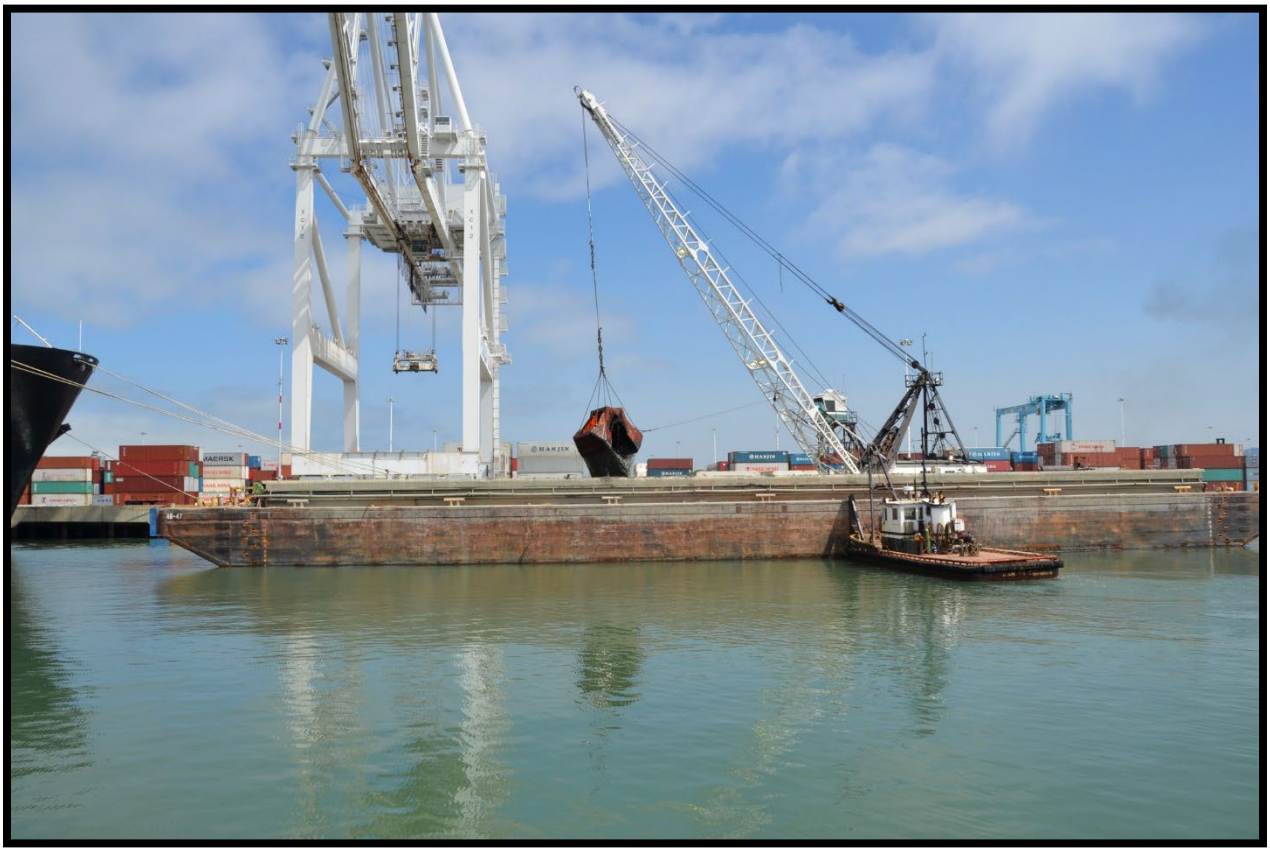
# PORT OF OAKLAND

# OAKLAND HARBOR TURNING BASINS WIDENING



# DRAFT ENVIRONMENTAL IMPACT REPORT

## State Clearinghouse No. 2022050647

PORT OF OAKLAND

## OCTOBER 2023

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## State Clearinghouse No. 2022050647

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

**OCTOBER 2023**

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## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AB | Assembly Bill |
| ABAG | Association of Bay Area Governments |
| AC | asphaltic-concrete |
| ACDEH | Alameda County Department of Environmental Health |
| ACM | asbestos-containing material |
| ACM | asbestos-containing materials |
| ADT | average daily traffic |
| AIS | Automatic Identification System |
| AMP | Alameda Municipal Power |
| APE | area of potential effects |
| ATCM | Airborne Toxic Control Measures |
| BAAQMD | Bay Area Air Quality Management District |
| BART | Bay Area Rapid Transit |
| BCDC | San Francisco Bay Conservation and Development Commission |
| BMP | best management practices |
| BNSF | Burlington Northern Santa Fe |
| CAAQS | California Ambient Air Quality Standards |
| CAFE | Corporate Average Fuel Economy |
| CAISO | California Independent System Operator |
| Cal/EPA | California Environmental Protection Agency |
| CalEEMod | California Emissions Estimator Model |
| CALGreen | California Green Building Standards Code |
| Caltrans | California Department of Transportation |
| CAP | Clean Air Plan |
| CAPP | Community Air Protection Program |
| CARB | California Air Resources Board |
| CARP | Climate Action and Resiliency Plan |
| CBC | California Building Code |
| CCC | California Coastal Commission |
| CCR | California Code of Regulations |

