Chapter 6 – Strategies and Implementation

To implement the Plan, government agencies, community members, business owners, and other stakeholders need to commit resources and funding. Over the past fifteen years, a variety of public agencies have adopted plans that directly or indirectly affect air quality and quality of life in West Oakland (see Appendix D). The Plan builds on these planning activities by identifying 84 Strategies and four Further Study Measures that add to or extend existing plan actions. The Strategies and Further Study Measures are listed in Table 6-4 and Table 6-5 at the end of this chapter, along with the collaborating authorities and implementation schedule.

As this Plan is implemented, the Strategies and Further Study Measures will be refined, and specific elements fleshed out. Public agencies will need to commit resources to the Strategies and Further Study Measures to conduct further investigation to understand authority, legality, effectiveness, and feasibility. Over the lifetime of the Plan, if additional feasible strategies are identified, these strategies will be reported in the annual reports to CARB.

KEY AGENCIES WITH ROLES IMPLEMENTING THE PLAN

Air District

The Air District is the regional agency responsible for assuring clean air in the nine counties that surround the San Francisco Bay (except northeastern Solano and northern Sonoma counties). The Air District writes and implements air quality plans, adopts and enforces regulations to control air pollution from stationary sources, offers incentives to government agencies, businesses, and individuals to voluntarily reduce air pollution, engages with communities and provides technical and policy guidance regarding air quality, and manages the Spare the Air program.

City of Oakland

The City of Oakland is the local agency responsible for land-use and transportation decisions. The City Council makes land-use decisions by adopting general and specific plans, zoning regulations, and certifying environmental reports for land-use projects, such as housing, commercial, and industrial developments.

Metropolitan Transportation Commission (MTC)

The Metropolitan Transportation Commission (MTC) is the regional agency responsible for transportation planning, financing, and coordinating for the nine-county San Francisco Bay Area. MTC works with other public agencies in the Bay Area to support the streets, roads, highways, transit systems, and other transportation resources. MTC is currently working on Plan Bay Area 2050. Plan Bay Area 2050 is a long-range plan for the future of the nine-county region, focusing on the economy, the environment, housing, and transportation. Plan Bay Area 2050 will identify West Oakland as a designated Priority Development Area (PDA), which means that it has convenient public transit service prioritized by local government for housing, jobs, and services. As a PDA, West Oakland has access to dedicated funding for plans and infrastructure improvements, and MTC recognizes PDAs as important locations for growth that will help address the region's climate emission reduction goals.

Port of Oakland

The Port of Oakland is the local agency responsible for managing the Oakland Seaport, Oakland International Airport, and Jack London Square. The City of Oakland's Charter establishes the Port of Oakland as an independent department with its own governing board.

Alameda County Public Health Department

The Alameda County Public Health Department is the county department responsible for providing public health services. The Health Department delivers services such as access to quality medical care services, disease prevention education and control, community education and outreach, and health policy development.

California Air Resources Board (CARB)

CARB is the state agency responsible for controlling emissions from mobile sources and consumer products (except where federal law preempts CARB's authority), controlling toxic emissions from mobile sources, controlling greenhouse gases from mobile and stationary sources, developing fuel specifications, and coordinating State-level air quality planning strategies with other agencies. CARB is also responsible for establishing the state's air quality standards to protect human health.

Alameda County Transportation Commission

The Alameda County Transportation Commission (Alameda CTC) is the county agency responsible for managing the county's one-cent transportation sales tax funds and funding transportation projects and programs. The Alameda CTC is responsible for delivering the County's bicycle, pedestrian, highway improvements, road, and transit projects.

California Department of Transportation (Caltrans)

The California Department of Transportation (Caltrans) is the state agency responsible for maintaining and improving state highways and transportation projects.

STRATEGIES

The Steering Committee is recommending 84 Strategies based on its local knowledge of their community, the health issues confronting residents, air pollution monitoring data, and the Air District's modeling of pollution concentrations and cancer risks. This list of Strategies was consolidated from an initial, broader list that included many similar concepts. These Strategies include lowering emissions from the most important sources in West Oakland, reducing exposure by filtering pollutants, and moving pollution sources away from residents. In this section, an overview of the Strategies by category are presented along with the key authorities and examples. Improvement and expansion of enforcement programs are described in Chapter 7.

Land Use Strategies

The Steering Committee identified air pollution issues closely tied to land use decisions. Non-conforming or incompatible land uses can result in increased exposure, particularly when industrial facilities or truck routes are sited near residences.

The City of Oakland adopted the West Oakland Specific Plan to facilitate development in West Oakland. Consistent with the West Oakland Specific Plan, the City plans to identify locations to relocate heavy industrial businesses currently in West Oakland (Strategy #4). Relocating two recycling companies (California Waste Solutions and CASS, Inc.) to the former Oakland Army Base has been the subject of community concerns. Relocating these two firms by the end of 2024, if not sooner, will reduce exposure from both their onsite operations and from trucks traveling and idling on local streets within Zones 1 and 6 (Strategy #1).

In addition to relocating polluting businesses out of residential areas, the Steering Committee also identified strategies to relocate truck yards and truck routes away from residences (Strategy #5). Exposure from trucks can be reduced by shifting and enforcing truck routes and hours within the community and enforcing existing restrictions on truck parking, truck idling (Strategy #9). Exposure from open burning and pollution from industrial sources also may be reduced with better agency coordination and updated enforcement procedures (Strategy #24).

The Steering Committee also identified strategies to support emissions reductions at the Port, such as adopting an Electrical Infrastructure Plan for the maritime waterfront areas of Oakland (Strategy #19) and working with other agencies and local partners to create a Sustainable Freight Advisory Committee to address air quality issues (Strategy #21).

In addition, the Steering Committee identified two Strategies to plant vegetative borders as living filters between sources of PM and residences, parks, schools, and community centers. The first is a community participatory design process being led by the WOEIP for a biofilter system for the Prescott neighborhood (Strategy #12). The second is a recommendation that the City of Oakland develop a comprehensive urban canopy and vegetation plan for West Oakland that identifies the locations where trees can be added, such as parks and along Caltrans' highway and freeway rights-of-way, and that provides for the long-term maintenance of trees (Strategies #10, 16).

Mobile Source Strategies

The Steering Committee identified that most of the community's air pollution issues stem from mobile sources in and within the vicinity of the community. Mobile sources include on-road and off-road vehicles, marine, and locomotives. Various agencies share authority over mobile sources of air pollution.

The City of Oakland has the authority to set truck routes and parking policies. Proximity to truck emissions can be reduced by keeping trucks on designated routes and out of residential neighborhoods. For example, the City adopted the West Oakland Truck Management Plan to reduce the effects of transport trucks on local streets in West Oakland. For the Plan, the City of Oakland will implement strategies that address air pollution impacts from transportation (Strategies #33-35).

The Steering Committee also identified the need for improving modes of transportation in West Oakland. For example, the Steering Committee emphasized the need for completion of the transit proposals from the West Oakland Specific Plan, particularly increases in current AC Transit service and the introduction of new direct service to Downtown Oakland akin to the successful Broadway Shuttle

(Strategy #45). In addition, the Steering Committee recognizes that improving the design and safety of the local streets will help to indirectly reduce emissions by encouraging residents to walk or ride bicycles and scooters instead of driving cars (Strategy #56). Other mobile strategies include working with Alameda CTC to improve bicycling and pedestrian infrastructure in West Oakland (Strategy #44) and with MTC to extend car sharing to low-income individuals and groups (Strategy #46).

At the Port, the Steering Committee recommended the following strategies to reduce emissions from movement of inbound and outbound freight on cargo equipment, port trucks, locomotives, and ocean-going ships and harbor craft in the San Francisco Bay:

- Working with the City of Oakland to award long-term leases to vendors that will deliver trucker services (including mini-market and convenience stores, fast food and fast casual restaurants), and parking to keep trucks off West Oakland streets (Strategy #42);
- Studying the effects on truck flow and congestion due to increasing visits from larger container ships, the feasibility of an off-terminal container yard that utilizes zero-emission trucks to move containers to and from the marine terminals, and the potential efficiency gains from increasing the number of trucks hauling loaded containers on each leg of a roundtrip to the Port (Strategy #43); and
- Studying the feasibility of using electric switcher locomotives at the two Port railyards (Strategy #65).

CARB plays an important role in implementing Plan Strategies. CARB regulates motor vehicle fuel specifications, emission standards for on- and off-road vehicles, and consumer product emissions. One of CARB's relevant regulatory authorities is to adopt measures to reduce emissions of toxic air contaminants from mobile sources, known as Airborne Toxic Control Measures (ATCM).[39] These regulatory measures include emissions limits, process requirements, and/or specify low emission technology. Much of the progress to-date in improving air quality in West Oakland is due to compliance with CARB's existing diesel particulate matter ATCMs and new engine standards. CARB is proposing a suite of amendments to existing ATCMs and adoption of new programs to further reduce emissions of diesel PM.

Several of the Strategies will require CARB to consider and to adopt new or amended regulations. Prior to starting formal regulatory proceedings, CARB staff will need to undertake studies of some of these Strategies.

- CARB develops a new Advanced Clean Truck Regulation and amendments to the existing drayage truck regulations to increase the number of zero-emission trucks operating in West Oakland (Strategy #29);
- CARB, in partnership with the Steering Committee, WOEIP, and the Air District, conducts a pilot study to assess local impacts from idling trucks and buses. The Steering Committee, WOEIP and

[39] California Health and Safety Code § 39650 et seq.

the Air District advocate for "Clean Idle" trucks and buses to idle no more than 5 minutes when in West Oakland (Strategy #30);

- CARB develops amendments to the transport refrigeration unit (TRU) regulation to transition the TRU fleet to zero emission operations by requiring both zero-emission technology and supporting infrastructure (Strategy #31);
- CARB develops amendments to the existing cargo handling equipment regulation, which includes yard trucks, rubber-tired gantry cranes, and top handlers, that may reduce idling and transition the various types of equipment to zero emission operation (Strategy #32);
- CARB develops regulations to expand California-specific standards for new light-duty vehicles, impacting 2026 and later model year vehicles, to increase the number of new zero emission and plug-in hybrid electric vehicles sold in California and increase the stringency of fleet-wide emission standards for greenhouse gases and criteria pollutants (Strategy #34);
- CARB develops new standards for small off-road engines (SORE), which are spark-ignition engines rated at or below 19 kilowatts and used primarily for lawn, garden, and other outdoor power equipment (Strategy #35);
- CARB develops amendments to the At-Berth ATCM to further reduce ship emissions at berth by strengthening the regulation to cover more vessel visits and types of ships (Strategy #60);
- CARB develops amendments to the Commercial Harbor Craft Air Toxics Control Measure to achieve additional control of harbor craft emissions. The Steering Committee, WOEIP and the Air District advocate for early compliance by Harbor Craft operating near West Oakland (Strategy #61); and
- CARB develops regulations to reduce idling emissions from locomotives at rail yards, with an emphasis on reducing emissions from locomotives not pre-empted under the federal Clean Air Act. The Steering Committee, WOEIP and the Air District advocate for early compliance for locomotives operating in West Oakland (Strategy #62).

