

DECARBONIZING THE FUTURE: RENEWABLE NATURAL GAS UTILIZATION AT OAKLAND INTERNATIONAL AIRPORT

CLIMATE POLLUTION REDUCTION GRANTS PROGRAM:
IMPLEMENTATION GRANTS GENERAL COMPETITION



SUBMITTED TO
ENVIRONMENTAL PROTECTION AGENCY

SUBMITTED BY
**PORT OF OAKLAND
530 WATER STREET
OAKLAND, CA 94607**



PORT OF OAKLAND

APRIL 1, 2024

Table of Contents

1	Overall Project Summary and Approach.....	1
1.1	Description of GHG Reduction Measure.....	1
1.2	Project Tasks and Milestones.....	4
1.3	Demonstration of Funding Need	8
1.4	Transformative Impact.....	9
2	Impact of GHG Reduction Measures	10
2.1	Magnitude of GHG Reductions from 2025 through 2030.....	10
2.2	Magnitude of GHG Reductions from 2025 through 2050.....	10
2.3	Cost Effectiveness of GHG Reductions.....	10
2.4	Documentation of GHG Reduction Assumptions.....	10
3	Environmental Results – Outputs, Outcomes, and Performance Measures	11
3.1	Expected Outputs and Outcomes	11
3.2	Performance Measures and Plan.....	11
3.3	Authorities, Implementation Timeline, and Milestones.....	12
4	Low-Income and Disadvantaged Communities.....	12
4.1	Community Benefits	12
4.2	Community Engagement	15
5	Job Quality.....	16
6	Programmatic Capability and Past Performance	17
6.1	Past Performance.....	17
6.2	Reporting Requirements.....	20
6.3	Staff Expertise	21
7	Budget	22
7.1	Budget Detail.....	22
7.2	Expenditure of Awarded Funds.....	22
7.3	Reasonableness of Costs.....	22

List of Tables

Table 1	Potential Risks and Mitigation Strategies	7
Table 2	Activities, Outputs, and Outcomes	11
Table 3	MAPLA Outcomes 2020 - 2023	16
Table 4	Recent Port Air Quality Project Awards	19
Table 5	Energy Measure 6, Implement Bioenergy Projects GHG Measure - Decarbonizing the Future: Renewable Natural Gas Utilization at Oakland International Airport Project Budget.....	23

List of Figures

Figure 1	Existing WPCP Gas Flare	2
Figure 2	Example Condensing Natural Gas Boiler	2
Figure 3	Natural Gas Pipeline to OAK Terminal 2 (pipeline in red)	3
Figure 4	Project Schedule	12
Figure 5	Project Area Location Within Historically Disadvantaged Community, Opportunity Zone, and Equity Metrics	13
Figure 6	Airport Area Disproportionately Burdened by Multiple Sources of Pollution.....	14

1 Overall Project Summary and Approach

The Port of Oakland (Port), a Department of the City of Oakland, is a critical gateway connecting Northern California to the global market. The Port owns and operates Oakland International Airport (OAK or Airport), which is the primary airport for the greater East Bay, the most populated area in the metropolitan San Francisco Bay Area.

OAK and its business partners support more than 60,000 jobs in the region with more than \$4 billion in annual economic impact. OAK facilities are located on approximately 2,600 acres of land and include terminals, airfields, a rental car center,

parking, air cargo, corporate and general aviation, a municipal golf course, and maintenance facilities. OAK's commercial passenger terminals (Terminals 1 and 2) have a total of 29 gates and include the International Arrivals Building. The main commercial runway, Runway 12/30, primarily serves commercial air carrier operations and corporate jet departures, with additional runways serving other corporate and general aviation purposes.

The Port is a sustainability leader in the transportation and goods movement sector, partnering with regulatory agencies, neighboring cities, tenants, and private sector partners to improve the environment, social responsibility, and the economy. The Port is working to transition its operations to zero-emissions. In furtherance of this goal, since 2022, OAK has maintained its annual certification in the Airport Carbon Accreditation program, an aggressive carbon emissions reduction program that includes a greenhouse gas inventory and voluntary reduction activities. OAK has established a nonbinding target to reduce Scope 1 and Scope 2 greenhouse gas emissions 50 percent by 2030 and 100 percent by 2040.

Adjacent to OAK, the City of San Leandro (City) is one of the nation's most diverse cities, located at the center of the dynamic San Francisco Bay Area. With a vibrant community of more than 89,000 residents, San Leandro is proud of its well-maintained neighborhoods, excellent public libraries, twenty-one public parks, quality local schools, and a wide range of shopping, dining, and entertainment options. The City also encompasses a large industrial area home to the thriving advanced manufacturing industry.

Together the Port and the City propose to further assert their position as climate leaders by partnering on a climate-forward project to advance two separate but related State of California climate protection priorities – 1) mitigating landfill methane emissions through local processing of organic waste (SB1383) and 2) physical displacement of fossil natural gas usage with renewable natural gas (SB1440). This endeavor can serve as a model of partnership for similar entities.

1.1 Description of GHG Reduction Measure

The proposed project, *Decarbonizing the Future: Renewable Natural Gas Utilization at Oakland International Airport* (Project) will enable the use of renewable natural gas (RNG) at OAK as part of a new initiative to significantly advance the Port's voluntary decarbonization program.

The Airport and the City's Water Pollution Control Plant (WPCP) are neighbors that share not only a fence line, but a vision to reduce carbon emissions and fight climate change to create a local closed loop system of RNG production and usage.



The Airport currently receives fossil-based natural gas from the local gas utility to fuel critical central utility plant equipment that support OAK's daily operations. The Airport has a high, long-term demand for local sources of clean, low-carbon, baseload renewable energy.

The City's WPCP treats wastewater from the northern two-thirds of San Leandro currently and has a consistent supply of wastewater solids. Biogas is a byproduct of the wastewater treatment process and is currently dispersed into the air via a flare stack.

The Project creates an ideal partnership between the City and the Port. Through this collaboration, the City would generate RNG from existing biogas and its directly adjacent neighbor, the Airport, would offtake it to use in daily operations, displacing current fossil-gas usage and grid electricity with a clean source of power with net zero carbon emissions.

To implement this vision, the City plans to install an already-designed system that takes the regular supply of wastewater solids currently flowing through the WPCP, supplemented with local high-strength organic waste byproducts of local food production, and converts biogas into RNG, in turn eliminating flaring. Once the system is commissioned, RNG will be available to sell to the Port for use at the Airport.

Under this Measure, the Port proposes to design and construct the infrastructure to facilitate the long-term transport of this locally generated energy resource, RNG, in two phases. As indicated in Figure 3, the Port will design and construct a pipeline connecting the City's WPCP to the Airport's central utility plant. The RNG will have two end uses at the Airport. The first end use is the Airport's central utility plants where RNG will replace fossil natural gas now used in the condensing natural gas boilers to heat 600,000 square feet of the Airport's terminal concourses. The second end use is the power generation supply equipment (i.e., fuel cells, linear generators, RNG generators) that the Project proposes to install to replace grid electricity to power the Airport's terminal concourses. The 11 million passengers that utilize OAK's facilities annually, as well as the 7,000 onsite OAK workers and surrounding communities will benefit from this Project that protects local air quality.

Phase 1 of the Project is the design and construction of infrastructure (such as gas compression equipment) required by the Airport to receive RNG by truck. This phase accelerates the deployment of RNG to Airport end-uses while Phase 2 is designed. Phase 2 of the Project is the design and construction of a 10,400-foot direct, low-pressure pipeline in the Airport's perimeter dike and the installation of power generation supply equipment that connects the WPCP to Airport end-uses. Once the pipeline is operational, trucking will be



Figure 1 Existing WPCP Gas Flare



Figure 2 Example Condensing Natural Gas Boiler

discontinued, though the infrastructure will be maintained as a resiliency and redundancy measure in the long term should the pipeline ever experience downtime as a result of maintenance.

