AGENDA REPORT

Report: Draft *Seaport Air Quality 2020 and Beyond Plan* **(Engineering)**

MEETING DATE: 7/12/2018

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INTRODUCTION

The Port of Oakland ("Port") has prepared a new draft air quality plan to address emissions arising from equipment and operations at the Seaport: *Draft Seaport Air Quality 2020 and Beyond Plan ("Draft Plan.")* (See Attachment A: *Draft Seaport Air Quality 2020 and Beyond Plan.)*

The *Draft Plan* builds upon the existing *Maritime Air Quality Improvement Plan ("MAQIP")* that the Board of Port Commissioners ("Board") adopted in 2009. *The Draft Plan* includes programs and projects that extend beyond the *MAQIP*'s Year 2020 planning horizon. The planning process for the *Final Seaport Air Quality 2020 and Beyond Plan* ("*Final Plan*") involves two distinct phases: 1) plan development, including public review and comment on the *Draft Plan*; and 2) plan implementation.

This Information Report ("Report") describes the plan development factors in Section I, including the *MAQIP*, the regulatory and policy setting, technical studies, planning assumptions, policy issues and stakeholder engagement. Section II of this Report summarizes the key elements of the *Draft Plan*.

Section III of this Report then describes the proposed *Final Plan* implementation elements and process. Section III describes the role of implementing actions ("IAs"), external grants and incentives, collaborative partnerships and stakeholder participation in *Final Plan* implementation. Section III also describes reporting and monitoring and the *Final Plan* update process.

A key feature of *Final Plan* implementation will be the Action Plan. The *Draft Plan* includes a *Draft Proposed Near-Term (Years 2018-2023) Action Plan* (See Table 2 of this Report), which presents a list of potential programs, projects, and initiatives contemplated during the *Final Plan*'s first five years. Finally, Section IV of this Report describes the process and schedule, including cost and plan management resource analyses and stakeholder engagement to prepare the *Final Plan*.

I. PLAN DEVELOPMENT

MAQIP (2009): The Foundational Framework

Since 2009, the framework for the Port's Seaport-related air quality efforts has been the *MAQIP*. The Board adopted the *MAQIP* in April 2009.

The *MAQIP* is a master plan. As such, it established a vision, goals, strategies, and targets to reduce emissions from Seaport-related activities. The *MAQIP* established a 12-year time frame—from years 2009 to 2020—for implementation. Central to the *MAQIP* was a health risk reduction target established by the Board's Maritime Air Quality Policy Statement: R*educe excess cancer health risk related to exposure to diesel particulate matter ("DPM") emissions by 85% from 2005 to* 2020. The *MAQIP* expressed this target as an 85% reduction in DPM emissions.

In pursuit of the *MAQIP* target and to comply with State of California ("State") regulations, the Port and its tenants and equipment owners undertook large-scale emissions reductions programs and projects beginning in 2009. These included the Comprehensive Truck Management Program ("CTMP"), including the drayage truck retrofit project, the shore power program, and capital projects to improve operational efficiencies. As a result, based upon the Port's 2015 emissions inventory ("EI"), DPM emissions at the Port decreased 76% since 2005. The 2017 EI is in progress, and results will be incorporated into the *Final Plan*.

A Dynamic New Setting: Changes in Regulations, Policy Targets, Technology and Business Conditions

As reported to the Board and public on December 14, 2017 (see Report: *Maritime Air Quality Improvement Plan ("MAQIP") Status Report*), emerging policies, community concerns, technological factors, and business conditions create a dynamic new setting for air quality planning in California, especially in the goods movement sector, including ports. For example, the State has promulgated aggressive Statewide greenhouse gas ("GHG") reduction targets for 2030 and 2050. Regulators, community organizations, and the public are increasingly concerned about health effects associated with localized exposure to air pollutants. Technological changes in power systems, including advances in batteries and storage, and the increase in renewable energy sources, promise large-scale future deployment of zero-emissions equipment and operations.

However, since 2011, revenues from Port maritime operations have not grown while Port maritime operational costs have increased over 47%. The Maritime Division projects 2% growth in revenues over the next 5-10 years while overall maritime operational costs are rising at a much higher rate. These business conditions constitute a significant factor affecting the Port's financial capacity to fund future capital investments, especially infrastructure, to support air quality programs and projects.

