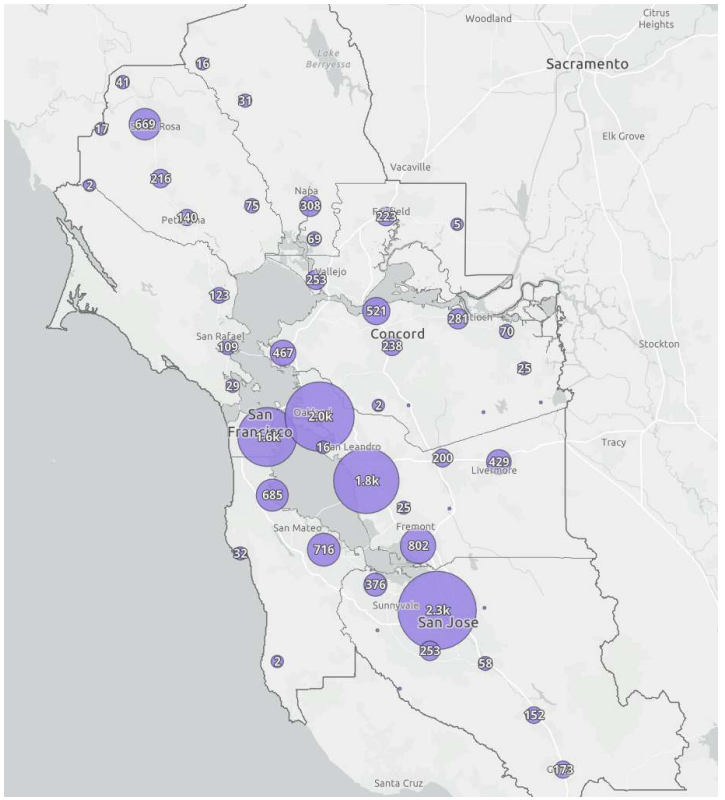
Background: Growth in e-commerce



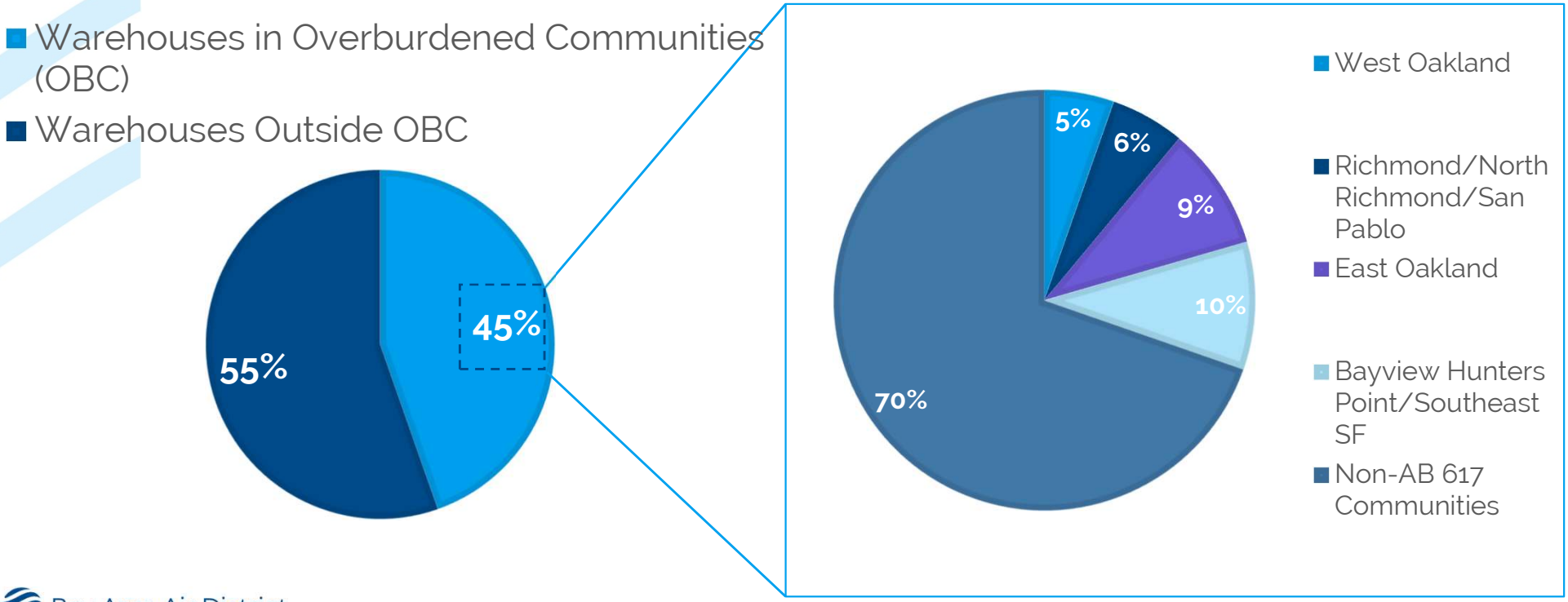
Annual Meeting and Mobile Ecommerce Trends Transforming The Industry In 2023

Warehouses in the Bay Area

- ~16,000 total warehouses
- Individual sites range from less than 1000 square feet to more than 1 million (M) square feet