Figure 3 Natural Gas Pipeline to OAK Terminal 2 (pipeline in red)



The City intends to begin construction on the system soon after an agreement with the Port is executed and by 2027 will be ready to initially produce at least 35,040 MMBtu of RNG annually. The Port has an annual usage of about 35,000 MMBtu, such that supply and demand are a near perfect match. The WPCP production is expected to scale up over time and in Phase 2, the Port has a plan to offtake the additional increases in the amount of RNG supplied by installing power generation supply equipment to convert it into clean, baseload power, further offsetting carbon emissions at the Airport.

Without this partnership, biogas would continue to be flared into the environment at the WPCP and the Port's reliance on fossil-based gas would continue. This partnership is critical to achieving the City's resource recovery goals and the Port's decarbonization goals. In fact, it is arguably the local embodiment of California's ambitious push to ratchet down short-lived climate pollutants, especially methane. To make the economics of landfill diversion and co-digestion financially viable, the City needs a willing offtaker for RNG. Similarly, the Port is eager to pursue the City's RNG because sourcing it locally improves project-level economics and environmental benefits.

The Port, as the lead applicant, intends to submit a Memorandum of Agreement (MOA) signed by both the Port and the City by July 1, 2024. The purpose of the MOA will be for the parties to establish binding terms and conditions relating to the Port's purchase of RNG from the City.

PCAP GHG Reduction Measure

The proposed Project works toward Energy Measure 6 as outlined in the State of California's Priority Climate Action Plan (PCAP). Energy Measure 6, Implement Bioenergy Projects, supports the creation and use of renewable energy from waste sources, including the following components:

- Anaerobic digesters to process organic waste and collect renewable gas.
- Systems to process organic waste and create renewable energy.
- Equipment that processes organic waste to feedstock for the above technologies.
- On-site renewables energy and storage for increased energy processing needs.

- Other onsite construction as needed to combine the above operations.

This Project was chosen as a priority to be funded because it is the highest-ranking initiative in the Airport's Carbon Management Plan, developed as part of OAK's Airport Carbon Accreditation. Displacing current Scope 1 carbon emissions from fossil-based natural gas usage to heat Airport terminal buildings with zero emissions RNG will result in a 60 to 75% reduction of current Scope 1 greenhouse gases, allowing the Airport to reach its zero emissions goal by 2035, accelerating its path to zero emissions by 5 years.

Additionally, the Project was chosen as a priority measure because of the significant local community and local air quality protection benefits it produces. This Project highlights a unique relationship between neighboring entities that have a plan to co-create benefits for the community and the climate. The proposed Project provides an opportunity to replace fossil natural gas usage currently used to heat airport terminal concourses serving over 11 million passengers with RNG produced next door from the consistent and significant supply of wastewater solids, supplemented with high-strength organic waste byproduct of local food and beverage production.

1.2 Project Tasks and Milestones

The Project tasks and associated deliverables are listed below. Please see Section 3.3 for the Project's implementation timeline.

Task 1.0 – Project Administration

The objective of this task is to provide overall effective project management to ensure the Project remains on time, on budget, and meets OAK's needs and the goals of this Project. The Project team is comprised of a cross-divisional team of project management, finance, environmental, engineering and construction experts that will perform as they do to deliver on many other Port capital improvement projects. This Project will involve coordination and management of tasks, regular meetings and as-needed coordination between the Port and Project team, and development of a Project Management Plan (PMP) which will include:

- Project team organization, responsibilities, and contact information.
- A schedule and protocols for project management meetings, invoices, and deliverables.
- An articulation of project goals and assessment of project risks.
- Quality Assurance/Quality Control (QA/QC) protocols.
- Grant reporting requirements and responsibilities.
- Finalized project scope and schedule, including roles and responsibilities for the Port.

The Port will oversee this task with support from the City.

Milestones: PMP (12 weeks after Grant Award), monthly check-in summaries (ongoing)

Task 2.0 – Stakeholder Engagement

The stakeholder engagement conducted as a part of this Project will complement the robust, ongoing community and stakeholder engagement the Port has previously conducted and will continue to conduct. Engagement specific to this Project will be conducted with the AB 617 East Oakland Community Steering Committee (CSC) upon which the Port's Director of Environmental Programs and Planning Colleen Liang serves. Assembly Bill 617 requires the development of a Community Emissions Reduction Plan (CERP) to reduce the emissions of toxic air contaminants and criteria pollutants in the

most heavily burdened communities throughout the State of California. In February 2022, East Oakland was selected amongst other high priority communities in the Bay Area due to long standing air quality challenges, health inequities, and a history of environmental justice issues. The community-led East Oakland AB 617 Community Emissions Reduction Plan will be developed by the East Oakland CSC with the support of the CERP Co-Leads, Communities for a Better Environment (CBE) and the Bay Area Air Quality Management District. The CERP is a five-year plan that will include strategies to address long standing air quality challenges in East Oakland. The East Oakland CSC consists of CBOs, youth organizations, non-profits, faith communities, education, government, health, and business representatives from the East Oakland area, including the Airport.

In addition, the Port will work in collaboration with East Oakland community-based organizations (CBOs) to gather input and offer feedback on this Project on a regular basis.

The Port will utilize a Consultant and/or CBOs such as Black Cultural Zone, East Oakland Collective, the East Oakland Neighborhood Initiative (EONI) and the East Oakland neighborhood associations to conduct community engagement activities during the Project. Activities will include:

- Develop a plan for stakeholder and community engagement and outreach (Outreach Plan) for decarbonization at the airport. This will be informed by educating stakeholders and community members on decarbonization and zero-emissions at meetings, community consultations, and community-led listening sessions.
- Conduct activities described in the Outreach Plan, such as Project updates at regularly scheduled East Oakland CSC meetings, listening and feedback sessions, ad hoc meetings, etc. Meals, stipends for transportation, on-site childcare services, and other accommodations will be provided to make the outreach activities more accessible for participants, as appropriate.
- Prepare social media materials for the Port to post and updates to the Port website, as appropriate.

More details on Community Engagement can be found in Section 4.2.

Milestones: Community Engagement Outreach Plan, Meeting Materials, Presentations at Group Meetings, Meeting Minutes, Project Social Media Update Posts (as appropriate)

Task 3.0 – Bidding and Procurement

The objective of this task is to secure the contracts required to ensure project delivery in compliance with Port public works contract rules. The Port intends to utilize a design-bid-build project delivery method for this Project.

For the design phase, the Port will prepare a request for proposals, solicit bids, conduct interviews and select a project designer to perform design tasks for Phase 1 and Phase 2 of the Project. Port staff will seek budget and contracting authority from the Board of Port Commissioners (Board), enter into contract and proceed with the design phase.

For the construction phase, the Port will prepare and release a public works project manual requesting bids. The Port will review bids, seek budget and contracting authority from the Board, enter into contract and proceed with Phase 1 and Phase 2 of Project construction.

The Port will oversee this task.

Milestones: Bidding and Procurement of Design Phase (4 months from Grant Award). Bidding and Procurement of Construction Phase 1 (18 months from Grant Award). Bidding and Procurement of

Construction Phase 2 (25 months from Grant Award). Monthly check-in summaries from weekly design/construction meetings.

Task 4.0 – Design, Installation, and Construction

The City intends to begin construction on installing the RNG system soon after an agreement with the Port is executed. Once the system is commissioned, the City will produce at least 96 MMBtu of RNG per day.

The Port intends to initiate Project activities as soon as the grant is awarded, beginning with design support. Once a project designer is on-boarded and the Project is in permitting, the Port will bid the Project and enter into contract with a contractor to construct Phase 1. When Phase 1 is commissioned, the Port will begin to offtake RNG from the City via truck transport. As Phase 1 construction begins, Phase 2 design will commence. When design and permitting is complete for Phase 2, the Port will bid the Project and enter into contract with a contractor to construct Phase 2. When Phase 2 is commissioned, the Port will begin to offtake RNG from the City via pipeline.