| | |
|---|---|
| CDFW | California Department of Fish and Wildlife |
| CDOC | California Department of Conservation |
| CDPH | California Department of Public Health |
| CDTFA | California Department of Tax and Fee Administration |
| CEC | California Energy Commission |
| CEMA | California Emergency Management Agency |
| CEMP | California Eelgrass Mitigation Policy |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CFR | Code of Federal Regulations |
| CH | Critical Habitat |
| CHE | cargo handling equipment |
| CHP | California Highway Patrol |
| CNEL | Community Noise Equivalent Lev |
| CO | carbon monoxide |
| $CO_2e$ | $CO_2$ equivalents |
| CPUC | California Public Utilities Commission |
| CRHR | California Register of Historical Resources |
| CRRP | Cullinan Ranch Restoration Project |
| cSEL | cumulative sound exposure level |
| CSLC | California State Lands Commission |
| CUPA | Certified Unified Program Agency |
| CWA | Clean Water Act |
| CZMA | Coastal Zone Management Act |
| dB | decibel |
| dBA | A-weighted decibels |
| DMMO | Dredged Material Management Office |
| DNL | Day/Night Average Sound Level |
| DPM | diesel particulate matter |
| DPS | Distinct Population Segment |
| DTSC | Department of Toxic Substances Control |

| | |
|---|---|
| EA | Environmental Assessment |
| EBMUD | East Bay Municipal Utility District |
| ECAP | Equitable Climate Action Plan |
| EEA | Energy Emergency Alert |
| EFH | essential fish habitat |
| EIR | Environmental Impact Report |
| EIS | Environmental Impact Statement |
| ELER | Eden Landing Ecological Reserve |
| EMFAC | Emission FACtors (model) |
| EO | Executive Order |
| EOC | Emergency Operations Center |
| EOP | Emergency Operations Plan |
| ESA | Endangered Species Act |
| ESU | Evolutionarily Significant Units |
| EV | electric vehicles |
| °F | degrees Fahrenheit |
| FE | federally endangered |
| FEMA | Federal Emergency Management Agency |
| FERC | Federal Energy Regulatory Commission |
| FGC | California Fish and Game Code |
| FHWA | Federal Highway Administration |
| FIRM | Flood Insurance Rate Mapping |
| FISC | Fleet Industrial Supply Center |
| FITS | Freight Intelligence Transportation System |
| FMP | fisheries management plans |
| FTA | Federal Transit Administration |
| GDP | gross domestic product |
| GHG | greenhouse gas |
| GVWR | Gross Vehicle Weight Rating |
| GWP | global warming potential |
| GWh | gigawatt hours |

| | |
|---|---|
| $H_2S$ | hydrogen sulfide |
| HAPs | hazardous air pollutants |
| HFC | hydrofluorocarbons |
| HHDT | heavy, heavy-duty trucks |
| HI | hazard index |
| HMBP | Hazardous Materials Business Plan |
| HMMG | Hazardous Materials Management Guide |
| HMST | Harbor Sym Modeling Suite of Tools |
| hp | horsepower |
| HRA | health risk assessment |
| HSC | California Health and Safety Code |
| HSP | health and safety plan |
| Hz | hertz |
| I-80 | Interstate 80 |
| ICLEI | International Council for Local Environmental Initiatives |
| IEPR | Integrated Energy Policy Report |
| IFR | Integrated Feasibility Report |
| IHTB | Inner Harbor Turning Basin |
| IPCC | Intergovernmental Panel on Climate Change |
| ISO | Independent System Operators |
| IT | Information Technology |
| ITM | Inland Testing Manual |
| $L_{50}$ | The noise level that is equaled or exceeded 50 percent of the specified time |
| $L_{90}$ | The noise level that is equaled or exceeded 90 percent of the specified time |
| LBP | lead-based paint |
| LCFS | Low-Carbon Fuel Standard |
| LDN | Community Noise Exposure |
| $L_{eq}$ | equivalent-continuous sound level |
| LEV | Low-Emissions Vehicle |
| $L_{max}$ | The instantaneous maximum noise level for a specified period of time |
| LPG | liquefied petroleum gas |