Baseline Technical Studies

In early 2017, Port staff began technical studies to support the *Draft Plan* development and implementation. The studies are: 1) emissions forecast and potential emissions reduction strategies; 2) the *Year 2017 Seaport Emissions Inventory*: and 3) engineering feasibility studies of container yard electrification and shore power extension systems.

For purposes of the *Draft Plan* development, the key study is the emissions forecast. In the emissions forecast, the Port is modeling years 2020 and 2030 emissions to identify potential emissions reduction measures towards the *MAQIP* 85% DPM reduction goal. The emissions forecast's key finding is that the Port needs additional reduction measures "above and beyond" State regulations to achieve the 85% reduction target. The emissions forecast also found that emissions from vessels and harbor craft (i.e., tugs) constitute the largest sources of emissions.

Planning Assumptions

The *Draft Plan* reflects and incorporates specific planning assumptions. (See *Draft Plan* Appendix A: *Planning Assumptions*.) The key planning assumptions form a foundation for plan development as well as constitute inputs for *Draft Plan* elements and studies.

To summarize the planning assumptions, the *Draft Plan* incorporates Maritime Division revenue forecasts of 2% per year and rising operational costs, which result in a limited capacity for Maritime operations to fund *Draft Plan* initiatives. The *Draft Plan* reflects the significant role that external sources of funding (i.e., from tenants, external grants, and incentives) are likely to play in *Final Plan* implementation.

The *Draft Plan* also reflects the view that the goods movement industry and the Port specifically, are facing a "paradigm shift" as technology transitions from fossil fuel-powered equipment and operations to equipment and operations based on near-zero and zero-emissions technologies. Overall, the *Draft Plan* assumes dynamic changes in technology, operational practices, and regulations by building in core concepts of flexibility, adaptability, and feasibility as guiding principles for plan implementation.

Key Policy Issues

The *Draft Plan* development process raised five key policy issues. The first three issues play a major role in shaping the Vision, Goals and Strategies. The second set of issues informs plan implementation. Below are the key policy issues followed by the *Draft Plan* "posture" (i.e., how the *Draft Plan* addresses the policy issue.)

Policy Issue #1. Vision: Near-Zero or Zero Emissions? One of the most debated issues animating plan development is the question of how to characterize the long-term vision for the Seaport.

- ***Draft Plan* posture:** Given the urgency of two public policy issues – climate change and localized exposure to air pollutants – whose abatements require an unprecedented reduction in toxic air contaminants and GHGs, the *Draft Plan*

proclaims an ambitious and bold endpoint: a zero-emissions Seaport. Recognizing that this transformation will take decades, will rely upon transitional technologies, and will require enormous levels of funding, the *Draft Plan* builds in the concept of incremental change, thereby characterizing the Vision as a "pathway to zero emissions."

Policy Issue #2. Goals: Diesel Particulate Matter ("DPM") and/or Greenhouse Gas ("GHG") reductions? Should the *Draft Plan* continue the *MAQIP* DPM focus or shift its focus to climate change abatement by reducing GHG emissions? Can the *Draft Plan* accommodate both DPM and GHG emission reduction goals?

- ***Draft Plan* posture:** The *Draft Plan* recognizes the importance of focusing on continued reduction of DPM emissions as well as on reduction of GHG emissions by establishing both reductions as *Draft Plan* Goals. The *Draft Plan* carries these goals into implementation by proposing Strategy #1 focused on DPM emissions reductions and Strategy #2 focused on GHG emissions reductions. Most measures to reduce GHG will concurrently reduce DPM emissions.

Policy Issue #3. Technology Preference? Should the *Draft Plan* assume that electrification will be the dominant technology in contrast to a more technology-agnostic/flexible pathway?

- ***Draft Plan* posture:** Electrification is the technological frontrunner; however, the *Draft Plan* leaves flexibility for other technologies, such as hydrogen-powered equipment and renewable diesel and natural gas. Strategy #3 reflects this flexible posture.