Components of the Project are as follows:

- Phase 1: Design Support Documents (10/24-1/25)
- Phase 1: Design and Permitting of Compressed RNG Infrastructure (1/25-11/25)
- Phase 1: Bidding and Contracting (11/25-4/26)
- Phase 1: Construction of Compressed RNG Infrastructure (4/26-1/27)
 - Site Investigations
 - Mobilization
 - Demolition
 - Site Preparation
 - Piping Installation
 - Paving and Striping
 - Commissioning and Start Up
- Phase 2: Design and Permitting of Pipeline Infrastructure (4/26-8/27)
- Phase 2: Bidding and Contracting (8/27-1/28)
- Phase 2: Construction of Pipeline (1/28-6/29)
 - Mobilization
 - Demolition
 - Site Preparation
 - Utility Relocation
 - Pipeline Construction
 - Pipeline Connection to Central Utility Plants
 - Installation of Fuel Cells
 - Installation of Pipeline Storage and Control System
 - Paving and Striping

— Commissioning and Start Up

The Port will oversee this task in coordination with the City.

Milestones: Phase 1 Design Drawings (12 months from Grant Award). Phase 2 Design Drawings (25 months from Grant Award). Substantial Completion of Phase 1 Construction (24 months from Grant Award). Substantial Completion of Phase 2 Construction (42 months from Grant Award).

Task 5.0 – Reporting

The purpose of this task is to develop semi-annual reports and a detailed final report. The semi-annual reports will include Project progress such as the completion of milestones over the past six months, expenditures to-date, and projected Project activities for the following six months. Semi-annual reporting will also capture community outreach and the ongoing mitigation of environmental risks. One year after being awarded, per EPA guidelines, the Port will quantify and report on the changes in co-pollutants emissions as well as the benefits of the Project’s progress on low-income and disadvantaged communities in the Port’s LIA. The Port will collect emissions data via a third-party contractor.

A final report will contain an overview of the Project’s purpose, approach, activities performed, results, and conclusions. The details will include changes in GHGs directly related to the Project, outputs/outcomes achieved, the total cost of implementing the Project, lessons learned, and other relevant Project information. The Port will lead the preparation of an outline, draft, and final report.

The Port will oversee this task with support from the City.

Milestones: Semi-annual report (every six months beginning at Project kickoff); Final Report (within 120 calendar days of the completion of the period of performance)

1.2.1 Potential Risks and Mitigation Strategies

The Port has extensive experience working with Federal and State agencies to deliver grant projects. The funds can easily be obligated and expended within the timeframes desired by the EPA. Specific risks and mitigation strategies are outlined in the table below.

Table 1 Potential Risks and Mitigation Strategies

Potential Risks	Probability	Proposed Mitigation Strategies
Schedule delay due to contractor procurement	Low	The Port has a number of procurement options that could be utilized to identify and retain a qualified contractor.
Schedule delay due to permitting complexity	Medium	The Port and the City will establish an open line of communication with the necessary permitting agencies, and will engage with internal staff that are most familiar with the permitting processes to assist with submittals.
Limited availability of feedstocks	Low	The City will find other suppliers
Limited ability to enter into long-term contracts for feedstocks	Low	The City will pursue multiple overlapping contracts

Potential Risks	Probability	Proposed Mitigation Strategies
Leaks in the natural gas pipeline, CRNG storage vessels, or 3 stage pressure reduction system	Low	This Project will aim to detect leaks via the Project’s gas management system. The gas management system will be linked to pressure sensors that measure the pressure of gas in the pipeline and storage vessels. Any significant drop in pressure generally indicates a leak or another issue with the system. Any issues flagged by the natural gas management system will be investigated and remediated.
Fire or catastrophic failure of a CRNG storage vessel. Under normal operation, CRNG storage vessels are reliable and safe. Airport tenant has operated Compressed Natural Gas (CNG) storage tanks on site for decades without any issue	Low	The CRNG storage vessels will be located in a remote location away from the terminals. In addition, the CRNG storage vessels area will be protected, monitored, and only accessible by authorized personnel. Finally, the gas management system will alert the Port to any issues such as drop in pressure due to leaks in the system from external damage.

1.2.2 Roles and Responsibilities

The envisioned operating model is such that the City will produce RNG and the Port will offtake RNG for use at various facilities at the Airport. The Port will compensate the City based on the quantity of RNG delivered.

Under the proposed partnership between the City and Port, the City will be responsible to cooperate on negotiating terms and conditions relating to the Port’s purchase of RNG from the City. The Port will be responsible for all tasks related to offtaking and using the RNG on Port property, such as project management, technical analyses, and the design, construction and installation of necessary equipment. The Port will also be responsible for negotiating terms and conditions relating to the Port’s purchase of RNG from the City.

The Port will be accountable to the EPA and is fully responsible for effectively carrying out the full scope of work, measurement and reporting requirements, and the proper financial management of the grant.

1.3 Demonstration of Funding Need

While state and federal programs and related incentives are in place to foster the production and use of biogas/RNG as a transportation fuel, the uses envisioned by OAK for the purposes of reducing emissions from difficult-to-decarbonize activities and applications are largely ineligible. Additionally, the scale of this Project, while meaningful to OAK, is considered “too small” by most private sector players with expertise in this arena who might otherwise want to explore a public-private partnership. **CPRG funding is critical for this Project.** If this Project does not receive CPRG funding, the Port will continue to seek future funding, but it is highly likely it will not move forward. As an airport and seaport, Port funding goes toward priority projects that advance its core business such as runways, taxiways, and customer-facing facilities. A voluntary decarbonization project such as this, while important for achieving our ambitious climate goals, will only advance with the help of grant funding.

Without the proposed Project and the partnership between the Port and City, the City would likely not make the investment in staff and equipment to both process additional organic waste materials above and beyond wastewater – including landfill-diverted organics – and produce RNG. The economics and logistical complexities of finding another offtaker are very challenging because it requires either trucking RNG long distances or a high-priced (estimated \$6 million) pipeline interconnection with PG&E. It is unlikely that another offtaker would invest that amount to receive this limited supply of RNG. If this Project does not proceed, the most likely outcome is that the City will continue to flare excess biogas and the Port will continue its reliance on fossil-based natural gas.

1.4 Transformative Impact

Methane-rich biogas is a natural byproduct of the secondary wastewater treatment process known as anaerobic digestion (AD). Of the more than 2,000 wastewater facilities in the country with AD in place, hundreds still flare at least a portion of the biogas they produce, including San Leandro. This is a highly wasteful and inefficient use of an energy-rich resource. Environmentally and operationally, the direct/local beneficial use of biogas is a far superior option to merely flaring it. Moreover, there is a growing push to explore and pursue end-use applications/opportunities to utilize biogas that do not involve combustion and the emissions/co-pollutants that come with it. The Port is committed to achieving its near- and long-term climate and clean air goals by demonstrating combustion-free solutions that will further reduce demand for fossil fuels through the implementation of this two-phase Project.

It is rather rare to have a source of biogas and a potential end user sharing a fence line. It is incredibly rare that the supply of biogas/RNG produced is nearly identical to existing fossil natural gas demand. By providing safe, secure, long-term offtake, the Port will enable the City to implement its ambitious “co-digestion” initiative. Conversely the City will enable the Port to implement its carbon reduction ambitions by more rapidly and directly eliminating the use of fossil natural gas in its central utility plant.

Furthermore, this innovative partnership will advance two separate but related State of California policy priorities – 1) landfill diversion and local processing of organic waste; and 2) physical displacement of fossil natural gas demand/consumption. While there are many state-level policies and programs in place to support the production and use of biogas/RNG, this direct-use case is unincentivized, despite the clear climate, public health and resiliency benefits.

This Project is both replicable and scalable as a model for airports and entities that are located near or adjacent to critical wastewater infrastructure. It is scalable because once a dedicated pipeline is in place, the Port can efficiently and effectively use as much RNG as the WPCP can produce, generating zero carbon power through fuel cells. Ultimately, it can be used as a model for other airports and similar entities that currently rely on fossil natural gas for applications requiring heat and/or power.