Warehouses in the Bay Area



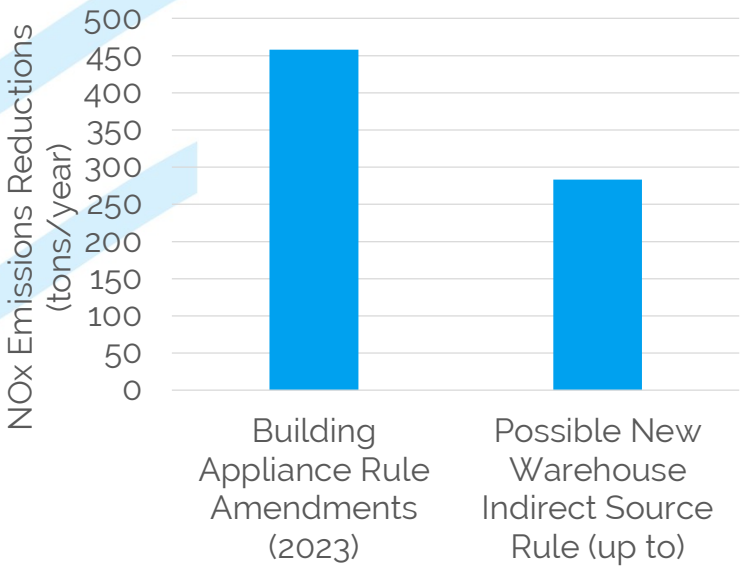
Indirect Source Rules in Other Air Districts

- San Joaquin Valley Air Pollution Control District
  - Rule 9510: Indirect Source Review
- San Deigo Air Pollution Control District
  - Warehouse Indirect Source Rule under evaluation
- South Coast Air Quality Management District (South Coast AQMD)
  - Rule 2305 - Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program
  - Annual WAIRE points (or mitigation fee) compliance obligation
  - Only applies to warehouses >100,000 square feet (sq. ft.)

Warehouses Greater Than 100,000 Sq Ft

Bay Area	1,000 sites	~200 Million Sq Ft
South Coast	3,320 sites	~800 Million Sq Ft
San Diego	243 sites	~50 Million Sq Ft

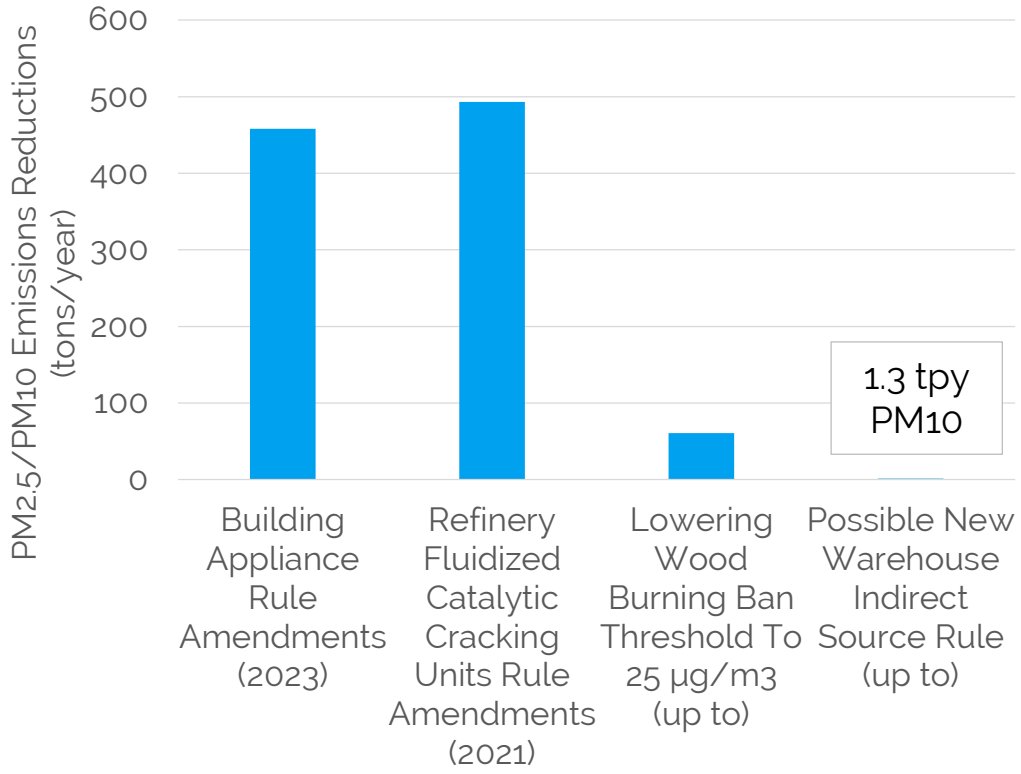
Potential Nitrogen Oxides (NOx) Reductions in the Bay Area



- Screening-level assessment assuming a similar approach as WAIRE
- WAIRE is a NOx-focused rule supporting efforts to attain ozone and fine particulate matter ($PM_{2.5}$) National Ambient Air Quality Standards

Potential Particulate Matter (PM) Reductions in the Bay Area

- California Air Resource Board Truck & Bus, Advanced Clean Trucks, Low NOx Omnibus, and Heavy-Duty Inspection and Maintenance Regulations impact baseline emissions from heavy duty trucks
- Primarily diesel particulate matter reductions



Relevant Regulatory Activities

Advanced Clean Fleets waiver request withdrawn by California Air Resources Board (CARB) on 1/13/25

- Advanced Clean Trucks (supply side) program still in effect
- Implementation of additional CARB programs, including incentives in disadvantaged communities, can function to fill the gap
- Requirements for state and local public fleets will continue to move forward
- Emissions estimates assume no Advanced Clean Fleets implementation

Considerations for Next Steps

- Rule Development Process
  - 3 Full Time Equivalent (FTE) staff (~one-third of rulemaking team), plus significant Legal support
  - Approximately 3 years
- Rule and Program Implementation
  - Dependent on rule/program design
  - South Coast AQMD estimated 5 FTE plus technology/data infrastructure needs
- Rule Development Prioritization

Questions/Feedback

For more information:

Christopher Easter

Senior Air Quality Specialist – Rules & Strategic Policy

ceaster@baaqmd.gov