Policy Issue #4: Sufficient Resources for Final Plan Implementation and Management? The *Draft Plan* contemplates a long-term transformation of Port operations and infrastructure to achieve a zero-emissions Seaport. The complexity and magnitude of the endeavor will require enormous resource commitments in finances, staffing, and time. What are the sources of these resources? How will the Port prioritize resource allocations? What are the trade-offs?

- ***Draft Plan* posture:** The *Draft Plan* includes many sections that together address the challenging questions of resources, including sections on funding, grants and incentives, plan management, and phases. Additionally, Port staff have begun scoping cost and plan management resources analyses for inclusion in the *Final Plan* as an appendix. The *Draft Plan* discussions do not purport to answer all the cost and resources questions raised. Rather, they set the stage for subsequent analyses during the *Final Plan* development and implementation.

Policy Issue #5: Planning Horizons to Years 2030 and 2050? Is it reasonable to plan that far into the future?

- ***Draft Plan* posture:** The *Draft Plan* frames its Vision, Goals, and Strategies within the State's GHG target years 2030 and 2050. However, the *Draft Plan*

structures implementation according to three phases: near-term, intermediate-term, and longer-term. Given both the uncertainties and rapidity of technological advances, the *Draft Plan* focuses implementation on near-term, practical technologies and actions, set forth in a *Draft Proposed Near-Term (Years 2018-2023) Action Plan*. (See Table 2 of this Report.)

Stakeholder Engagement

Stakeholder engagement is a key component of plan development. The Port convened three Task Force meetings: the February 23, 2018 and May 9, 2018 meetings focused on updating the *MAQIP*; the June 21, 2018 meeting focused on the *Draft Plan*. The June 21, 2018 meeting initiated the new *Seaport Air Quality Plan* Task Force. Public outreach for all three Task Force meetings included communication of Task Force meetings with Task Force members and with the public via online postings of Task Force meeting dates, agendas, presentations, and summaries for the public.

Table 1 summarizes the *MAQIP* Update and *Seaport Air Quality Plan* stakeholder engagement process through June 21, 2018.

This Report also includes a brief meeting summary (Meeting Synopsis) from the June 21, 2018, *Seaport Air Quality Plan* Task Force meeting. Feedback from the June 21, 2018, meeting and from comments received on the *Draft Plan* during the public review period commencing June 29, 2018 will be incorporated into the on-going plan development process and addressed in the planned Fall 2018 *Seaport Air Quality Plan* Task Force meetings. At the June 21, 2018, *Seaport Air Quality Plan* Task Force Meeting, Port staff presented the key policy issues of the *Draft Plan*, with a focus on the pathway to zero emissions. *Final Plan* development will reflect and incorporate *Seaport Air Quality Plan* Task Force, public and Board review and comments. (See Attachment B: *June 21, 2018 Task Force Meeting Synopsis*.)

II. KEY DRAFT PLAN ELEMENTS

Like the *MAQIP*, the *Draft Plan* provides a master plan-level framework to guide decision-making, policy, and action. Whereas the *MAQIP* focused largely on reducing emissions from existing maritime equipment, the *Draft Plan* addresses not only equipment, but also fuels, operations, and significantly, required infrastructure.

The key structural elements of the *Draft Plan* are its Vision, Purpose, Goals, and Strategies, summarized below.

Vision

The Vision of the *Draft Plan* is the transition of Seaport operations to zero-emissions operations through changes in equipment, operations, fuels, and infrastructure.

Purpose

The functional purpose of the *Draft Plan* is to provide a common structure and guidance for all stakeholders involved in moving towards a zero-emissions Seaport. While the Port intends that the overall framework elements remain stable, the Port expects to update the *Final Plan* in 5 years, with a focus on the Near-Term Action Plan, so that implementation can reflect changing conditions and perspectives, especially technology, financial resources, emissions reductions and stakeholder input.

Goals

The *Draft 2020 and Beyond Plan* goals are:

- **Goal #1**: Keep the Port competitive, financially sustainable, and a catalyst for jobs and economic development.

- **Goal #2**: Minimize emissions of criteria air pollutants and toxic air contaminants (with a focus on reducing DPM emissions, and local community exposure.)

- **Goal #3**: Reduce GHG emissions.