The Project is unique because of its geography and the fact that there is an attractive direct use option – operationally, environmentally, and economically – that is beneficial to both parties. The *vast majority* of existing RNG projects in the U.S. (and in California) involve “pipeline injection” into a common carrier system, *and* the use of “book and claim” accounting. That’s because many sources of RNG – particularly landfill and agricultural projects – are located a long way from urban demand centers. The Port and City have a tremendous opportunity to implement an innovative direct-use RNG initiative that benefits all parties involved *and* exemplifies many key state and federal priorities.

2 Impact of GHG Reduction Measures

2.1 Magnitude of GHG Reductions from 2025 through 2030

Reducing methane emissions – the most abundant short-lived climate pollutant in California – is a clear near-term priority for the state and the world. The primary aim of this Project is to reduce emissions in the near term, but with clear long-term benefits as well. Ultimately, the lifecycle emission reductions anticipated through this renewable fuel source are still being assessed. However, CARB and Argonne National Lab lifecycle climate modeling conclude there are significant achievable emission reductions associated with the capture and use of biogas/RNG to displace fossil fuels. Moreover, under California’s Cap & Trade program, there is clear prioritization of projects that can help to eliminate flaring of biogas. Preliminary modeling suggests that the lifecycle carbon intensity (CI) of this gas will be near-zero, and potentially even negative, depending on how much landfill-diverted organic waste can be processed by the City. Other RNG sourced or produced from food waste in California and distributed by pipeline has been certified by CARB with negative life-cycle emissions. Moreover, direct local use of RNG eliminates the need for injection into the aging gas distribution as well as the use of “book and claim” accounting.

The Project is estimated to reduce emissions by 11,900 metric tons of CO₂e between 2025 and 2030. This estimate is based on CARB life-cycle emission factors for North American natural gas and a conservative assumption of zero life-cycle emissions from the new RNG source, considering CARB-certified negative values for RNG derived from food waste sources. The emissions from diesel trucks used to transport fuel in the interim period when the gas is available but the pipeline is not yet active (2027 and 2028) are anticipated to be very small, less than 1 metric ton of CO₂e each year.

2.2 Magnitude of GHG Reductions from 2025 through 2050

The Project is estimated to reduce emissions by 71,600 metric tons of CO₂e over the 2025 to 2050 period, based on the same assumptions described above. This assumes that fuel production, and the life-cycle carbon intensity of both conventional and renewable natural gas, continue to be the same in future years continuing through 2050.

2.3 Cost Effectiveness of GHG Reductions

At a requested funding level of \$31,962,300, the cost-effectiveness of this Project is estimated to be \$2,700 per ton of emissions reduced over the 2025-2030 period. The primary uncertainty affecting the cost-effectiveness is the life-cycle carbon intensity factor associated with the RNG; CARB certification values can show quite a range, from positive to negative emissions, and this fuel source has not yet been certified. Delays in the Port being ready to receive RNG could also impact the short-term cost-effectiveness. While it is expected that the full volume of RNG cited in this estimate can be both produced by the City and utilized by the Port, any reductions in this volume would also affect the cost-effectiveness.

2.4 Documentation of GHG Reduction Assumptions

The assumptions and sources for estimating GHG emissions are documented in the Technical Appendix (*Techappx_Port of Oakland.pdf*).

3 Environmental Results – Outputs, Outcomes, and Performance Measures

3.1 Expected Outputs and Outcomes

The Port is collaborating with the City to receive RNG directly from the City’s WPCP. The Port is uniquely positioned to decarbonize its current operations through implementation of this Project, which would displace nearly 100 percent of the airport’s current annual natural gas consumption short-term, and the potential to displace additional fossil fuel consumption in the future. This ideal partnership provides San Leandro with a local, long-term, credit-worthy offtaker for this gas, a large portion of which otherwise would be flared, creating a financial and regulatory burden for the City and no economic benefit(s).

Table 2 Activities, Outputs, and Outcomes

Activities	Outputs	Outcomes
Construct the infrastructure to supply renewable natural gas (RNG) to critical equipment at OAK	One RNG system (pipeline and associated inlets, RNG storage cylinders, pressure reduction equipment)	Displacement of ~100 percent of OAK’s current natural gas consumption
		913,000 Therms/year of RNG
		3,000 metric tons of GHG emissions reductions annually
		Reductions of Criteria and Hazardous Air Pollutants in the vicinity of the current biogas flare – estimated annual reduction of 0.65 tons NO _x , 0.04 tons of precursor organic compounds (POC), 0.29 tons PM ₁₀ , and 0.56 tons SO ₂ from reduced flaring operation
		Local air quality improvement in the vicinity of the current biogas flare, which will positively impact disadvantaged communities within the Port’s LIA
	Quality jobs	The Port will track and monitor high-quality jobs resulting from the Project, in conformance with MAPLA (described in Sections 4.1.3 and 5)
	Community engagement	The Port will participate in at least 12 community engagement meetings per year ¹
	Local fuel supply	~100% displacement of natural gas consumption with RNG from a neighboring facility

¹ While the Port plans to participate in more convenings, it commits to 12 community engagements per year.

3.2 Performance Measures and Plan

Third-party tracking and verification of emissions reductions and co-benefits is standard practice for biogas/RNG projects, directly linked to the source of the gas, distance from production to end use(r), and volume of gas/energy content available to displace existing fossil fuel consumption. The Port will contract with a third-party to track and verify the emission reductions once the Project is constructed.

Moreover, for safety and compliance reasons, real-time gas monitoring equipment will be installed as a critical component of the Project.

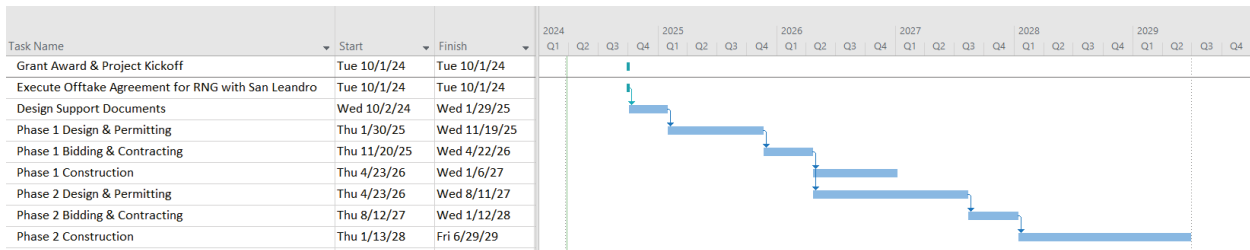
3.3 Authorities, Implementation Timeline, and Milestones

The Port is the lead grant applicant and will be the primary party responsible for implementing the GHG reduction measure outlined in Section 1. The Port will coordinate with the City to carry out the proposed measure, as the Project depends on the City’s WPCP gas.

For regulatory permits, OAK is located next to San Francisco Bay. The Project may require permits from regulatory agencies that have jurisdiction at the airport. Regulatory agencies may include, but are not limited to, Bay Conservation and Development Commission, US Army Corps of Engineers, Regional Water Quality Control Board, Bay Area Air Quality Management District, and Alameda County.

The expected Project schedule is shown in Figure 4. Additional information regarding tasks, milestones, and deliverables can be found in Section 1.2. The Project is expected to conclude by July 1, 2029. The Port’s Project team is ready to kick-off the Project and begin work once the EPA has obligated funding.