Stationary Source Strategies

The Steering Committee identified several strategies to reduce exposure of emissions from stationary sources of pollution. Stationary sources in West Oakland include the East Bay Municipal Utility District wastewater treatment plant; recycling facilities like Schnitzer Steel, CASS, and California Waste Solutions; gas stations; back-up diesel generators; and auto-body shops.

The Air District is the regional agency responsible for assuring clean air in the San Francisco Bay Area. For the Plan, the Air District will implement strategies that include enhancing existing and adopting new regulations, enhancing compliance and enforcement, funding emissions- and exposure-reducing projects, and working with community and agency partners to advocate for, study, and implement innovative ways to decrease emissions and exposure to emissions in West Oakland.

A primary Strategy to control two significant stationary sources of toxic air contaminants, Schnitzer Steel and the EBMUD Wastewater Treatment Plant, are health risk assessments scheduled in 2020 and 2021 under the Air District's Rule 11-18 (Strategy #69). The Air District's Rule 11-18 is a health risk-based rule that was adopted in 2017 to enhance the Air District's existing Toxic "Hot Spots" Program. Compared to the Hot Spots Program, which is often called the "AB 2588 Program" after the enacted bill, Rule 11-18 sets risk action levels that are significantly more stringent and health-protective. Facilities subject to Rule 11-18 will be evaluated through a health risk assessment and are required to develop and implement a facility-specific risk reduction plan if risks exceed specified action levels. Additional controls at these two facilities will be guided by the results of the risk assessments. For more information on the Rule 11-18 implementation process, visit http://www.baaqmd.gov/community-health/facility-risk-reduction-program.

The Air District also will consider potential amendments to Rule 6-4, Metal Recycling and Shredding Operations, and Rule 12-13, Foundry and Forging Operations, to further reduce fugitive particulate matter emissions (Strategy #68). In addition, the Air District will consider other potential rule amendments related to the AB 617 schedule for expedited implementation of Best Available Retrofit Control Technology. As required by AB 617, the Air District adopted a schedule for implementation of Best Available Retrofit Control Technologies, which identified potential rule amendments for further development and consideration. This schedule includes potential amendments to Rule 8-5 to further reduce emissions from tanks used for organic liquid storage. Emissions from organic liquid storage tanks subject to Rule 8-5 may be further reduced by these potential rule amendments.

Health Programs Strategies

The Steering Committee identified several strategies to improve health in the West Oakland community. As discussed in Chapter 2, West Oakland residents face higher rates of asthma, cardiovascular disease, premature death, and other poor health outcomes compared to other regions in the Bay Area.

The Alameda County Public Health Department is the county department responsible for providing public health services. For the Plan, the Public Health Department will implement strategies such as those that help the community access health services and educate the community about health risks, treatment, and prevention (Strategies #79, #80, #81).

Installation of high-efficiency filtration systems at schools, community centers, and retirement homes have been identified by the Steering Committee as means for reducing exposure of high pollution levels among sensitive populations (Strategy #75). As an initial step in completing this Strategy, by 2021, the Air District will develop a funding program to assist with the installation of filtration systems. The Air District recently approved funding for an initial effort to install filtration systems at schools located within West Oakland and other AB 617 communities. The lessons learned from this pilot effort will be used to expand installations to community centers, retirement homes, and other appropriate facilities.

A complementary Strategy by the City of Oakland will be the implementation of recent changes to the State of California's Building Energy Efficiency Standards. Beginning with building permit applications submitted on or after January 1, 2020, the air ventilation systems for residential buildings of four or more habitable floors will incorporate high-efficiency air filters to reduce exposure from outdoor air pollutants (Strategy #78).

FURTHER STUDY MEASURES

The Co-leads and the Steering Committee devoted considerable time and effort to identifying the proposed strategies shown in Table 6-4, and the resulting list of actions is expected to improve air quality in West Oakland. However, it is quite likely that additional strategies or research questions will emerge during public review of the Draft Plan, as well as during the long-term implementation of this Plan. For example, further work will be needed to identify effective measures to reduce local impacts of backyard wood fires, refinements or ideas for additional measures may emerge as the various collaborating agencies implement the Plan measures. Additional research may be needed to better target our measures such as analyzing appropriate road dust emission rates for local streets or investigating potential rulemaking to limit fugitive dust from construction activity. A list of anticipated future study measures is presented in Table 6-5. The Co-leads will track such unresolved or emerging issues to make sure the Plan continues to include as robust a set of measures as possible. Any additional measures, research projects, or other emerging issues will be discussed with the Steering Committee and addressed in the annual reports submitted to CARB.

IMPLEMENTATION

Incentives

The Plan calls on multiple agencies to commit resources to implement the strategies. Incentive programs work to complement regulations to achieve additional emission reductions and accelerate the timing of reductions. Specifically, many of the strategies require incentive dollars awarded to businesses and equipment owners, individuals, and local government agencies to leverage private investment, accelerate the turnover of older equipment, and encourage the voluntary purchase of cleaner equipment and vehicles.

We have been making progress to reduce air pollution in West Oakland through incentives. Since 2009, the Air District has awarded over $39 million in incentive dollars for particulate filters and truck replacements at the Port. Port tenants, tug operators, and local drayage trucking firms have already taken the initial steps to reduce emissions through retrofitting 13 gantry cranes, repowering five tugboats, and participating in demonstrations of zero-emission trucks and equipment. (See Appendix D for a list of grant programs and a sample list of projects the Air District has funded in West Oakland over the next five years.)[40]

While the success of incentive funding requires willingness by equipment owners to apply for assistance, the use of public funding to accelerate the deployment of low- and zero emission engines,

[40] See http://www.baaqmd.gov/funding-and-incentives for additional information about grant programs.

equipment, and trucks is a critical tool for delivering emissions reductions in West Oakland. Based on current sources of funding, the Air District anticipates the following:

- Owners of tugboats and barges operating at the Port of Oakland voluntarily upgrade to cleaner engines in at least one tug or barge annually through 2025 (Strategy #50);
- The railways operating in or through West Oakland and the Port of Oakland voluntarily replace one locomotive with a U.S. EPA Tier 4 version annually (Strategy #51);
- Owners of trucks that are operated in or through West Oakland and the Port of Oakland voluntarily replace eight diesel trucks with zero emission trucks annually (Strategy #52);
- Owners of cargo-handling equipment and other off-road equipment operating within West Oakland or at the Port of Oakland voluntarily upgrade to cleaner engines or hybrid and zero-emission drivetrains annually (Strategy #54); and
- West Oakland residents voluntarily retire 100-130 qualifying older automobiles annually through 2025 with financial assistance from the Air District's Vehicle Buy Back and the Clean Cars for All programs (Strategy #48).

Some equipment owners believe these incentive programs can be onerous for small operators. The Air District will work with stakeholders to help potential grantees meet eligibility requirements, enter into funding contracts, and meet reporting requirements during the life of the contract. In addition, the Air District will work with CARB to streamline the grant application process and requirements for various projects. Furthermore, the Air District will increase outreach and assistance to individual owner-operators and small companies in West Oakland by providing coordinating workshops with the Steering Committee, the City of Oakland, the Port of Oakland, and CARB (Strategy #41).

Advocacy

After the Plan is adopted, the Co-leads and the Steering Committee will continue to advocate for the implementation of the Plan. The Steering Committee will meet regularly to review plans, evaluate programs and budgets, and make recommendations. In addition, Steering Committee members, community members, business owners, and other stakeholders will likely need to communicate with the collaborating agencies to ensure their continued support for Plan strategies and the resources needed for implementation.

QUANTIFYING BENEFITS OF PLAN STRATEGIES

Baseline Targets and Future Year 2024 With the Plan

This section continues to address the question posed in Chapter 5, “How much emissions must be reduced, and from what sources to meet the community’s goals?” Specifically, this section presents modeled results to show how the Plan measures move us toward meeting the community’s equity targets. The assessments in this section show 2024 impact forecasts without the Plan and 2024 forecasts with the Plan strategies included. Key differences are highlighted between the 2024 forecast of impacts without the Plan and the 2024 forecast of impacts with the Plan.

This section also presents the emission reduction benefits associated with strategies in the Plan. These emission reduction benefits provide the emission reduction targets called for in CARB's Community Air Protection Blueprint. However, these emission reduction targets do not meet the Plan's equity-based targets presented in Chapter 4: additional emission reductions, yet to be identified, are needed to achieve the Plan's goals.