- **Goal #4**: Build and strengthen partnerships among the Port, tenants, equipment manufacturers, owners and operators, community organizations, regulatory agencies, and the public.

- **Goal #5**: Provide opportunities for meaningful stakeholder engagement.

Strategies

The *Draft 2020 and Beyond Plan* strategies are:

- **Strategy #1**: **Continue Emissions Reduction Programs and Projects (Focus: Continue to Reduce DPM):** Strategy #1 focuses on continued reductions in Seaport-related emissions from existing equipment to achieve existing *MAQIP* goals. Strategy #1 seeks to identify additional emissions reduction measures "above-and-beyond" regulatory compliance. Strategy #1 relies on the Seaport emissions inventory and emissions forecast to identify which additional measures or programs may contribute to further emissions reductions.

- **Strategy #2: Promote Pathway to Zero-Emissions Equipment and Operations (Focus: Reduce GHG Emissions and Localized Exposure to Toxic Air Contaminants)**: Strategy #2 focuses on programs and projects that promote the pathway to zero emissions, such as fully-electric or hybrid trucks, low-NOx (i.e., oxides of nitrogen) drayage trucks, and electric or hybrid-electric cargo handling equipment ("CHE.") To support the transition, the Port will work with tenants, equipment manufacturers, grant-making agencies, truckers and

other businesses to identify projects for grant and incentive funding support. The key method to reduce GHG emissions is to reduce fossil fuels emissions by switching to hybrid or electrified equipment and operations, cleaner fuels, alternative power sources such as hydrogen fuel cells, and GHG-free sources of electricity.

- **Strategy #3: Construct Required Infrastructure to Support the Pathway to Zero Emissions (Focus: Systems and Technologies)**: Strategy #3 focuses on the transition to zero-emissions operations, with the presumption that the predominant source of power will be electricity. This will require investments to upgrade existing systems, increase resiliency (i.e., backup system capacity), and to build new electrical and fiber communications infrastructure. The Port will need to plan and coordinate electrical system upgrades in areas served by the Port as a utility jointly with the terminal operators, off-dock tenants, and equipment owners in these areas. The Port will also coordinate with Pacific Gas & Electric Company ("PG&E") in PG&E's service area, as will certain tenants who are PG&E customers. Strategy #3 also provides flexibility for other technological options (i.e., hydrogen-powered equipment) to provide power for zero-emissions operations.

- **Strategy #4: Build and Strengthen Partnerships:** Strategy #4 focuses on building and strengthening partnerships among the Port, tenants, equipment owners, operators, other businesses, community organizations, original equipment manufacturers ("OEMs"), researchers, the community, and agencies as well as with other ports related to the *Draft Plan* goals. Strategy #4 also focuses on economic and workforce development.

- **Strategy #5: Engage Stakeholders:** Development and implementation of the *Final Plan* will include stakeholder participation opportunities. Stakeholder participation will allow stakeholders to inform the planning process and provide ongoing opportunities for input as decision-making and *Final Plan* implementation progresses.

  Strategy #6: Pursue Funding: Strategy #6 addresses costs associated with *Final Plan* development and implementation. It especially focuses on grants and other incentive funding from non-Port sources such as other public agencies and equipment manufacturers to support the implementation of technology, equipment, fuels and infrastructure.

III. IMPLEMENTATION

Implementing Actions and *Draft Proposed Near-Term (Years 2018-2023) Action Plan*

An Implementing Action ("IA") is a specific, time-bound and measurable action, activity, or initiative. The *Draft Plan* includes a *Draft Proposed Near-Term (Years 2018-2023) Action Plan* (See Table 2 of this Report.) Implementation of any specific action in the *Draft Near-Term Action Plan* is subject to feasibility.

Feasibility

To be identified and implemented as a potential IA, a proposed activity must align with one of the six strategies. IAs must also satisfy the following feasibility criteria: affordability, cost effectiveness, priority, commercial availability, and operational feasibility and acceptability.

Funding, Grants and Incentives

Implementation of the *Final Plan* will require substantial investments in technology, equipment, fuels and infrastructure, as well as in *Final Plan* management and workforce development (e.g., training.)