Figure 4 Project Schedule



4 Low-Income and Disadvantaged Communities

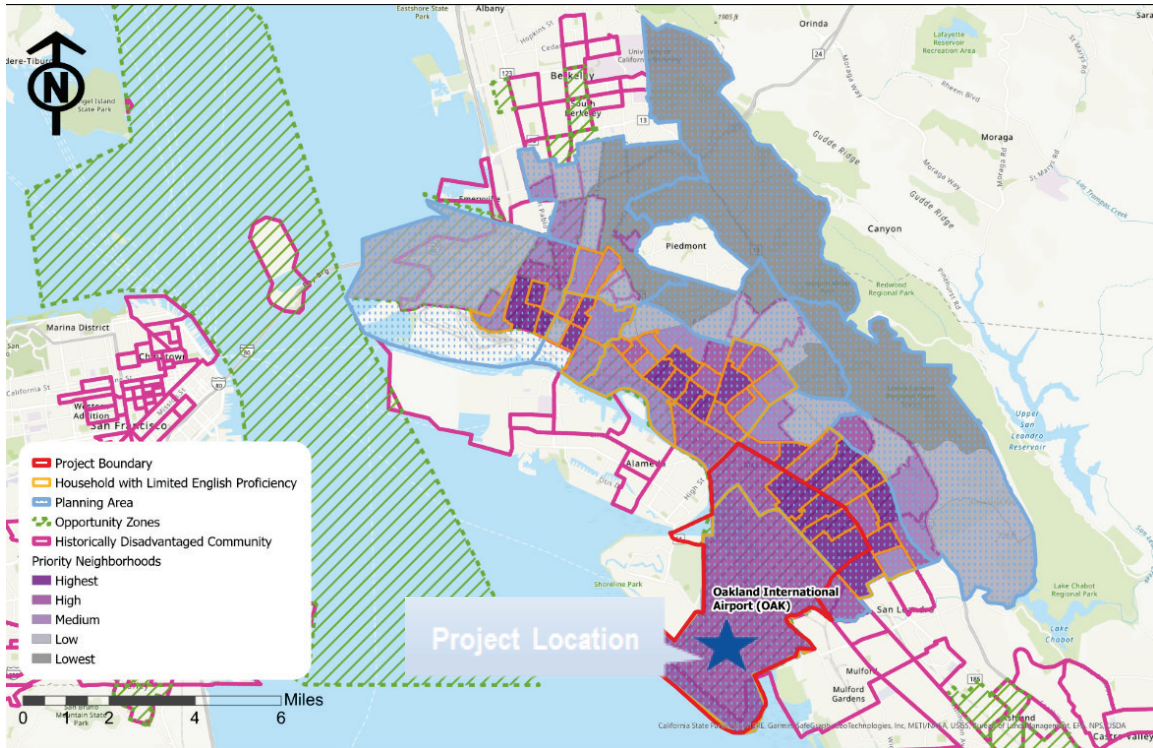
4.1 Community Benefits

The Council on Environmental Quality (CEQ) Climate and Economic Justice Screening Tool (CEJST) identifies locations as disadvantaged when it meets more than one burden threshold along with a socioeconomic threshold. Many of the tracts in the East Oakland community in close proximity to the Project have been identified as disadvantaged based on projected traffic proximity, lead paint, RMP facility proximity, hazardous waste proximity, underground storage tank proximity, demographic index, less than high school education, and people of color (Blockgroups: 060014090003, 060014324003, 060014324001).

The Project is located at the Oakland International Airport, which is in a federally designated Historically Disadvantaged Community (Census Tract 4090) and Opportunity Zone (06001409000), as shown in Figure 5, which also includes metrics from the [City of Oakland’s Equity Map¹](#) showing designated Priority Neighborhoods. The Priority Neighborhoods are identified by the City of Oakland using census data to identify the census tracts where the population is most adversely affected by racial and socioeconomic inequity.

¹ <https://oakgis.maps.arcgis.com/apps/MapSeries/index.html?appid=fd47784582294d7b87cfb3ee1b047ea8>

Figure 5 Project Area Location Within Historically Disadvantaged Community, Opportunity Zone, and Equity Metrics



Source: [USDOT's Climate and Economic Justice Screening Disadvantaged Census Tracts tool²](https://screeningtool.geoplatform.gov/en/#10.48/37.7085/-122.1993), [HUD Opportunity Zones³](https://opportunityzones.hud.gov/), [OakDOT Geographic Equity Toolbox⁴](https://oakgis.maps.arcgis.com/apps/MapSeries/index.html?appid=fd47784582294d7b87cfb3ee1b047ea8), City of Oakland.

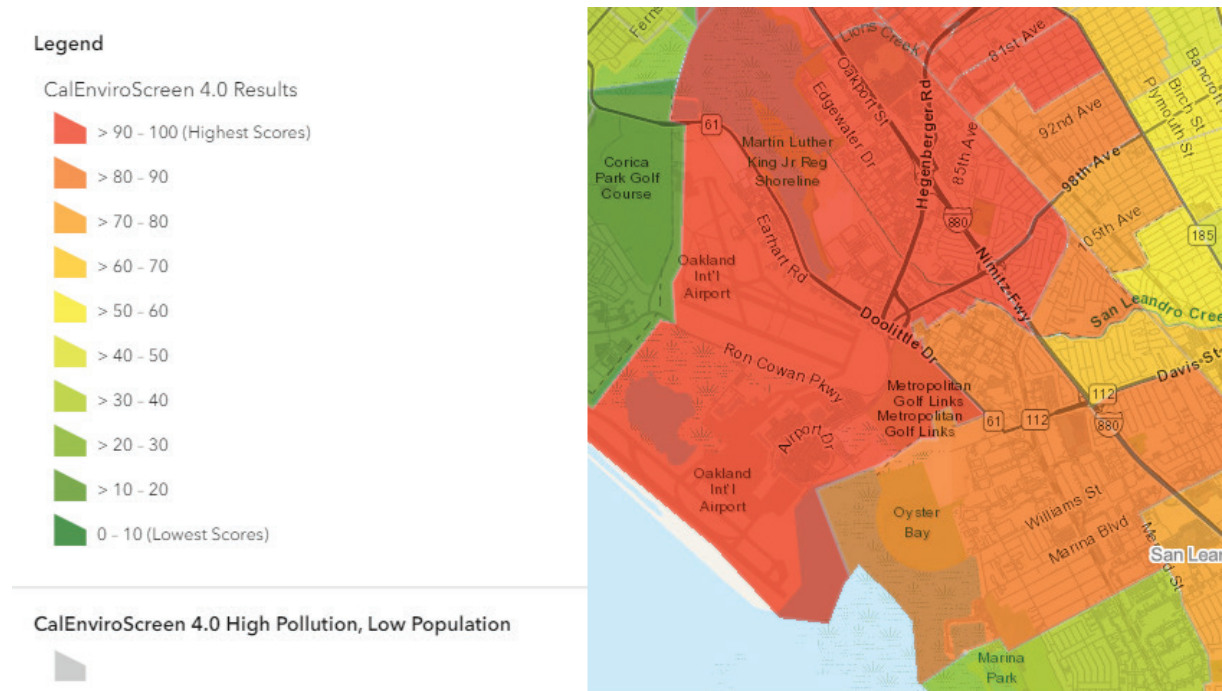
CalEnviroScreen 4.0/California Climate Investments designated this Project's census tract as both a disadvantaged community and priority population. The Project area ranks in the 92nd percentile for Pollution Burden, 94th percentile for Population Characteristics, and 97th percentile for CalEnviroScreen 4.0. The tract ranks within the 70th – 81st percentiles for socioeconomic factors, most notably 18.3 percent of the census tract population is comprised of Children (Age 10 or Less) and 8.7 percent Elderly (Age 65 or Greater). The population within the census tract has a percentile score of 100 for Asthma and 98 for Low Birth Weight.