Diesel PM

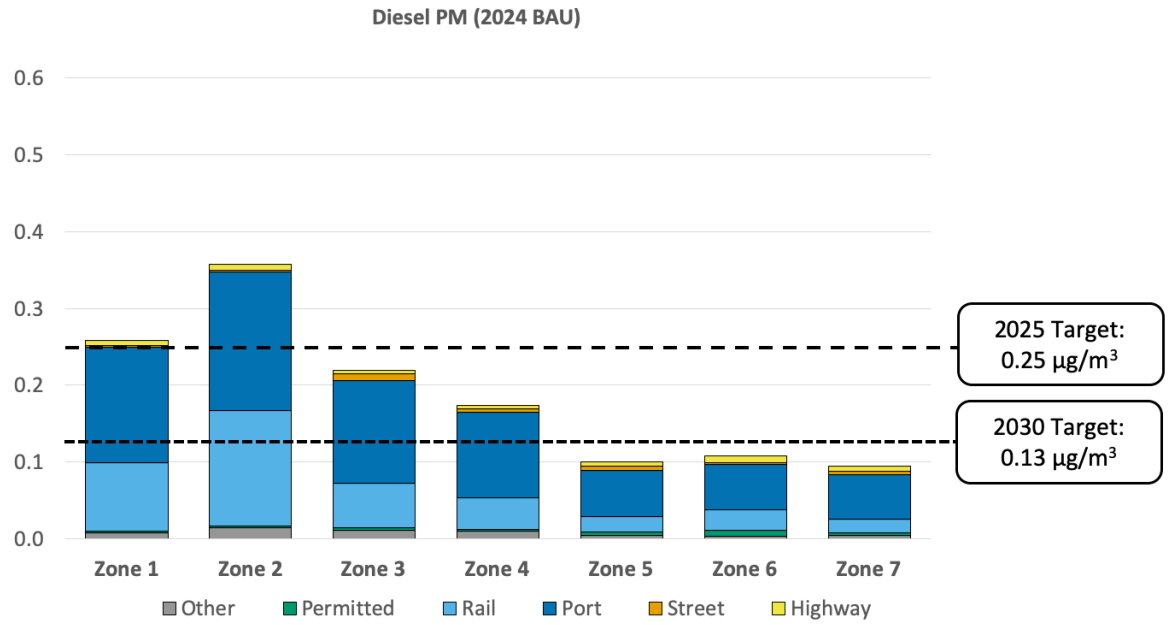

Figure 6-1. Targets and Source Apportionment for Diesel PM in 2024 Without the Plan

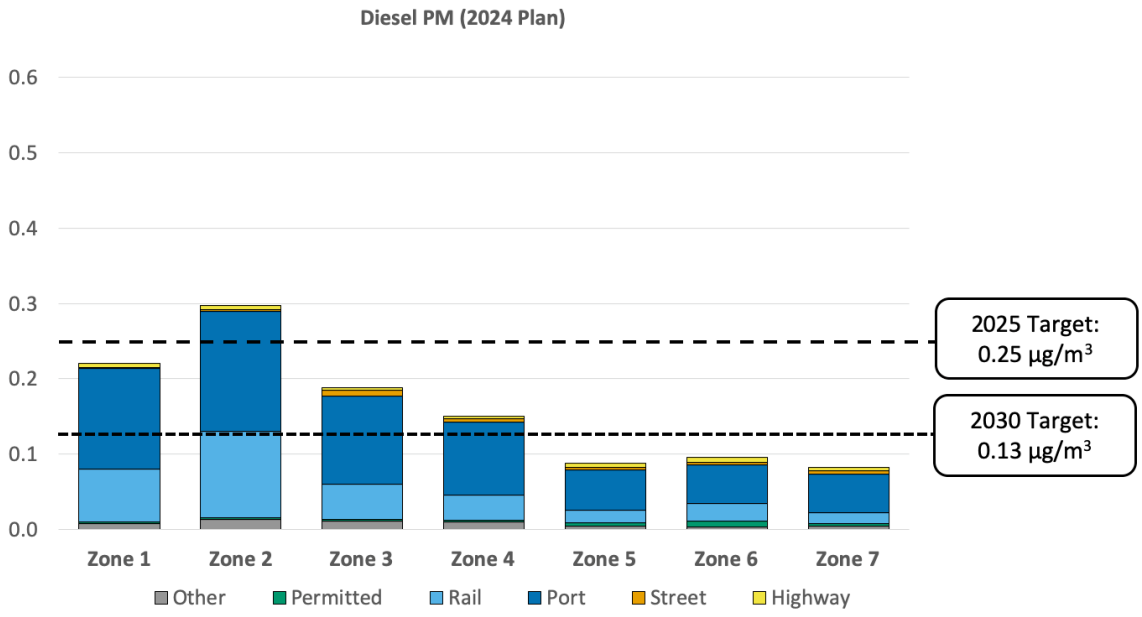

Figure 6-2. Targets and Source Apportionment for Diesel PM in 2024 With the Plan

Figure 6-1 shows modeled levels of diesel PM in 2024 without the Plan at each of the impact zones. Figure 6-2 shows the same information with the Plan. Impact reductions from the Plan—progress toward the Plan's equity-based targets—can be seen by comparing these two figures. Changes in diesel PM levels from the categories of modeled emission sources of diesel PM can also be compared between the bar charts in these figures.

On-road Trucks. As discussed in Chapter 5, emissions and impacts from on-road sources of diesel PM (orange and yellow bars in Figure 6-1) are dramatically reduced in 2024 relative to 2017 from fleet turnover and rules on the books. Some added benefits will be realized if additional CARB regulations, which would be part of this Plan, are adopted such as the Advanced Clean Trucks and Heavy-Duty Inspection and Maintenance rules.[41]

Ocean-Going Vessels. This Plan forecasts growth in container shipping using CARB's forecasts, which estimates about a 5% compound annual container ship activity growth rate between 2017 and 2030. Because most Ocean-Going Vessels (OGV) that call on the Port are container ships, OGV emissions and impacts generally will, absent any reductions, grow at this rate.[42] This Plan assumes that OGV "maneuvering" will grow at this rate. In contrast, diesel PM from the auxiliary engines that OGVs run while at berth will see reductions, resulting from increased use of shore power (plugging in) while at berth. The "with Plan" scenario assumes reductions from amendments to CARB's At-Berth regulation. These regulatory concepts have not been finalized or adopted by CARB's Board, and the emissions reduction estimates are draft and subject to change. As with any regulation, achieving expected reductions requires ongoing implementation efforts, including enforcement and, in some cases, new infrastructure. The Air District and CARB will continue to work together to estimate emissions reductions from this and other CARB strategies in West Oakland. For more information on the regulatory development process, visit https://ww3.arb.ca.gov/ports/shorepower/shorepower.htm.

Harbor Craft. The Air District has incentivized repowers of three more assist tugs, in addition to the two discussed in the previous chapter. These repowers, scheduled for completion before 2022, will result in an additional reduction of approximately -0.7 tons per year of diesel PM emitted in the modeling domain. Because the three tugs do not need to be repowered to meet the requirements stipulated by the existing harbor craft regulations (for 2022), we attribute these additional reductions to the Plan.

Rail. This Plan estimates that diesel PM emitted by switcher locomotives handling containerized freight at the UP railyard will be reduced by 0.32 tons between 2017 and 2024, while total diesel PM emissions at the UP railyard will decrease by 0.27 tons. These changes represent a 37% reduction in diesel PM emissions from UP switchers and a 24% reduction in total diesel PM emissions at the UP

[41] These regulatory concepts have not been finalized or adopted by CARB's Board, and the emissions reduction estimates are draft and subject to change.

[42] Base year and forecasted emissions for ocean-going vessels at berth were provided by CARB to BAAQMD via email communication on July 12, 2019. These emissions are consistent with the 2019 Draft Ocean Going Vessel At Berth Inventory. (A final version will be publicly posted 60 days before the CARB Board hearing for the At Berth Regulation Amendment.)

railyard, relative to 2017. To derive these estimates, emission reductions associated with AB 617-funded upgrades of five switcher engines to Tier 4 were calculated and applied to existing 2024 emission estimates for the railyard without the Plan. Note that total diesel PM emissions at the UP Railyard include emissions from line haul locomotives and cargo handling equipment as well as switchers; anticipated growth in emissions from cargo handling equipment somewhat offsets the emission reductions achieved through switcher replacements.

Emission Reductions. Columns on the left in Table 6-1 list diesel PM emission totals by source category for the base year and for 2024 with and without the Plan. Columns on the right list differences in diesel PM emissions: 2024 forecasts with and without the Plan are compared to the base year, and the 2024 forecast with the Plan is compared to 2024 without the Plan. The 2024 Plan versus without the Plan comparison shows the benefits, and emission-reduction targets, of the Plan by source category. The total diesel PM emission benefits of the Plan in 2024 relative to 2024 without the Plan is about -2.4 tons per year (-10.5%). The reductions in diesel PM in 2024 with the Plan relative to the base year is about -7.6 tons per year (-27%).

Table 6-1. West Oakland Diesel PM Emissions Summaries and Differences (tons per year)

Source	Emissions (tons per year)			Difference (tons per year)		
	2017 Base	2024 no Plan	2024 with Plan	No Plan-Base	Plan-Base	Plan-No Plan
West Oakland sources included in community-scale modeling						
Highway	**2.12**	**0.30**	**0.24**	**-1.82**	**-1.88**	**-0.06**
Non-truck vehicles	0.19	0.07	0.07	-0.12	-0.12	> -0.01
HD/Medium HD trucks	1.84	0.16	0.10	-1.68	-1.74	-0.06
Light HD trucks	0.09	0.07	0.07	-0.02	-0.02	> -0.01
Street	**2.07**	**0.18**	**0.15**	**-1.89**	**-1.92**	**-0.03**
Non-truck vehicles	0.09	0.03	0.03	-0.06	-0.06	> -0.01
HD/Medium HD trucks	1.88	0.08	0.05	-1.80	-1.83	-0.03
Light HD trucks	0.09	0.07	0.07	-0.02	-0.02	> -0.01
Port	**15.87**	**17.15**	**15.22**	**+1.28**	**-0.64**	**-1.92**
OGV maneuvering	3.84	5.57	5.57	+1.73	+1.73	–
OGV berthing	4.31	5.24	3.93	+0.93	-0.38	-1.31
Harbor craft	3.94	3.16	2.57	-0.77	-1.37	-0.59
Dredging	1.16	0.79	0.79	-0.37	-0.37	–
Bunkering	0.28	0.26	0.26	-0.03	-0.03	–
Port trucks	0.50	0.12	0.10	-0.38	-0.40	-0.02
Cargo handling	1.58	1.74	1.74	+0.16	+0.16	–
OGRE Railyard	0.08	0.08	0.08	+0.01	+0.01	–
BNSF Railyard	0.18	0.19	0.19	+0.01	+0.01	–
Rail	**2.20**	**1.96**	**1.59**	**-0.23**	**-0.61**	**-0.38**
Rail lines	1.09	0.74	0.74	-0.34	-0.34	–