The Port, its tenants, and other businesses are unlikely to be able to provide all the required funding needed. Incentives and grant funding from local, State, and federal sources for zero and near-zero emissions technology are essential to provide cost parity with conventional diesel-fueled equipment. This external funding will be key to *Final Plan* implementation, especially development of infrastructure.

Final Plan Management

A dedicated Port implementation team is contemplated to manage the *Final Plan* on an ongoing basis. This includes coordinating with stakeholders (including potential partners); managing specific programs, budgets and schedules; and providing progress and compliance reports to the Board and to stakeholders. In addition, the Port implementation team will be responsible for:

- Tracking grant opportunities;
- Applying for and managing grants for Port projects and acting as lead applicant for a group of applicants;
- Identifying and tracking new technologies;
- Tracking performance of existing programs and projects (e.g., shore power program and hybrid rubber tire gantry ["RTG"] cranes);
- Tracking regulatory requirements;
- Coordinating and collaborating with potential partners;
- Administering contracts in support of studies and other actions; and
- Conducting periodic emissions inventories.

A *Final Plan* management resources analysis (i.e., financial and staffing resources, organization structure, etc.) will accompany the *Final Plan*.

Timing

The *Final Plan* will be implemented in phases. The *Draft Plan* proposes three implementation phases: Near-Term (2018-2023); Intermediate-Term (2023-2030); and Longer-Term (2030-2050). The Near-Term phase overlaps with and incorporates *MAQIP* implementation through 2020.

The *Draft Plan* anticipates that the pathway to a zero-emissions Port can begin immediately by enhancing usage of the Port's Shore Power system and by deploying equipment that is commercially available, operational and for which required infrastructure exists. Table 3 of this Report summarizes grant-supported programs either underway or proposed in 2018 and the resulting criteria pollutants and carbon dioxide equivalents emissions reduced. Similarly, the Port can commence the studies required to ascertain infrastructure required to support future deployment of zero-emissions equipment.

Monitoring and Reporting

Three types of monitoring will be conducted: monitoring of IAs, monitoring of emissions reductions, and monitoring of progress toward goals.

Regular reporting will facilitate continued involvement of stakeholders and update stakeholders on implementation progress. The *Draft Plan* propose that at least once per calendar year, the Port will update the *Near-Term (Years 2018-2023) Action Plan,* considering changes in equipment, improvements to infrastructure and operating processes, regulatory and other developments, and the overall progress in reducing DPM and GHG emissions. Port staff will present the progress report to the Board, stakeholders and the public at least once annually.

IV. NEXT STEPS

Following posting of the *Draft Plan* on the Port website on June 29, 2018, the Port will begin a public review and comment period on Friday, June 29, 2018. (See Attachment C: *Notice of Public Review and Comment*.) During this public review and comment period, the Port invites comments on the *Draft Plan*. During the period from late September to early November, the Port is planning *Seaport Air Quality 2020 and Beyond Plan* Task Force meetings to discuss comments received and proposed revisions to the *Draft Plan*, including to the *Draft Proposed Near-Term (Years 2018-2023) Action Plan*.

Concurrently, Port staff will undertake a cost analysis and plan management resources analysis. The cost analysis will provide background information on the Port and other California seaports, an estimated cost to electrify landside sources (CHE and trucks) in Oakland, the cost effectiveness of zero-emissions and near-zero emissions equipment relative to existing diesel-fueled types, and funding options. This cost analysis will be included in the *Final* Plan. The plan management resources analysis will provide information on the financial and staffing resources, organizational structure and the prioritization of

resources required to support *Final Plan* implementation, with a focus on the *Near-Term Action Plan* period (Years 2018-2023.)