² <https://screeningtool.geoplatform.gov/en/#10.48/37.7085/-122.1993>

³ <https://opportunityzones.hud.gov/>

⁴ <https://oakgis.maps.arcgis.com/apps/MapSeries/index.html?appid=fd47784582294d7b87cfb3ee1b047ea8>

Figure 6 Airport Area Disproportionately Burdened by Multiple Sources of Pollution



Source: *California Communities Environmental Health Screening Tool CalEnviroScreen 4.0*, https://experience.arcgis.com/experience/11d2f52282a54ceebcac7428e6184203/page/CalEnviroScreen-4_0/

OAK and neighboring communities in East Oakland experience some of the highest levels of air quality pollution in the Bay Area according to the Bay Area Air Quality Management District (BAAQMD) and have been identified as a priority area under Assembly Bill (AB) 617 Community Health Protection Program due to the air pollution, largely contributed by sources associated with the major goods movement and transportation corridors. The East Oakland community has a higher rate of asthma emergency room visits and cardiovascular disease compared to other areas in California. It also has some of the highest unemployment and housing cost burdens and some of the lowest educational attainment and life expectancy rates in the State. They are included in the Metropolitan Transportation Commission’s (MTC) Equity Priority Communities effort representing census tracts that have a significant concentration of underserved populations, such as households with low incomes and people of color.

The negative impact of poor air quality cannot be overstated. While the research is robust around the negative impacts to heart and lung health, other impacts are now coming to light. [Recent studies](#)⁵ have shown that academic performance of students is negatively impacted by poor air quality.

Once implemented, this Project will help to improve environmental health and air quality in communities that have been disproportionately impacted by airport operations. This Project primarily benefits the disadvantaged environmental-justice communities directly adjacent to the airport and the City’s WPCP by reducing emissions, reversing historical inequities and preventing future ones.

⁵ <https://www.brookings.edu/articles/how-exposure-to-pollution-affects-educational-outcomes-and-inequality/>

Benefits to disadvantaged communities include an estimated annual reduction of the following Criteria and Hazardous Air Pollutants: 0.65 tons NO_x, 0.04 tons of precursor organic compounds (POC), 0.29 tons PM₁₀, and 0.56 tons SO₂ from reduced flaring operation. The Project is estimated to reduce emissions by 11,900 metric tons of CO₂e between 2025 and 2030, and by 71,600 metric tons CO₂e between 2025 to 2050. One disbenefit to the local community is that if this Project does not go forward, biogas will continue to be flared at the City WPCP. The direct-use case via pipeline proposed in this Project, avoids (1) the cost, disturbance and general uncertainty of inter-connecting with the local utility gas pipeline network and (2) long-distance RNG trucking impacts resulting from distant offtake agreements.

Changes to GHG and co-pollutants will be documented, and the benefits of any emissions reduction will be identified and summarized. See Task 6 in Section 1.2 for information about reporting, and Section 2 above and attachment *Techappx_Port of Oakland.pdf* for more information about emissions

4.2 Community Engagement

The Port has a strong history of effectively engaging with community stakeholders while managing complex and sensitive projects bridging both residents and industry interests. The Port has conducted extensive public engagement to incorporate neighboring community needs into their projects and continues to work with residents, businesses, and a multitude of stakeholders via public information meetings, consultations, social media outreach, and other forms of stakeholder engagement.

The Port has been working together with the BAAQMD, CARB, the freight community, and local community for over 15 years to improve air quality and support public health through major investments, innovation, and commitment. The Port's plan for emissions reductions, Seaport Air Quality 2020 and Beyond Plan: The Pathway to Zero Emissions (2020 and Beyond Plan), addresses long-term planning for air quality, including the State's GHG emissions reductions targets, with extensive community and partner engagement. In the period between December 2023 and March 2024 alone, the Port participated in 13 community meetings with community-based organizations on "Our Road to Zero Emissions." The Port continues the partnership with its participation in the Bay Area Air Quality Management District (BAAQMD) AB 617 East Oakland Steering Committee which focuses on community-based emissions reductions in neighborhoods most disproportionately impacted by air pollution through the development of an East Oakland Community Emissions Reduction Plan (CERP).

In addition, the Port's Social Responsibility Division (SRD) stages multiple public forums throughout the year to update residents on Port projects, including in-person events and online resources such as the dedicated community webpage, which hosts community resources and points of contact at the Port to maximize public input and participation. This strong precedent of authentic and purposeful engagement will be continued within this Project.

As detailed in Section 1.2, the Port, in close partnership with community partners, will develop an Outreach Plan to guide its community engagement effort for this Project. The Port will continue to work with local community members, businesses, and a multitude of stakeholders via public information meetings, consultations, social media outreach, East Oakland CSC meetings, and other forms of stakeholder engagement.

In addition to its direct engagement with stakeholders in the community, the Port implements best practices to ensure its activities are fully compliant with the Title VI of the Civil Rights Act of 1964 and other equal access laws. The Port's outreach strategies include, but are not limited to:

- Reasonable public access to technical and policy information.

- Adequate public notice of public involvement activities and time for public review and comment at key decision points.
- Concerted efforts to involve the public, especially those traditionally underserved by existing programs or plans including but not limited to low-income and minority households.
- Coordination of planning processes, especially where multiple levels of oversight exist, public processes to enhance public consideration of the issues, plans, and programs and reduce redundancies and cost.
- Ensure opportunity for full participation of Limited English Proficiency (LEP) speakers through provision of language interpretation services.
- Ensure opportunity of full participation of persons with disabilities by providing accessible accommodations.

Support letters are included at the following link <https://www.portofoakland.com/CPRG/>.

5 Job Quality

The Port has been at the forefront in pioneering job creation and access to good paying jobs with an intentional focus on removing barriers towards employment since 2000, when the Port adopted the region’s first Maritime and Aviation Project Labor Agreement (MAPLA) with the Building and Construction Trades in Alameda County (“BTC”). It was designed to ensure project labor stability, the employment of Port Local Impact Area (Oakland, Emeryville, San Leandro and Alameda) residents, and the utilization of Port recognized small businesses.

MAPLA established local hiring goals for disadvantaged workers, new hire apprentices, and a commitment from the construction building trades to induct 25 new Local Impact Area (LIA) apprentices each year into the “List Trades” (at least 10 into MAPLA List Trades) which are defined as highly skilled trades such as Electricians, Sheet Metal Workers, Plumbers, Sprinkler Fitters, Elevator Constructors, and Glaziers. Between 2017 to 2020, over 300 Port LIA residents joined the list trades (composed of sheet metal workers, electricians, plumbers/pipefitters, glaziers, and elevator constructors).

Its Social Justice Committee meets monthly to monitor contractor local hire performance and provide recommendations to assist contractors with achieving their MAPLA requirements. MAPLA also established a Social Justice Trust Fund (SJTF) where contractors are obligated to make hourly contributions to the fund, which enables training for low-income residents in the Port’s LIA. SJTF funds granted in 2020 - 2023 totaled \$249,000 and were granted to support local pre-apprenticeship training programs.

Table 3 MAPLA Outcomes 2020 - 2023

	Goal	Actual
LIA Residents	50%	28.93%
LIA/LBA Residents	50%	59.16%
LIA Apprentices	50%	53.98%
Disadvantaged Workers	25%	44.83%
New Hire Apprentices	10	11

In 2017, the Port adopted the Operations Jobs Policy (Jobs Policy) that included a Cooperation Agreement focused on equity, access, and good-paying jobs on the CenterPoint Landing Project, a

warehousing development. The language in the Jobs Policy specifically focuses on local hire preferences, “ban-the-box” prohibiting employers from asking about prior criminal offenses, special consideration for disadvantaged residents, living wages and benefits for workers, limits on the use of temporary agencies, support to local community-based workforce partners to conduct outreach, recruitment, job training/placement, and the creation of the Jobs and Stakeholder Working Group (SWG) to support implementation of the agreement. Key aspects of this jobs agreement include living wages and benefits for workers, priority consideration for unemployed individuals, armed forces veterans, single parents, ex-offenders, and foster care adults; and a ban on asking applicants about prior criminal offenses.

The Jobs Policy SWG includes diverse and engaged local and regional community leaders, including representatives of the Port, its tenants, labor groups, and representatives of local neighborhoods. The SWG serves as an advisory body to the Port. It provides technical expertise, analysis, and recommendations to ensure that Port workforce decisions help transform low-income LIA neighborhoods into stable, healthy, thriving communities of opportunity.