Source	Emissions (tons per year)			Difference (tons per year)		
	2017 Base	2024 no Plan	2024 with Plan	No Plan-Base	Plan-Base	Plan-No Plan
UP Railyard	1.11	1.22	0.84	+0.11	-0.27	-0.38
Permitted	**0.30**	**0.30**	**0.30**	**+0.01**	**+0.01**	**0.00**
Schnitzer (stationary)	–	–	–	0.00	0.00	–
EBMUD	0.09	0.09	0.09	+0.01	+0.01	–
Dynegy	< 0.01	–	–	< 0.01		–
Pinnacle Ag Services	–	–	–	–	–	–
Sierra Pacific	–	–	–	–	–	–
CASS	–	–	–	–	–	–
California Cereal	–	–	–	–	–	–
CA Waste (10th St)	–	–	–	–	–	–
Other	0.21	0.21	0.21	0.00	0.00	–
Other	**1.36**	**1.33**	**1.31**	**-0.04**	**-0.05**	**-0.01**
Ferries	0.93	0.92	0.92	-0.01	-0.01	–
Schnitzer (ships)	0.30	0.37	0.37	+0.07	+0.07	–
Schnitzer (trucks)	0.01	< 0.01	0.00	-0.01	-0.01	> -0.01
Truck-related businesses	0.12	0.03	0.02	-0.09	-0.10	> -0.01
Total	**23.91**	**21.22**	**18.82**	**-2.70**	**-5.10**	**-2.40**
West Oakland sources not included in community-scale modeling						
Area	**–**	**–**	**–**	**–**	**–**	**–**
Commercial cooking	–	–	–	–	–	–
Food and Agriculture	–	–	–	–	–	–
Residential fuel combustion	–	–	–	–	–	–
Commercial/industrial fuel combustion	–	–	–	–	–	–
Industrial processes	–	–	–	–	–	–
Solvent utilization	–	–	–	–	–	–
Consumer products	–	–	–	–	–	–
Other area sources	–	–	–	–	–	–
Non-road	**4.12**	**1.72**	**1.72**	-2.39	-2.39	–
Construction equipment	3.33	1.42	1.42	-1.91	-1.91	–
Commercial/industrial equipment	0.51	0.21	0.21	-0.31	-0.31	–
Lawn & garden equipment	0.02	0.02	0.02	< 0.01	< 0.01	–
TRUs	0.26	0.07	0.07	-0.18	-0.18	–
Other non-road sources	0.00	0.00	0.00	0.00	0.00	–
Total	**4.12**	**1.72**	**1.72**	**-2.39**	**-2.39**	**–**
Grand Total	**28.03**	**22.94**	**20.54**	**-5.09**	**-7.49**	**-2.40**

Cancer Risk

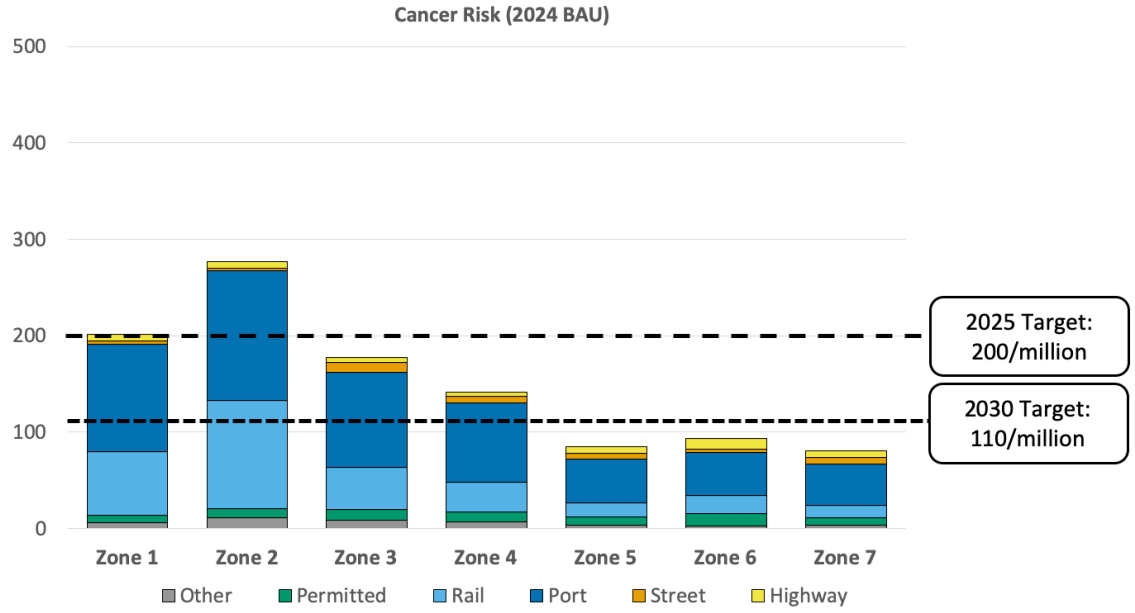

Figure 6-3. Targets and Source Apportionment for Cancer Risk in 2024 Without the Plan

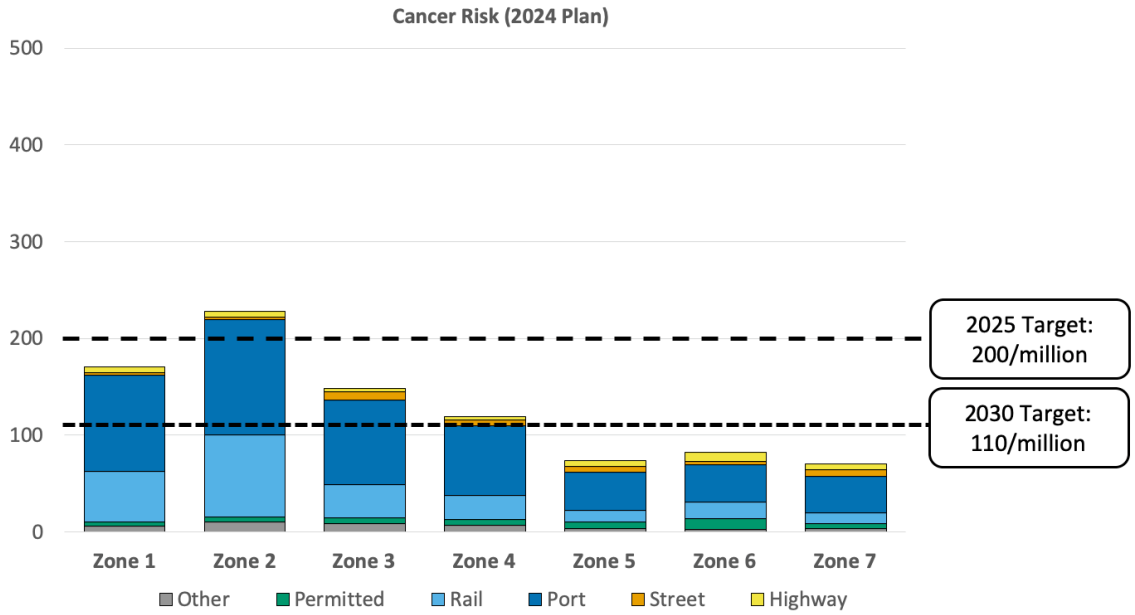

Figure 6-4. Targets and Source Apportionment for Cancer Risk in 2024 With the Plan

The charts of diesel PM (Figure 6-1 and Figure 6-2) and cancer risk (Figure 6-3 and Figure 6-4) look similar. This is because diesel PM contributes over 90% of the cancer impacts caused by toxic air contaminants in our model. Because of the large contribution of diesel PM to overall cancer risk from air pollution, all the reductions in diesel PM described above will similarly contribute to reducing cancer risk in West Oakland. Figure 6-4 shows some benefits in reducing levels of cancer risk with the Plan in 2024 relative to 2024 without the Plan, as shown in Figure 6-3.

Permitted Sources. To reduce the toxic emissions from EBMUD and Schnitzer Steel, this Plan will rely on Air District Rule 11-18: Reduction of Risk from Air Toxic Emissions at Existing Facilities, adopted in November 2017. Accelerated implementation of Rule 11-18 will drive down the toxic emissions at Schnitzer Steel. Specifically, accelerated implementation of Rule 11-18 will reduce toxic emissions from Schnitzer Steel by at least 70% due to use of a thermal oxidizer. These emission reductions are slated to occur by 2025, and so associated emission reductions are included in the 2024 forecast with the Plan. Changes in the associated impacts on the community will be modeled and assessed by the Air District once the specific changes needed at the facility to comply with Rule 11-18 are determined. [43]

Emission Reductions. Columns on the left in Table 6-2 list cancer risk-weighted toxic emission totals by source category for the base year and for 2024 with and without the Plan. Columns on the right list differences in cancer risk-weighted emissions: 2024 forecasts with and without the Plan are compared to the base year, and the 2024 forecast with the Plan is compared to 2024 without the Plan. The 2024 Plan versus no Plan comparison shows the benefits, and emission-reduction targets, of the Plan by source category. There is about a 12% reduction in total cancer risk-weighted toxic emissions from the Plan in 2024, relative to 2024 without the Plan. There is about a 28% reduction in cancer risk-weighted toxic emissions in 2024 with the Plan, relative to the base year.

[43] Under Rule 11-18, this facility will apply Toxic Best Available Control Technology (TBACT). Modeled risks once TBACT controls are installed are yet to be determined.

Table 6-2. West Oakland Cancer Risk-Weighted Toxics Emissions Summaries and Differences (risk-weighted tons per year)

Source	Emissions (risk-weighted tons per year)			Difference (risk-weighted tons per year)		
	2017 Base	2024 No Plan	2024 with Plan	No Plan-Base	Plan-Base	Plan-No Plan
West Oakland sources included in community-scale modeling						
Highway	**1,791**	**332**	**287**	**-1,460**	**-1,505**	**-45**
Non-truck vehicles	331	159	158	-172	-172	> -1
HD/Medium HD trucks	1,392	120	76	-1,272	-1,316	-44
Light HD trucks	69	52	52	-16	-16	> -1
Street	**1,692**	**204**	**182**	**-1,488**	**-1,510**	**-22**
Non-truck vehicles	183	87	86	-96	-96	< -1
HD/Medium HD trucks	1,434	60	39	-1,374	-1,395	-22
Light HD trucks	76	57	57	-18	-18	> -1
Port	**11,817**	**12,769**	**11,337**	**+951**	**-480**	**-1431**
OGV maneuvering	2,859	4,145	4,145	+1,286	+1,286	–
OGV berthing	3,212	3,901	2,926	+689	-286	-975
Harbor craft	2,932	2,355	1,914	-577	-1,018	-441
Dredging	864	592	592	-272	-272	–
Bunkering	209	190	190	-19	-19	–
Port trucks	372	88	73	-284	-299	-15
Cargo handling	1,177	1,293	1,293	+117	+117	–
OGRE Railyard	57	62	62	+4	+4	–
BNSF Railyard	136	143	143	+7	+7	–
Rail	**1,637**	**1,462**	**1,182**	**-174**	**-455**	**-281**
Rail lines	810	554	554	-256	-256	–
UP Railyard	826	909	628	+82	-199	-281
Permitted	**1,101**	**1,185**	**634**	**+84**	**-467**	**-551**
Schnitzer (stationary)	823	900	350	+78	-473	-551
EBMUD	110	117	117	+7	+7	–
Dynegy	1	0	0	-1	0	–
Pinnacle Ag Services	–	–	–	–	–	–
Sierra Pacific	–	–	–	–	–	–
CASS	< 1	< 1	0	< 1	< 1	–
California Cereal	< 1	< 1	0	< 1	< 1	–
CA Waste (10th St)	–	–	0	0	0	–
Other	168	167	167	< 1	< 1	–
Other	**1,016**	**987**	**979**	**-29**	**-37**	**-8**
Ferries	695	688	688	-7	-7	–