Action	Date
Post *Draft Plan*, this Report and *Notice of Public Review and Comment* on the Port of Oakland public website	Friday, June 29, 2018
Present *Draft Plan* to Board and Public at Board Meeting	Thurs., July 12, 2018
Invite and Receive Public Comments on *Draft Plan*	Begins Friday, June 29, 2018
Hold *Seaport Air Quality Plan* Task Force Meetings	September 2018- early November 2018
Conduct Cost and Plan Resources Analyses	July 1, 2018- November 30, 2018
Present *Final Seaport Air Quality 2020 and Beyond Plan* to Board	December 2018

Table 1: *MAQIP Update and Seaport Air Quality Plan Stakeholder Engagement*

Date(s)	Description
Dec. 2017-Jan. 2018	Stakeholder Assessment for Reconvened *MAQIP* Task Force The existing *MAQIP* called for reconvening the *MAQIP* Task Force to update the existing *MAQIP* ("2018 *MAQIP* Update"). CONCUR, the Port's meeting facilitator, conducted interviews with 26 individuals (out of 34 *MAQIP* Task Force members including four Co-Chairs) representing 19 organizations. The Stakeholder Assessment had several goals, including identifying: 1) stakeholder perceptions regarding *MAQIP* outcomes; 2) areas of agreement and concern; 3) information needs for the 2018 *MAQIP* Update (see April 12, 2018 Report: *MAQIP Status Report*); and 4) process design recommendations. Among the key findings, stakeholders expressed awareness of the progress that the Port and its regulatory and tenant partners have made in reducing DPM emissions and broad support for the 2018 *MAQIP* Update goal to continue the focus on the 85% reduction in DPM by the Year 2020. Stakeholders expressed a strong preference for a succinct Year 2018 *MAQIP* Update and a more extensive process for the "2020 and Beyond" Plan. One community organization—West Oakland Environmental Indicators Project ("WOEIP")—submitted a list of engagement criteria to the Port for the *MAQIP* 2018 Update. Because some of the engagement criteria went beyond the established guidelines for the original *MAQIP*, Port staff considered the engagement criteria to be applicable to the "2020 and Beyond" Plan (see discussion, below.) There was also strong support for the original *MAQIP* ground rules and Co-Chair structure, which provides leadership to develop *MAQIP* Task Force agendas and guidance to Port staff.
Feb. 23, 2018	Task Force Meeting #1 (Focus: *MAQIP* Update) The agenda included seven presentations ("briefings") on technical subjects, including a presentation by Dr. Montu Davis, Alameda County Health Officer, on "Asthma & Cumulative Health Risks in West Oakland (Feb. 23, 2018) and a presentation by the University of California, Berkeley on the performance of drayage truck engines at the Port of Oakland." Stakeholders also heard presentations on the Port's emissions inventories, the Shore Power Program, and emissions forecasts and potential reduction measures. Task Force members commented on each presentation, asked clarifying questions, and provided feedback to the Co-Chairs, Port staff, and CONCUR on stakeholder engagement criteria, the potential Vessel Speed Reduction Program, and on localized exposure to toxic air contaminants. The Port posted the meeting agenda, summary, project statement and seven presentations on its public website for public review and information.
May 9, 2018	Task Force Meeting #2 (Focus: *MAQIP* Update and Pivot to *2020 and Beyond Plan*) The agenda included eight presentations comprised of technical subjects, regulatory updates presentations, and Port presentations. Technical subjects included three community-based research studies: 100x100 Fixed Monitor Study; GoogleEarth View/EDF/Aclima Study; and a Case Study on Health Outcomes. Regulatory updates presentations included a joint presentation by BAAQMD and WOEIP on AB617 and a presentation on an assessment of available zero and near-zero emissions equipment. Port presentations included an update on the Port of Oakland's Implementation Options; the 2020 and Beyond "Blueprint"; and a report-out by the Port's Social Responsibility Division ("SRD"). The Port posted the meeting agenda, summary, project statement and eight presentations on its public website for public review and information.
June 21, 2018	Task Force Meeting #3 (Focus: *Seaport Air Quality Plan)* The agenda included a briefing on zero emissions by California Air Resources Board ("CARB") and facilitated group discussions with Task Force attendees. In addition, key policy issues associated with the Draft Plan, and the main elements of the *Draft Plan* were presented along with the process for public engagement for the *Final Plan*. The Port posted the meeting agenda, CARB presentation and Port presentation on its public website for public review and information.