In 2018, the Port hired a Workforce Development manager to support workforce policies and initiatives that expand economic opportunities for LIA residents. The Port’s Workforce Development Manager manages the Port’s relationships with local workforce community-based organizations, organized labor partners, and job providers and seekers. The Port’s Workforce Development manager also coordinates several workforce initiatives, including an inter-agency PLA research project in partnership with the San Francisco Foundation called “Improving Effectiveness of PLAs.” The primary focus of this research project is to identify strategies for diversifying the construction workforce through PLAs. Phase I of the research was concluded in early 2021 and, through a collaborative stakeholder process, performed a scan of PLAs and Community Benefits Agreements nationally; interviewed current and former trade workers representative of Black/Indigenous/Brown People of Color (“BIPOC”) to better understand their lived experiences in the construction industry; conducted a labor demand and supply analysis of the local building trades, apprenticeship and pre-apprenticeship programs; assessed public agencies certified payroll data; reviewed construction demand forecasts; and generated findings. Additional information can be found on the Port’s [Social Responsibility Division Programs and Policies](#)⁶ webpage.

One of the Port’s labor goals is to identify and develop workforce development strategies whereby the Port of Oakland serves as a regional workforce intermediary that links new and incumbent workers to aviation, maritime, and transportation, distribution, and logistics career pathways. A proposed plan, the Port of Oakland’s Workforce Development Intermediary Initiative (Port Passages), leverages the roles, expertise, and resources of the Port, employers, labor, community-based organizations, training and education institutions and other stakeholders to effectively meet the workforce needs of Port industry (employers and labor) with workers (new and incumbent).

The Port is committed to policies that ensure wage compliance with the Living Wage and Prevailing Wage Ordinance. The Port includes these requirements on all Port Projects, and has historically served as a trainer for other local public agencies and contractors on these policies.

6 Programmatic Capability and Past Performance

6.1 Past Performance

The Port of Oakland has successfully managed, on an ongoing basis, numerous state, Federal, and local grants, including current Federal Airport Improvement Program (AIP) grant dollars for critical upgrades

⁶ <https://www.portfoakland.com/port/social-responsibility/programs/>

and rehabilitation work on airport facilities. Over the past decade, the Port has successfully received and deployed over \$300 million in AIP funding from the Federal Aviation Administration (FAA), including grants addressing emission reductions. The Port tracks and manages the requirements of grant funding and work with respective project managers to ensure the accurate and timely deliverability of each grant program. The Port is in regular compliance with all state and Federal audits of grant funding. Below are some of the recent Port grants.

Table 4 Recent Port Air Quality Project Awards

Project Title	Assistance Agreement Number	Funding agency and Assistance Listing Number	Project Description	Funding Agency Contact Name, Email, Phone
EnergIIZE Jump Start Lane Grant: Port of Oakland	EVJUMP-W3-44839013	State of California Energy Commission	Purchase and Installation of Five 180kw Bus Chargers	InfrastructureIncentives@tetratech.com , 1 (877) 367-4493
OAK Taxiway Whiskey Rehabilitation, Phase 1 (Multi-Phase Approach), Design and Construction	Airport Improvement Program (AIP) Project No. 3-06-0170-096-2023	Federal Department of Transportation – Federal Aviation Administration - 20.106 – Airport Improvement Program	Grant agreement for \$19,235,428 to rehabilitate Taxiway W, Phase 1 – Design / Construction	Lemuel del Castillo, Lead Civil Engineer, San Francisco Airports District Office, AWP-SFO-ADO, lemuel.del.castillo@faa.gov , 925-546-6440
OAK Electric Shuttle Bus Purchase	Airport Improvement Program (AIP) Zero Emissions Vehicle (ZEV) Program 3-06-0170-094-2022	Federal Department of Transportation – Federal Aviation Administration - 20.106 – Airport Improvement Program	Grant agreement for \$1,542,596 to purchase of Two 4-foot Electric Shuttle Buses”.	Lemuel del Castillo, Lead Civil Engineer, San Francisco Airports District Office, AWP-SFO-ADO, lemuel.del.castillo@faa.gov , 925-546-6440
Taxiway Tango Rehabilitation, Design and Construction	Airport Improvement Program (AIP) Project No. 3-06-0170-093-2022	Federal Department of Transportation – Federal Aviation Administration - 20.106 – Airport Improvement Program	Grant agreement for \$9,941,788 to rehabilitate Taxiway T (Phase 1 of 2) – Construction	Lemuel del Castillo, Lead Civil Engineer, San Francisco Airports District Office, AWP-SFO-ADO, lemuel.del.castillo@faa.gov , 925-546-6440
OAK Taxiway Bravo Rehabilitation, Phase 2 & 3, Design and Construction	Airport Improvement Program (AIP) Project No. 3-06-0170-086-2021	Federal Department of Transportation – Federal Aviation Administration - 20.106 – Airport Improvement Program	Grant agreement for \$12,324,140 to rehabilitate Taxiway B (Phase 2&3 of 3) – Design / Construction	Lemuel del Castillo, Lead Civil Engineer, San Francisco Airports District Office, AWP-SFO-ADO, lemuel.del.castillo@faa.gov , 925-546-6440

6.2 Reporting Requirements

The Port has a cross-divisional team of finance, audit and project management experts that are highly experienced in grant compliance. The Port has received and administered over \$500 million in federal assistance over the past ten years. The Port has a long history of meeting reporting requirements in a timely and acceptable manner, communicating progress on expected outcomes and communicating any minor issues that have arisen. Below are details on the reporting requirements for the five grants listed above in Table 4.

Reporting requirements for assistance agreement EVJUMP-W3-44839013 include:

- Providing 36-months of data collection on deployed equipment, reported quarterly, starting from the date of final commissioning.
- Responding to surveys put forth by EnergiIZE Staff on a quarterly basis for a period of 36 months from the date of final commissioning.

This grant was conditionally awarded on December 9, 2022. Port is in the construction phase of this Project and will enter reporting phase during the Fall of 2024, once commissioning is complete. The Port remains in good standing with the funding agency, the California Energy Commission.

Reporting requirements for assistance agreement 3-06-0170-096-2023

- Submitting Form 51—140, Performance Report on a quarterly basis
- Submitting SF-425, Federal Finance Report on an annual basis
- Submitting SF-271, Outlay Report and Request for Reimbursement for Construction Program, as applicable on an annual basis
- Submitting SF-270, Request for Advance or Reimbursement, as applicable on an annual basis

This grant was awarded on September 13, 2023. Port is up to date on all reporting requirements and maintains in good standing with the funding agency, the Federal Aviation Administration.

Reporting requirements for assistance agreement 3-06-0170-094-2022 include:

- Submitting Form 51—140, Performance Report on a quarterly basis
- Submitting SF-425, Federal Finance Report on an annual basis
- Submitting SF-271, Outlay Report and Request for Reimbursement for Construction Program, as applicable on an annual basis
- Submitting SF-270, Request for Advance or Reimbursement, as applicable on an annual basis

This grant was conditionally awarded on September 6, 2022. Port is up to date on all reporting requirements and maintains in good standing with the funding agency, the Federal Aviation Administration.

Reporting requirements for assistance agreement 3-06-0170-093-2022

- Submitting Form 51—140, Performance Report on a quarterly basis
- Submitting SF-425, Federal Finance Report on an annual basis
- Submitting SF-271, Outlay Report and Request for Reimbursement for Construction Program, as applicable on an annual basis

- Submitting SF-270, Request for Advance or Reimbursement, as applicable on an annual basis

This grant was conditionally awarded on July 20, 2022. Port is up to date on all reporting requirements and maintains in good standing with the funding agency, the Federal Aviation Administration.