Source	Emissions (risk-weighted tons per year)			Difference (risk-weighted tons per year)		
	2017 Base	2024 No Plan	2024 with Plan	No Plan-Base	Plan-Base	Plan-No Plan
Schnitzer (ships)	225	277	277	+52	+52	–
Schnitzer (trucks)	8	< 1	0	-8	-8	< 1
Truck-related businesses	87	21	14	-65	-73	-8
Total	**19,054**	**16,939**	**14,601**	**-2,115**	**-4,453**	**-2,337**
West Oakland sources not included in community-scale modeling						
Area	**413**	**439**	**439**	**+26**	**+26**	**–**
Commercial cooking	9	10	10	+1	+1	–
Food and Agriculture	13	13	13	0	0	–
Residential fuel combustion	18	16	16	-2	-2	–
Commercial/industrial fuel combustion	17	18	18	+0	+0	–
Industrial processes	176	192	192	+16	+16	–
Solvent utilization	125	135	135	+10	+10	–
Consumer products	41	44	44	+3	+3	–
Other area sources	13	11	11	-2	-2	–
Non-road	**3,358**	**1,523**	**1,523**	**-1,835**	**-1,835**	**–**
Construction equipment	2,501	1,074	1,074	-1,427	-1,427	–
Construction dust	–	–	0	0	0	–
Commercial/industrial equipment	436	205	205	-231	-231	–
Lawn & garden equipment	79	77	77	-2	-2	–
TRUs	192	57	57	-135	-135	–
Other non-road sources	151	109	109	-42	-42	–
Total	**3,771**	**1,962**	**1,962**	**-1,809**	**-1,809**	**–**
Grand Total	**22,825**	**18,901**	**16,563**	**-3,925**	**-6,262**	**-2,337**

PM2.5

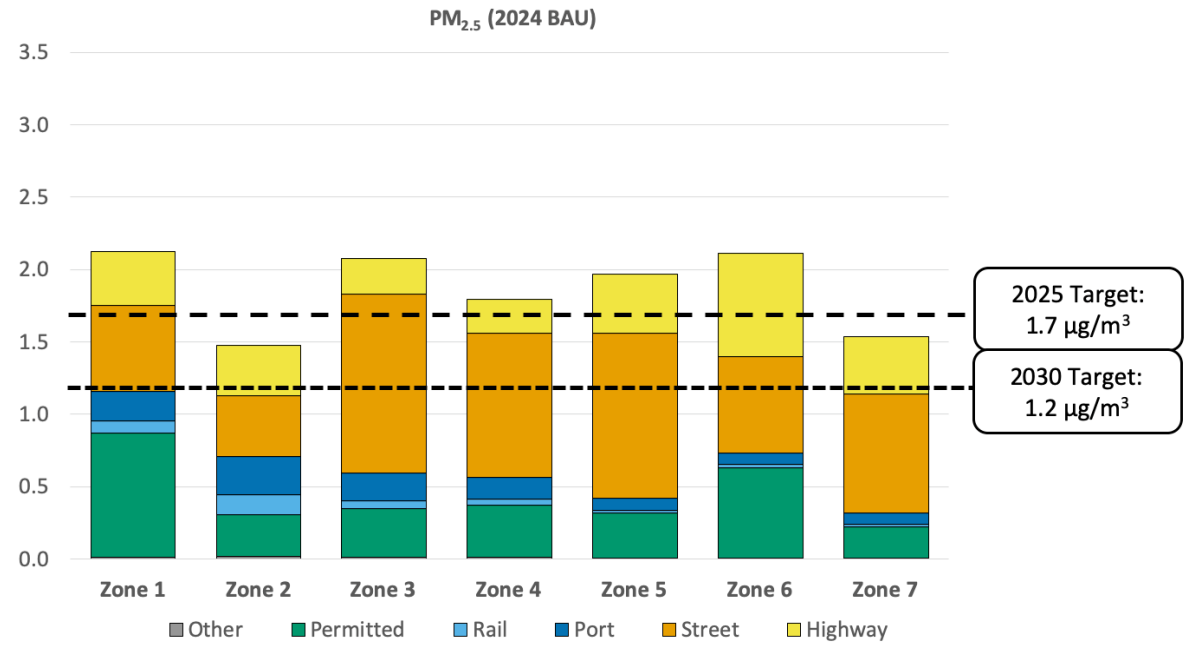

Figure 6-5. Targets and Source Apportionment for $PM_{2.5}$ in 2024 Without the Plan

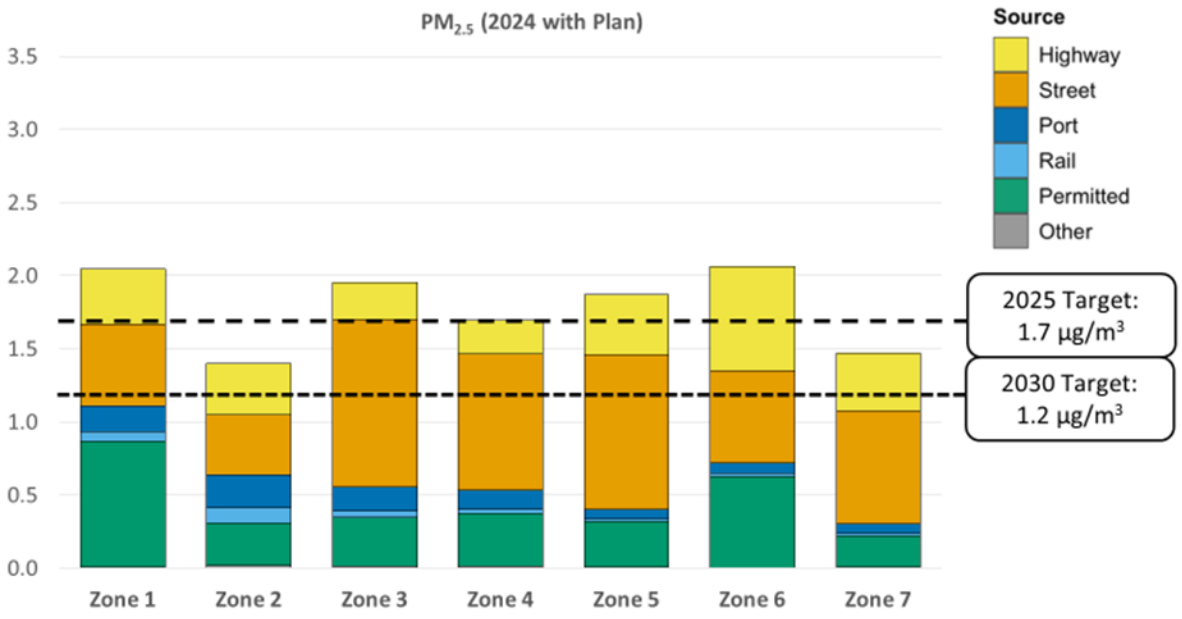

Figure 6-6. Targets and Source Apportionment for $PM_{2.5}$ in 2024 With the Plan

Figure 6-6 shows some benefits in reducing levels of $PM_{2.5}$ with the Plan in 2024 relative to 2024 without the Plan, as shown in Figure 6-5.

Road Dust. The Plan includes a Strategy that calls on the City of Oakland and Caltrans to implement an enhanced street sweeping program in West Oakland. This assessment reviewed existing street sweeping programs, including South Coast Air Quality Management District Rule 1186 for PM_{10} emissions from paved and unpaved roads, which was adopted in 1997 and required new sweepers to be certified by the South Coast Air District. In the rulemaking report and appendices, the South Coast Air District estimated the control effectiveness from street sweeping to be 10% annually. This assessment for 2024 with the Plan includes a 10% reduction in road dust, to be achieved through enhanced street sweeping (streets; not highways).

Permitted Sources. The Air District will evaluate $PM_{2.5}$ emissions estimates from permitted facilities, especially those near Zones 1 and 6 to reduce the uncertainty associated with these emissions estimates and to assess the degree to which additional regulations could be effective in reducing impacts. The City of Oakland has begun discussions with the California Waste Solutions facility (near Zone 1) to relocate that facility further from residents, to the former Oakland Army Base near the East Bay Municipal Utilities District wastewater treatment plant.

Port and Rail. $PM_{2.5}$ reductions will occur along with diesel PM for Port and Rail, so the mechanisms discussed above (for diesel PM) also drive similar reductions here.

Emission reductions. Columns on the left in Table 6-3 list $PM_{2.5}$ emission totals by source category for the base year and for 2024 with and without the Plan. Columns on the right list differences in $PM_{2.5}$ emissions: 2024 forecasts with and without the Plan are compared to the base year, and the 2024 forecast with the Plan is compared to 2024 without the Plan. The 2024 Plan versus without the Plan comparison shows the benefits, and emission-reduction targets, of the Plan by source category. The total $PM_{2.5}$ emission benefits of the Plan in 2024, relative to 2024 without the Plan, is about -3.7 tons per year (-3%). The reductions in $PM_{2.5}$ in 2024 with the Plan, relative to the base year, is about -0.5 tons per year (-0.4%).