Source: Port of Oakland Information Report: Draft Seaport Air Quality 2020 and Beyond Plan, June 29, 2018

Table 2: *Draft Proposed Near-Term (Years 2018-2023) Action Plan (*subject to revision in *Final Plan)*

Infrastructure
• Develop comprehensive infrastructure improvement implementation plan • Conduct Maritime Power Capacity Study for Terminal Electrification • Install electrical charging infrastructure at tenant location (Shippers Transport Express [STE]), pending CARB Zero and Near Zero Freight Facilities (ZANZEFF) grant award receipt and execution of a Memorandum of Understanding ("MOU") with the Port of Long Beach • Evaluate installation of two additional electrical vehicle chargers at Port public garage • Conduct needs assessments and feasibility studies for: drayage truck charging infrastructure; expanded fiber communications systems infrastructure; and providing infrastructure to support zero-emissions Port fleet • Develop guide for Port tenants about electrical vehicle charging infrastructure
Fuels
• Assess feasibility of tenant access to Alameda County Transit Authority (ACTA) hydrogen fueling stations • Investigate use of renewable diesel for land-based and marine equipment • Investigate use of ultra-low sulfur fuel for ocean-going vessels • Investigate use of renewable diesel in Port-owned diesel-powered vehicles
Equipment
• Monitor hybrid RTG installation at Oakland International Container Terminal ("OICT") pending BAAQMD Carl Moyer grant • Support demonstration of 10 electrical Class 8 drayage trucks at Port tenant STE, and up to six pieces of electrical cargo handling equipment at the Matson Terminal, upon ZANZEFF grant award receipt and execution of MOU with Port of Long Beach • Track development of uniform charging standards for electrically-powered CHE equipment at San Pedro Bay Ports ("SPBP"), and advocate for specific Port needs as applicable • Evaluate replacement of Port-owned vehicles with zero-emissions vehicles as existing vehicles reach the end of their useful life, and zero-emissions vehicles become commercially available and cost-effective
Operations
• Track vessel shore power use • Meet with Port tenants annually to discuss current air quality measures and room for improvement • Track Port tenant incentive-funded zero-emissions equipment and associated infrastructure (e.g. Prop 1b and Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project [HVIP] funding) • Continue conducting emission inventories • Continue to coordinate with Port Efficiency Task Force (PETF) and others to identify and implement efficiency measures • Evaluate voluntary and incentivized vessel speed reduction program
Partnerships
• Track Clean Air Action Plan ("CAAP") and SPBP Harbor Commission meetings and Port of Long Beach zero/near-zero emissions feasibility studies • Actively participate in Trucker Worker Group ("TWG"), Harbor Trucking Association ("HTA"), and Western States Trucking Association ("WSTA") • Work with Port of Long Beach to deliver Port's component of the ZANZEFF grant project (electrical infrastructure installation and demonstration period), pending ZANZEFF grant award receipt and execution of MOU with Port of Long Beach • Coordinate with PETF, Pacific Merchant Shipping Association, and other industry stakeholders to keep informed and provide updates on zero-emissions technologies.

Source: Port of Oakland Draft Seaport Air Quality 2020 and Beyond Plan, June 29, 2018

Table 3: ***Grant-Supported Programs and Projects Underway or Proposed to Reduce Emissions***

Project	**Emissions Avoided** (tpy = tons per year)	
	Criteria Pollutants	**CO2e[1]**
Port Shorepower Program (2017) - underway • More than 1,000 vessel calls in 2017 plugged into the electrical grid at Seaport berths. • Co-funding (majority) from State Proposition 1B Program.	600 tpy	31,700 tpy
Rubber Tire Gantry (RTG) Cranes Repower (2018) - underway • 1,000 horsepower (hp) diesel engines to be replaced with hybrid 142 hp diesel engines and batteries. • 13 cranes at the Oakland International Container terminal – SSAT and BAAQMD contract signed June 2018. • Co-funding from BAAQMD (Carl Moyer Program).	45 tpy	1,200 tpy
Electric Drayage Trucks and Cargo-Handling Equipment (2018) - proposed • 10 electric drayage trucks at Shippers Transport Express. • 5 utility tractor rigs (UTR) and one top pick. • Potential co-funding from CARB Zero- and Near Zero-Emission Freight Facilities (ZANZEFF) Project.	8 tpy	940 tpy

Source: Port of Oakland Information Report: Draft Seaport Air Quality 2020 and Beyond Plan, June 29, 2018

[1] CO2e = carbon dioxide equivalents