Reporting requirements for assistance agreement 3-06-0170-086-2021

- Submitting Form 51—140, Performance Report on a quarterly basis
- Submitting SF-425, Federal Finance Report on an annual basis
- Submitting SF-271, Outlay Report and Request for Reimbursement for Construction Program, as applicable on an annual basis
- Submitting SF-270, Request for Advance or Reimbursement, as applicable on an annual basis

This grant was conditionally awarded on May 18, 2021. Port is up to date on all reporting requirements and maintains in good standing with the funding agency, the Federal Aviation Administration.

6.3 Staff Expertise

Port staff have successfully implemented numerous projects that support this climate action and are well-prepared to oversee the successful implementation of the Project. A cross-divisional team of staff from Environmental Programs and Planning, Aviation, Engineering as well as other support departments and divisions are part of the Project team instrumental in implementing climate action projects. Below are proposed key staff for this Project:

Port

Colleen Liang is the Director of Environmental Programs and Planning who has over twenty years of experience conducting environmental compliance and planning. She currently manages staff who oversee the Port's zero emissions program including the transition from diesel to electric vehicles and equipment, and microgrids for on-site generation and resiliency. Her team also manages grant reporting requirements, conducts stakeholder engagement, and conducts emissions analyses pursuant to permitting and regulatory compliance.

Susan Fizzell is the Senior Aviation Project Manager with twenty years of experience in environmental planning and aviation development. She is the Aviation lead for the zero emissions program and supports the Port's \$100 million Aviation Capital Improvement Program. Susan has extensive collaborative experience in the industry, including chairing the California Airports Council Environmental Working Group in 2022 and currently serving on the Steering Group of the Environmental Affairs Committee of Airport Council International – North America (ACI-NA).

Young Kim-Berger is the Port Supervising Electrical/Mechanical Engineer with 25 years of experience at both the seaport and the airport. He has been involved in the design and construction of a wide spectrum of projects including the early planning and design of the shore power container ship electrification at the seaport. Currently, he is managing the design and construction of the main electric vehicle substation for OAK and is overseeing the implementation of low emissions/green energy projects.

Brenden Power is the Port Associate Electrical/Mechanical Engineer with nearly five years of experience in electrical and mechanical building design. Currently, Brenden is involved in other sustainability focused projects including a diesel generator replacement with natural gas power generation, the

planning and installation of a Battery Energy Storage System, and the design of an Electric Vehicle substation.

Amy Tharpe is the Port Director of Social Responsibility Division (SRD), responsible for partnering with the community and businesses to promote positive social and economic changes. Her team ensures that the Port's business activities deliver maximum local community and economic benefit through partnerships with local residents, community-based organizations and businesses, academia, elected and appointed officials, Port clients and labor representatives. She manages the Port's local hire program and led the renegotiation of the Port's acclaimed project labor agreement which has increased the hiring of local, disadvantaged workers. She also developed and managed the Port's stakeholder engagement for the 2020 and Beyond Plan.

City of San Leandro

Hayes Morehouse is the Water Pollution Control Manager for the City of San Leandro with over seven years of experience in wastewater and 20 years of technical project delivery and administration in the nonprofit sector. Hayes is responsible for all functions of the City's Water Pollution Control Plant and Environmental Services, including compliance with all regulatory permits, budgets and CIP planning. The City's Engineering and Transportation Division will also provide input on the Project.

7 Budget

7.1 Budget Detail

As shown in Table 5, the Project has a total estimated cost of \$31,962,300, 100 percent of which is being requested under the FY2024 CPRG Program, Measure 6, Implement Bioenergy Projects GHG Measure. No other Federal funds have been awarded to the Project. Detailed budget information including the expenditure of awarded funds and reasonableness of costs can be found in the attachment *Budget_Port of Oakland.pdf*.

7.2 Expenditure of Awarded Funds

The Port has extensive experience with delivering grant projects. The Project Team has the personnel, knowledge, skills, and expertise necessary to implement this Project on schedule and within budget to ensure the Project's benefits are realized. The funds can easily be obligated and expended within the five-year period of the grant program. The Port's procedures set forth responsibilities for Port staff and establish general procedures so that the Port may remain in compliance with the ethical, professional, and legal standards associated with grant related activity. See *Budget_Port of Oakland.pdf* for more details.

7.3 Reasonableness of Costs

All of the budget activities under this Project apply to Measure 6, Implement Bioenergy Projects GHG Measure. All of the activities in the budget are needed to realize the emissions reductions from the Project. See *Budget_Port of Oakland.pdf* for cost details.

Table 5 Energy Measure 6, Implement Bioenergy Projects GHG Measure - Decarbonizing the Future: Renewable Natural Gas Utilization at Oakland International Airport Project Budget

Category	Line Item & Itemized Costs	Year 1	Year 2	Year 3	Year 4	Year 5	Total EPA Funding
PERSONNEL							
	Port Electrical/Mechanical Engineers (3,475 hours x \$93/hr.)	\$64,600	\$64,600	\$64,600	\$64,600	\$64,600	\$323,000
	Port Supervisor Electrical/Mechanical Engineer (1,491 hours x \$93/hr.)	\$27,700	\$27,700	\$27,700	\$27,700	\$27,700	\$138,500
	Port Civil Engineers (3,475 hours x \$93/hr.)	\$64,600	\$64,600	\$64,600	\$64,600	\$64,600	\$323,000
	Port Supervisor Civil Engineer (1,488 hours x \$93/hr.)	\$27,700	\$27,700	\$27,700	\$27,700	\$27,700	\$138,500
	Port Environmental Labor (1,075 hours x \$93/hr.)	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$100,000
	TOTAL PERSONNEL	\$204,600	\$204,600	\$204,600	\$204,600	\$204,600	\$1,023,000
FRINGE BENEFITS							
	Fringe Benefits @ 87.40% of Port labor	\$178,800	\$178,800	\$178,800	\$178,800	\$178,800	\$894,000
	TOTAL FRINGE	\$0	\$0	\$0	\$0	\$0	\$0
TRAVEL							
	None	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL TRAVEL	\$0	\$0	\$0	\$0	\$0	\$0
EQUIPMENT							
	None	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL EQUIPMENT	\$0	\$0	\$0	\$0	\$0	\$0
SUPPLIES							
	None	\$0	\$0	\$0	\$0	\$0	\$0

Category	Line Item & Itemized Costs	Year 1	Year 2	Year 3	Year 4	Year 5	Total EPA Funding
	TOTAL SUPPLIES	\$0	\$0	\$0	\$0	\$0	\$0
CONTRACTUAL							
	Design RFP Consultant	\$60,000					\$60,000
	Design Consultant to design Phase 1 and Phase 2 of Project.	\$401,000	\$449,500	\$214,500	\$117,700	\$117,300	\$1,300,000
	Contractor to Construct Phase 1 and Phase 2 of Project.		\$4,885,700	\$2,003,800	\$9,188,800	\$10,419,200	\$26,497,500
	Inspector Contractor			\$235,000	\$235,000	\$235,000	\$705,000
	1 year Operations & Maintenance of Fuel Cells					\$341,600	\$341,600
	Environmental Reporting Contractor			\$16,600	\$16,700	\$16,700	\$50,000
	Contractor to perform Community Engagement	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$200,000
	TOTAL CONTRACTUAL	\$441,000	\$5,375,200	\$2,509,900	\$9,598,200	\$11,169,800	\$29,094,100
OTHER							
	Security		\$36,500	\$36,500	\$36,500	\$36,500	\$146,000
	OCIP (Owner Controlled Insurance Program)		\$201,300	\$201,300	\$201,300	\$201,300	\$805,200
	TOTAL OTHER	\$0	\$237,800	\$237,800	\$237,800	\$237,800	\$951,200
	TOTAL DIRECT	\$824,400	\$5,996,400	\$3,131,100	\$10,219,400	\$11,791,000	\$31,962,300
INDIRECT COSTS							
	None	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL INDIRECT COSTS	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL FUNDING FOR PROJECT	\$824,400	\$5,996,400	\$3,131,100	\$10,219,400	\$11,791,000	\$31,962,300