Table 6-3 West Oakland $PM_{2.5}$ Emissions Summaries and Differences (tons per year)

Source	Emissions (tons per year)			Difference (tons per year)		
	2017 Base	2024 no Plan	2024 with Plan	no Plan-Base	Plan-Base	Plan-no Plan
West Oakland sources included in community-scale modeling						
Highway	**20.29**	**19.77**	**19.70**	**-0.53**	**-0.60**	**-0.07**
Non-truck vehicles	12.23	12.88	12.87	+0.65	+0.64	-0.01
HD/Medium HD trucks	2.48	0.94	0.88	-1.54	-1.60	-0.06
Light HD trucks	0.41	0.42	0.42	+0.01	+0.01	< -0.01
Road dust	5.17	5.53	5.53	+0.36	+0.36	–

Source	Emissions (tons per year)			Difference (tons per year)		
	2017 Base	2024 no Plan	2024 with Plan	no Plan-Base	Plan-Base	Plan-no Plan
Street	**22.38**	**21.97**	**20.48**	**-0.41**	**-1.90**	**-1.49**
Non-truck vehicles	4.82	5.02	5.02	+0.20	+0.20	> -0.01
HD/Medium HD trucks	2.44	0.77	0.74	-1.67	-1.70	-0.03
Light HD trucks	0.35	0.35	0.35	> -0.01	> -0.01	> -0.01
Road dust	14.77	15.83	14.37	+1.06	-0.40	-1.46
Port	**21.99**	**25.24**	**23.44**	**+3.25**	**+1.45**	**-1.80**
OGV maneuvering	3.94	5.61	5.61	+1.66	+1.66	–
OGV berthing	7.83	10.29	9.09	+2.46	+1.26	-1.20
Harbor craft	3.82	3.07	2.49	-0.75	-1.33	-0.57
Dredging	1.12	0.80	0.80	-0.32	-0.32	–
Bunkering	0.27	0.25	0.25	-0.02	-0.02	–
Port trucks	0.93	0.66	0.64	-0.27	-0.29	-0.02
Road dust	2.25	2.53	2.53	+0.28	+0.28	–
Cargo handling	1.59	1.78	1.78	+0.19	+0.19	–
OGRE Railyard	0.07	0.08	0.08	+0.01	+0.01	–
BNSF Railyard	0.17	0.18	0.18	+0.01	+0.01	–
Rail	**2.04**	**1.84**	**1.47**	**-0.22**	**-0.57**	**-0.35**
Rail lines	1.02	0.70	0.70	-0.32	-0.32	–
UP Railyard	1.02	1.12	0.78	+0.10	-0.25	-0.35
Permitted	**17.84**	**16.94**	**16.94**	**-0.91**	**-0.91**	**0.00**
Schnitzer (stationary)	5.20	5.53	5.53	+0.32	+0.32	0.00
EBMUD	3.99	4.28	4.28	+0.29	+0.29	–
Dynegy	1.96	0.00	0.00	-1.96	–	–
Pinnacle Ag Services	1.48	1.62	1.62	+0.14	+0.14	–
Sierra Pacific	0.91	1.00	1.00	+0.09	+0.09	–
CASS	0.72	0.78	0.78	+0.06	+0.06	–
California Cereal	0.58	0.63	0.63	+0.05	+0.05	–
CA Waste (10th St)	0.46	0.51	0.51	+0.04	+0.04	–
Other	2.53	2.59	2.59	+0.06	+0.06	–
Other	**1.36**	**1.36**	**1.35**	**< 0.01**	**-0.01**	**-0.01**
Ferries	0.91	0.92	0.92	+0.02	+0.02	–
Schnitzer (ships)	0.30	0.37	0.37	+0.07	+0.07	–
Schnitzer (trucks)	0.04	0.04	0.04	> -0.01	> -0.01	> -0.01
Truck-related businesses	0.11	0.03	0.02	-0.08	-0.09	-0.01
Total	**85.91**	**87.09**	**83.38**	**+1.18**	**-2.53**	**-3.71**

Source	Emissions (tons per year)			Difference (tons per year)		
	2017 Base	2024 no Plan	2024 with Plan	no Plan-Base	Plan-Base	Plan-no Plan
West Oakland sources not included in community-scale modeling						
Area	30.40	33.83	33.83	+3.43	+3.43	–
Commercial cooking	20.63	23.90	23.90	+3.27	+3.27	–
Food and Agriculture	–	0.00	0.00	0.00	0.00	–
Residential fuel combustion	6.93	6.99	6.99	+0.06	+0.06	–
Commercial/industrial fuel combustion	2.30	2.39	2.39	+0.09	+0.09	–
Industrial processes	0.03	0.03	0.03	< 0.01	< 0.01	–
Solvent utilization	0.00	0.00	0.00	0.00	0.00	–
Consumer products	0.00	0.00	0.00	0.00	0.00	–
Other area sources	0.50	0.52	0.52	+0.01	+0.01	–
Non-road	13.00	11.71	11.71	-1.29	-1.29	–
Construction equipment	4.10	2.39	2.39	-1.71	-1.71	–
Construction dust	6.74	7.70	7.70	+0.96	+0.96	–
Commercial/industrial equipment	1.17	0.97	0.97	-0.20	-0.20	–
Lawn & garden equipment	0.12	0.13	0.13	+0.01	+0.01	–
TRUs	0.24	0.07	0.07	-0.17	-0.17	–
Other non-road sources	0.63	0.46	0.46	-0.17	-0.17	–
Total	**43.40**	**45.54**	**45.54**	**+2.14**	**+2.14**	**–**
Grand Total	**129.31**	**132.63**	**128.92**	**+3.33**	**-0.38**	**-3.71**

STRATEGIES AND IMPLEMENTATION SCHEDULES

The Strategies and the proposed five-year implementation schedules are shown in Table 6-4. Implementation of some Strategies will be ongoing while others will occur in a single year or span multiple years. For Strategies that are regulatory in nature, the implementation schedule denotes the anticipated timing of action such as when a regulatory agency such as CARB or the Air District initiates rule development, adopts a new or revised regulation, or when rule or regulation implementation begins.

The implementation schedule and other aspects of the Strategies may evolve during implementation. The anticipated timing of regulatory development, action and implementation is subject to change, and for some Strategies extend beyond the 5-year implementation schedule provided in Table 6-4.

Table 6-4. Owning Our Air: The West Oakland Community Action Plan Implementation Schedule

			Implementation Timeframe (A = regulatory action; I = regulatory implementation; D= regulatory development)				
#	**Strategies**	**Authority**	**2020**	**2021**	**2022**	**2023**	**2024**
	Land Use						
1	The City of Oakland continues working with California Waste Solutions and CASS, Inc. to relocate operations to the former Oakland Army Base and works with the property owners and local residents to redevelop the former sites in West Oakland with new business and light industrial uses that fit into a green economy.	City of Oakland					
2	The Air District will continue to engage in environmental review processes for development projects in West Oakland, such as the Oakland A's Ballpark and the MacArthur Maze Vertical Clearance Project, including coordinating with community partners and lead agency staff, providing data and technical assistance, and reviewing and commenting on CEQA documents through 2025.	Air District					
3	The Air District will study the potential air pollution and health outcomes of allowing truck traffic on I-580 and designating a truck lane on I-880. Allowing truck traffic on I-580 would require legislative approval, re-engineering, and re-construction.	Air District					
4	Consistent with measures in the West Oakland Specific Plan, the City of Oakland identifies locations outside of West Oakland for heavier industrial businesses currently in West Oakland that contribute to air pollution emissions and negative health outcomes in West Oakland.	City of Oakland					
5	The City of Oakland and Port of Oakland amends existing Ordinances, Resolutions, or Administrative policies to accelerate relocation of truck yards and truck repair, service, and fueling businesses in West Oakland currently located within the freeway boundaries that do not conform with the zoning designations adopted in the West Oakland Specific Plan.	City of Oakland, Port of Oakland					
6	The City of Oakland uses incentives and subsidies to relocate businesses away from West Oakland that do not conform with the zoning designations adopted in the West Oakland Specific Plan. The Air District will provide emissions data and technical support to assist the City in these efforts and to ensure that any relocated businesses do not cause exposure issues at the new location.	City of Oakland, Air District					
7	The City of Oakland revises business licensing procedures to require current and proposed businesses to disclose truck visits per day and works with Caltrans to determine the number of trucks that park in the Caltrans right-of-way near West Oakland. Caltrans works with WOEIP and the Air District to address air quality issues from truck parking leases, such as by modifying leases	City of Oakland, Caltrans					

			Implementation Timeframe (A = regulatory action; I = regulatory implementation; D= regulatory development)				
#	**Strategies**	**Authority**	**2020**	**2021**	**2022**	**2023**	**2024**
	to allow for collecting surveys and partnering with the Air District and CARB to allow enforcement access.						
8	The City of Oakland amends existing City Ordinances and Administrative policies to list new truck yards and truck service, repair and fueling businesses as prohibited uses within the area of West Oakland that is inside the freeways (excluding the Port, OAB, and 3rd St. corridor of Jack London Square from Brush St. to Union St.).	City of Oakland					
9	The City of Oakland develops a plan to limit the hours that trucks can operate in the community.	City of Oakland					
10	The City of Oakland creates a comprehensive, area-wide urban canopy and vegetation plan that identifies locations that trees can be added and maintained, such as parks and along Caltrans' right-of-ways and develops a plan to protect existing trees that reduce exposure to air pollution emissions in West Oakland. This includes partnering with local nonprofit groups, encouraging trees on private property, and working with the community on tree maintenance and (as needed) removal. The development of the Oakland Urban Forest Master Plan will inform this work.	City of Oakland, Caltrans					
11	The City of Oakland works with local groups to train residents to maintain biofilters.	City of Oakland					
12	The Air District and the West Oakland Environmental Indicators Project intends to implement the green infrastructure project currently under development between Interstate I-880 and the Prescott neighborhood in West Oakland by 2021.	Air District					
13	The City of Oakland conducts a study regarding development fees for environmental mitigations.	City of Oakland					
14	The Air District provides subsidized loans for local small businesses to install energy storage systems (e.g. batteries, fuel cells) to replace stationary sources of pollution (e.g. back-up generators).	Air District					
15	The City of Oakland continues requiring new developments to provide infrastructure for electrical vehicle charging stations.	City of Oakland					
16	The City of Oakland, in partnership with the Steering Committee, CARB and the Air District, studies the exposure reduction benefit of requiring solid or vegetative barriers to be incorporated into site design between buildings and sources of air pollution (for example, a freeway).	City of Oakland CARB, Caltrans, Air District					
17	The City of Oakland adopts policies to lessen air quality impacts of residential and office buildings through the reduction or elimination of natural gas systems.	City of Oakland					

			Implementation Timeframe (A = regulatory action; I = regulatory implementation; D= regulatory development)				
#	**Strategies**	**Authority**	**2020**	**2021**	**2022**	**2023**	**2024**
18	The Air District advocates for more electrical infrastructure and power storage, including development of (1) fast-charging facilities, (2) truck charging stations and (3) better land use support for electric trucks by 2025.	PG&E					
19	The Port of Oakland adopts an Electrical Infrastructure Plan for the maritime waterfront areas of Oakland. This Plan seeks to remove barriers to adoption of zero-emission trucks, such as cost, land, and ownership of charging equipment.	Port of Oakland					
20	The City of Oakland revises development requirements to require the implementation of as many transportation demand management (TDM) strategies as feasible by developers of new buildings.	City of Oakland					
21	The Air District works with the City and Port of Oakland and other agency and local partners to create a Sustainable Freight Advisory Committee to provide recommendations to each agency's governing board or council. The Committee's scope includes: air quality issues, enhanced/increased enforcement of truck parking and idling, improved referral and follow-up to nuisance and odor complaints related to goods movement, improvements to the Port appointment system, charging infrastructure and rates, developing land-use restrictions in industrial areas, funding, and consideration of video surveillance to enforce truck parking, route, and idling restrictions.	Air District, Port of Oakland, City of Oakland					
22	The City of Oakland adopts more stringent air quality construction and operations requirements.	City of Oakland					
23	The City adds the AB 617 Steering Committee Co-Chairs to the official lists to receive notification of "Applications on File" for discretionary planning projects and "Meeting Agendas" of the Planning Commission and its five subcommittees, and the Landmarks Preservation Board.	City of Oakland					
24	The Air District works with agency and local partners to improve referral and follow-up on nuisance and odor complaints by 2021. This work includes updates to complaint processes, enforcement procedures, and coordination with other public agencies regarding odors, backyard burning, and other complaints.	Air District					
25	To address potential changes in local pollution exposure, the City of Oakland works with local community groups to address gentrification and the pricing out of long-term residents caused by gentrification. This effort includes meetings with local community groups and incentives and loans targeted to existing businesses and residents. Funding for this effort is identified as needed.	City of Oakland					
26	The City and Port of Oakland will work to establish permanent locations for parking and staging of Port related trucks and cargo equipment, i.e. tractors, chassis, and containers. Such facilities will	City of Oakland, Port of Oakland					

			Implementation Timeframe (A = regulatory action; I = regulatory implementation; D= regulatory development)				
#	**Strategies**	**Authority**	**2020**	**2021**	**2022**	**2023**	**2024**
	provide long-term leases to parking operators and truck owner-operators at competitive rates. Such facilities will be at the City or Port logistics center or otherwise not adjacent to West Oakland residents.						
27	The City of Oakland and other appropriate local agencies limit fugitive dust from construction activity through better enforcement of existing regulations and permit requirements.	City of Oakland					
	Mobile Sources						
28	The California Air Resources Board develops improvements to the existing truck and bus inspection and maintenance programs. Potential improvements include increasing warranty requirements, adding a lower in-use emissions performance level, increasing inspections in West Oakland, using aggregated GPS and other telecommunication records to identify locations of idling trucks and buses, and partnering with the Air District to develop a system using on-board diagnostic and remote sensing devices to identify and fix faulty emissions abatement devices on trucks and buses.	CARB	A				
29	The California Air Resources Board develops the following regulations to increase the number of zero-emission trucks and buses operating in West Oakland: • The Advanced Clean Trucks regulation to transition to zero-emission technology those truck fleets that operate in urban centers, have stop-and-go driving cycles, and are centrally maintained and fueled. • Amendment to the drayage truck regulation to transition the drayage truck fleet to zero emissions.	CARB	A				I
30	The California Air Resources Board, in partnership with the Steering Committee, WOEIP and the Air District, conduct a pilot study to assess local idling impacts from trucks and buses. The Steering Committee, WOEIP and the Air District advocate for “Clean Idle” trucks and buses to idle no more than 5 minutes when in West Oakland.	CARB	I				
31	The California Air Resources Board develops amendments to the transport refrigeration unit (TRU) regulation to transition the TRU fleet to zero-emission operations by requiring both zero-emission technology and supporting infrastructure.	CARB	A		I		
32	The California Air Resources Board develops amendments to the existing cargo handling equipment regulation, which includes yard trucks, rubber-tired gantry cranes, and top handlers, that may reduce idling and transition the various types of equipment to zero-emission operation.	CARB			A		

			Implementation Timeframe (A = regulatory action; I = regulatory implementation; D= regulatory development)				
#	**Strategies**	**Authority**	**2020**	**2021**	**2022**	**2023**	**2024**
33	The California Air Resources Board develops a handbook that identifies best practices for the siting, design, construction, and operation of freight facilities to minimize community exposure to air pollution.	CARB	A				
34	The California Air Resources Board develops regulations to expand California-specific standards for new light-duty vehicles, impacting 2026 and later model year vehicles, to increase the number of new zero-emission and plug-in hybrid electric vehicles sold in California and increase the stringency of fleet-wide emission standards for greenhouse gases and criteria pollutants.	CARB		A			
35	The California Air Resources Board develops new standards for small off-road engines (SORE), which are spark-ignition engines rated at or below 19 kilowatts and used primarily for lawn, garden, and other outdoor power equipment.	CARB	A				
36	The City of Oakland requires industrial and warehouse facilities to provide electrical connections for electric trucks and transport refrigeration units in support of CARB regulations.	City of Oakland					
37	The Port of Oakland, as part of the 2020 and Beyond Seaport Air Quality Plan, supports the transition to zero-emission drayage truck operations, including setting interim year targets out to 2035, coordinating an extensive zero-emission truck commercialization effort, working with the City of Oakland to amend local ordinances to increase the allowable weight limits for single-axle, zero-emission trucks on local streets located within the Port and the Oakland Army Base/Gateway areas, and developing an investment plan for needed upgrades to the Port's electrical infrastructure. The Port of Oakland also works with the California Public Utilities Commission and the California Energy Commission to study the development of time-of-day electric rate structures favorable to truck operators.	Port of Oakland					
38	The City of Oakland, consistent with the West Oakland Truck Management Plan: 1) improves training for police officers, community resource officers, and parking control technicians who issue truck and trailer parking tickets; 2) changes the parking regulations so they are easier to enforce; 3) increases truck parking fines; 4) targets enforcement at specific times and locations; and 5) improves signage directing drivers to available truck parking.	City of Oakland					
39	The City of Oakland, consistent with the West Oakland Truck Management Plan: 1) improves signage regarding existing truck routes; 2) works with businesses on preferred routes to use when destinations are not located on truck routes; and 3) adds to, or changes, truck routes and prohibited streets.	City of Oakland					

			Implementation Timeframe (A = regulatory action; I = regulatory implementation; D= regulatory development)				
#	**Strategies**	**Authority**	**2020**	**2021**	**2022**	**2023**	**2024**
40	The City of Oakland, consistent with the West Oakland Truck Management Plan, implements, in consultation with West Oakland residents, traffic calming measures to keep truck traffic off residential streets.	City of Oakland					
41	The Air District works with CARB to streamline the process for providing financial incentives for fueling infrastructure, and for low and zero-emission equipment. The Air District increases outreach and assistance to individual owner-operators and small companies by providing two workshops and enhanced outreach in West Oakland by 2022.	Air District					
42	The City and Port of Oakland award long-term leases to vendors that will deliver trucker services (including mini-market and convenience stores, fast food, and fast casual restaurants), and parking to keep trucks off West Oakland streets.	City of Oakland, Port of Oakland					
43	The Port of Oakland studies the effects on truck flow and congestion due to increasing visits from larger container ships, the feasibility of an off-terminal container yard that utilizes zero-emission trucks to move containers to and from the marine terminals, and the potential efficiency gains from increasing the number of trucks hauling loaded containers on each leg of a roundtrip to the Port.	Port of Oakland					
44	The Alameda County Transportation Commission works with West Oakland residents and businesses to develop mitigations to short- and long-term impacts caused by the construction of the 7th St Grade Separation East Project and the implementation of other elements of the GoPort Initiative.	ACTC					
45	The City of Oakland collaborates with AC Transit, BART, Emery-Go-Round, and the local community to implement the broad array of transit improvements identified in the West Oakland Specific Plan.	City of Oakland, AC Transit, BART, City of Emeryville					
46	The City of Oakland collaborates with MTC and ACTC to consider a program for extending car sharing to low-income individuals and groups.	City of Oakland, MTC, ACTC					
47	AC Transit implements the Grand Avenue transit improvements identified in its Bus Rapid Transit Plan, as well as mitigations if the improvements cause increases in truck and auto idling on Grand Avenue.	AC Transit					
48	The Air District plans to offer up to $7 million per year to replace older autos through the Vehicle Buy Back program, and up to $4 million per year through the Clean Cars for All program to replace	Air District					

			Implementation Timeframe (A = regulatory action; I = regulatory implementation; D= regulatory development)				
#	**Strategies**	**Authority**	**2020**	**2021**	**2022**	**2023**	**2024**
	older autos and provide an incentive for a hybrid electric, plug-in hybrid electric, battery electric vehicle, or Clipper Card for public transit.						
49	The Air District offers financial incentives to replace box and yard diesel trucks with zero emission trucks owned by West Oakland businesses every year.	Air District					
50	The Air District plans to offer financial incentives to upgrade tugs and barges operating at the Port of Oakland with cleaner engines every year.	Air District, Port of Oakland					
51	The Air District plans to offer financial incentives to upgrade line-haul, passenger, and switcher (yard) locomotives with cleaner engines every year.	Air District					
52	The Air District plans to offer financial incentives to support the development of a hydrogen refueling station and the purchase of trucks and off-road equipment powered by fuel cells every year.	Air District					
53	The Air District offers financial incentives to replace long-haul diesel trucks with zero-emission trucks owned by West Oakland businesses every year.	Air District					
54	The Air District will award up to $1 million in funding incentives to pay for the cost of purchasing cleaner equipment in West Oakland, potentially including: electric lawn and garden equipment, battery electric Transport Refrigeration Units, and cargo-handling equipment, by 2021.	Air District					
55	The Bay Area Rapid Transit District will develop a bike station with controlled access at the West Oakland BART Station.	BART					
56	The City of Oakland implements the broad array of bicycle and pedestrian improvements identified in the West Oakland Specific Plan, the 2019 Oakland Bike Plan, and the 2017 Oakland Walks Pedestrian Plan.	City of Oakland					
57	Through the Pilot Trip Reduction Program, the Air District offers incentives for the purchase of electric bicycles for bike share programs.	Air District					
58	The Oakland Unified School District and the City of Oakland, as part of the Safe Routes to Schools Program in West Oakland, begin twice a day street closures next to public schools in West Oakland to keep cars and trucks away from arriving and departing students.	Oakland Unified School District, City of Oakland					
59	The City of Oakland increases the frequency of street sweeping to decrease road dust, particularly on streets adjacent to schools, on designated truck routes, and on streets near freeways. The California Department of Transportation increases the frequency of street sweeping along the I-	City of Oakland Caltrans					

			Implementation Timeframe (A = regulatory action; I = regulatory implementation; D= regulatory development)				
#	**Strategies**	**Authority**	**2020**	**2021**	**2022**	**2023**	**2024**
	880, I-980, and I-580 freeways. Consideration is given to technology and techniques that avoid re-suspending road dust.						
60	The California Air Resources Board develops amendments to the At-Berth Air Toxics Control Measure to further reduce ship emissions at berth by strengthening the regulation to cover more vessel visits and types of ships.	CARB	A	I			
61	The California Air Resources Board develops amendments to the Commercial Harbor Craft Air Toxics Control Measure to achieve additional control of harbor craft emissions. The Steering Committee, WOEIP, and the Air District advocate for early compliance of harbor craft operating near West Oakland.	CARB	A			I	
62	The California Air Resources Board develops regulations to reduce idling emissions from locomotives at rail yards with an emphasis on reducing emissions from locomotives not pre-empted under the federal Clean Air Act. The Steering Committee, WOEIP, and the Air District advocate for early compliance for locomotives operating in West Oakland.	CARB	A			I	
63	The Port of Oakland implements a Clean Ship Program to increase the frequency of visits by ships with International Maritime Organization Tier 2 and Tier 3 engines.	Port of Oakland					
64	The Port of Oakland implements a Clean Locomotive Program to increase the number of U.S. EPA Tier 4 compliant locomotives used by the UP, BNSF, and OGRE railways to provide service in and out of the Port of Oakland.	Port of Oakland					
65	The Port of Oakland studies the feasibility of using electric switcher locomotives at the two Port railyards.	Port of Oakland					
66	The Air District works with Schnitzer Steel to study the feasibility of installing a shore-power or bonnet system to capture and abate vessel emissions at the West Oakland facility by 2021.	Air District					
67	The Air District intends to seek authority in 2021 to reduce emissions and risk from magnet sources, such as the Port of Oakland, freight operations and warehouse distribution centers.	Air District					
	Stationary Sources						
68	The Air District proposes amendments to existing regulations to further reduce emissions from metal recycling and foundry operations, such as changes to: 1) Rule 6-4: Metal Recycling and Shredding Operations, which requires metal recycling and shredding facilities to minimize fugitive PM emissions through the development and implementation of facility Emission Minimization Plans; and 2) Rule 12-13: Foundry and Forging Operations, which requires metal foundries and	Air District					D

			Implementation Timeframe (A = regulatory action; I = regulatory implementation; D= regulatory development)				
#	**Strategies**	**Authority**	**2020**	**2021**	**2022**	**2023**	**2024**
	forges to minimize fugitive emissions of PM and odorous substances through the development and implementation of facility Emission Minimization Plans by 2025.						
69	The Air District's Rule 11-18: Reduce Risk from TACS at Existing Facilities requires selected Bay Area facilities to reduce risk or install best available retrofit control technology for toxics on all significant sources of toxic emissions. Based on the results of the facility-specific health risk assessment, the Air District may require Schnitzer Steel and the East Bay Municipal Utility District to adopt a Risk Reduction Plan if the health risk exceeds a risk action level per the requirements of Rule 11-18 implementation.	Air District					
70	The Air District intends to provide incentives to replace existing diesel stationary and standby engines (fire pumps, dryers, conveyor belts, cranes) with Tier 4 diesel or cleaner engines. Priority is given to upgrading Tier 0, 1 & 2 engines located closest to schools, senior citizen centers, childcare facilities, and hospitals.	Air District					
71	The Air District proposes new regulations to reduce emission sources from autobody and other coating operations, including the use of vanishing oils and rust inhibitors by 2025.	Air District				D	A
72	The Air District proposes new regulations to reduce emissions from wastewater treatment plants and anaerobic digestion facilities, such as a regulation to reduce emissions of methane, reactive organic gases, and oxides of nitrogen by 2020.	Air District	D	A			
73	The Air District proposes amendments to existing Regulation 8-5 to further reduce emissions of reactive organic gases and other toxic compounds from organic liquid storage tanks by 2020. Organic liquid storage tanks are defined in Regulation 8-5.	Air District	A				
74	The Air District advocates for a plan that East Bay Clean Energy and PG&E are spearheading to replace the Dynegy Power Plant with a cleaner and more reliable source of energy by 2022. The proposed location for this initiative is the Oakland C, Oakland L, Maritime Port of Oakland, and Schnitzer Steel substation pocket, which is located within PG&E's Oakland distribution planning area. Eligible resource types include: (1) in-front-of-the-meter renewable generation; (2) in-front-of-the-meter energy storage, and (3) behind-the-meter energy storage. EBCE is seeking to procure the energy, resource adequacy (RA), and renewable energy credits (RECs) associated with these local resources, while PG&E will focus on meeting Oakland's transmission reliability needs.	East Bay Clean Energy, PG&E					

			Implementation Timeframe (A = regulatory action; I = regulatory implementation; D= regulatory development)				
#	**Strategies**	**Authority**	**2020**	**2021**	**2022**	**2023**	**2024**
	Health Programs						
75	The Air District intends to develop and fund a program to reduce exposure to air pollution at schools, day care facilities, senior centers, health facilities, public facilities, apartments and homes in West Oakland by 2021. This Strategy includes policies or grants for building energy efficiency upgrades to reduce infiltration of pollutants and the installation of high-efficiency air filtration systems (rated MERV 14 or higher).	Air District					
76	The City of Oakland works with local and agency partners to implement regional and local adoption of the State Department of Public Health's Health In All Policies program.	City of Oakland					
77	Consistent with the Healthy Development Guidelines, the City of Oakland implements a project-wide smoking ban in Oakland at new developments.	City of Oakland					
78	Consistent with the State's Building Energy Efficiency Standards for air filtration in effect as of January 1, 2020, the City of Oakland requires newly constructed buildings of four or more habitable floors to include air filtration systems equal to or greater than MERV 13 (ASHRAE Standard 52.2), or a particle size efficiency rating equal to or greater than 50 percent in the 0.3-1.0 µm range and equal to or greater than 85 percent in the 1.0-3.0 µm range (AHRI Standard 680).	City of Oakland					
79	The City of Oakland works with agency and community partners to undertake participatory budgeting with West Oakland community members to allocate local health improvement grants that reduce emissions or exposure to emissions.	City of Oakland					
80	The Air District researches actions that are potentially exposure-reducing, such as: 1) an engineering evaluation of exhaust stacks and/or vents to determine if relocation will reduce local exposure; (2) a study to determine if smart air filtration systems can reduce exposure by in-taking air during daily non-peak vehicle travel times, such as between midnight and four a.m.; and (3) a study of the potential air quality benefits of a centralized package delivery site such as personal lockers by 2025.	Air District					
81	The City of Oakland works with local businesses, partner agencies, and community members to develop a Green Business Strategic Plan to attract, retain, and support innovative green companies in West Oakland. This effort includes coordination with State and local agencies to develop criteria for green business certification for new and existing businesses.	City of Oakland					

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#	**Strategies**	**Authority**	**2020**	**2021**	**2022**	**2023**	**2024**
82	The California Office of Environmental Health Hazard Assessment, in partnership with the Steering Committee, the City of Oakland, CARB, and the Air District, studies setting a limit on West Oakland's cumulative exposure to TACs.	OEHHA					
83	The City of Oakland works with community partners to implement the Healthy Development Guidelines for new building projects.	City of Oakland					
84	The Alameda County Public Health Department expands its Asthma Management programs.	Alameda County Public Health Department					
85	The City of Oakland works with Alameda County Public Health Department to improve access to medical services within West Oakland. This work expands existing programs such as: (1) Child Health and Disability Prevention Program free health check-ups for infants through teens; (2) Asthma Management at schools; (3) Building Blocks for Health Equity which works to correct inequity in health outcomes for children; (4) Urban Male Health Initiative which is charged with reducing the premature mortality of men and boys in Alameda County; and (5) Alameda County Health Improvement Plan to develop and implement a five-year county plan to improve health and achieve health equity.	City of Oakland, Alameda County Public Health Department					
86	The Alameda County Public Health Department works with agency and local partners to investigate the use of green building approaches in housing construction and renovation that will reduce emissions and exposure to air pollution emissions. This work examines weatherization/energy efficiency and renewable energy services. This work draws from the Contra Costa County Health Department's pilot effort in cooperation with the Regional Asthma Management Program.	Alameda County Public Health Department					
87	CARB conducts a technology assessment of commercial cooking rules and control strategies and proposes incentives and/or a Suggested Control Measure for commercial cooking. The Air District offers incentives and/or proposes a regulation to reduce emissions from commercial cooking.	Air District, CARB					
88	The City of Oakland studies revising standard conditions of approval and/or similar requirements for large projects to require "opt-up" to East Bay Community Energy's Brilliant 100 carbon-free electricity supply.	City of Oakland					

			Implementation Timeframe (A = regulatory action; I = regulatory implementation; D= regulatory development)				
#	**Strategies**	**Authority**	**2020**	**2021**	**2022**	**2023**	**2024**
89	The Alameda CTC and Caltrans will continually engage with the community, at a minimum through participation in quarterly meetings of the WOCAP implementation committee, on early project planning and delivery for projects in West Oakland where Alameda CTC and/or Caltrans is the project sponsor in order to ensure projects do not increase transportation impacts on residents. These projects will undergo appropriate reviews to assess the environmental and health impacts, and potential local benefits, and adopt associated mitigation measures so they do not result in a net increase in air pollution or health inequities for residents most impacted by the county's freight transportation system in West Oakland.	ACTC, Caltrans					

Table 6-5. Further Study Measures

	Further Study Measures	Authority	2020	2021	2022	2023	2024
1	The Air District will investigate local impacts of backyard wood fires and strategies to minimize these impacts.	Air District					
2	The Air District will analyze road dust emission rates for local streets.	Air District					
3	The Air District will investigate potential rulemaking to limit fugitive dust from construction activity.	Air District					
4	The Air District will work with CARB, EBMUD, and other agency and community partners to identify strategies and incentives to address community concerns about odors, health-related emissions, and disclosing to the community information about complaints and complaint resolutions from the EBMUD facility in the Owning Our Air plan area.	Air District					
5	The Air District will investigate the feasibility of amending Regulation 5 (Open Burning) and/or Reg. 6-3 (Wood Burning Devices) to prohibit recreational fires	Air District					
6	The Air District works with the Port of Oakland to optimize the Port appointment system to minimize truck idling.	Air District, Port of Oakland					