| | |
|---|---|
| LTMS | Long-Term Management Strategy |
| LUC | Land Use Covenant |
| LUTE | Land Use and Transportation Element |
| MAQIP | Maritime Air Quality Improvement Plan |
| $\mu g/m^3$ | micrograms per cubic meter |
| MHEA | Middle Harbor Enhancement Area |
| MHHW | mean higher high water |
| MLD | Most Likely Descendant |
| MLLW | mean lower low water |
| MM | Mitigation Measure |
| MMPA | Marine Mammal Protection Act |
| $MMTCO_2e$ | million metric tonnes $CO_2e$ |
| MPA | marine protected area |
| mpg | miles per gallon |
| mph | miles per hour |
| MRP | Municipal Regional Permit |
| MS4 | municipal separate storm sewer systems |
| MSA | Magnuson – Stevens Fishery Conservation and Management Act |
| MTC | Metropolitan Transportation Commission |
| MW | megawatt |
| MWRP | Montezuma Wetlands Restoration Project |
| $N_2O$ | nitrous oxide |
| NA | not applicable |
| NAAQS | National Ambient Air Quality Standards |
| NAD 83 | North American Datum of 1983 |
| NAHC | Native American Heritage Commission |
| NAS | Naval Air Station |
| NEPA | National Environmental Policy Act |
| $NF_3$ | nitrogen trifluoride |
| NHTSA | National Highway Transportation Safety Administration |
| NLAA | not likely to adversely affect |

| | |
|---|---|
| NMFS | National Marine Fisheries Service |
| $NO_2$ | nitrogen dioxide |
| NOAA | National Oceanic and Atmospheric Administration |
| NOP | Notice of Preparation |
| $NO_X$ | nitrogen oxides |
| NPDES | National Pollutant Discharge Elimination System |
| NRHP | National Register of Historic Places |
| NTU | Nephelometric Turbidity Unit |
| NWIC | Northwest Information Center |
| O&M | Operations and Maintenance |
| $O_3$ | Ozone |
| OBD | on-board diagnostic |
| OBM | Old Bay Mud |
| OEHHA | Office of Environmental Health Hazard Assessment |
| OES | Office of Emergency Services |
| OGV | ocean-going vessel |
| OHIT | Outer Harbor Intermodal Terminal |
| OHTB | Outer Harbor Turning Basin |
| OSHA | Occupational Safety and Health Administration |
| OSPR | Office of Spill Prevention and Response |
| OTM | Ocean Testing Manual |
| PAH | polycyclic aromatic hydrocarbons |
| PCB | polychlorinated biphenyls |
| PERP | Portable Equipment Registration Program |
| PFCs | perfluorocarbons PFCs |
| PG&E | Pacific Gas and Electric Company |
| PHEV | plug-in hybrid electric vehicles |
| PM | particulate matter |
| $PM_{10}$ | particulate matter 10 microns in diameter or less |
| $PM_{2.5}$ | particulate matter 2.5 microns in diameter or less |
| PN | Public Notice |

| | |
|---|---|
| Port | Port of Oakland |
| POU | publicly owned utility |
| ppm | parts per million |
| PPV | peak particle velocity |
| PPX1 | Post-Panamax Generation I |
| PPX2 | Post-Panamax Generation II |
| PPX3 | Post-Panamax Generation III |
| PPX4 | Post-Panamax Generation IV |
| PRC | Public Resources Code |
| PS | Posey Sand |
| PUA | Priority Use Area |
| PVC | polyvinyl chloride |
| PX | Panamax |
| RCRA | Resource Conservation and Recovery Act |
| RECP | Regional Emergency Coordination Plan |
| REL | Reference Exposure Level |
| RHA | Rivers and Harbors Act |
| RMP | Risk Management Plan |
| RMS | root mean square |
| RNA | regulated navigation area |
| ROG | reactive organic gases |
| RPS | Renewables Portfolio Standard |
| RTG | rubber-tired gantry |
| RWQCB | Regional Water Quality Control Board |
| SAFE | Safer Affordable Fuel Efficient |
| SAP | Sampling and Analysis Plan |
| SAR | Second Assessment Report |
| SB | Senate Bill |
| SEL | sound exposure level |
| $SF_6$ | sulfur hexafluoride |
| SFBAAB | San Francisco Bay Area Air Basin |

| | |
|---|---|
| SFEI | San Francisco Estuary Institute |
| SIP | State Implementation Plan |
| SLC | State Lands Commission |
| SLF | Sacred Lands File |
| $SO_2$ | sulfur dioxide |
| SORE | Small Off-Road Engines |
| SPX | Sub Panamax |
| SR | State Route |
| SWPPP | stormwater pollution prevention plan |
| SWRCB | State Water Resources Control Board |
| TAC | toxic air contaminant |
| TCP | traffic control plan |
| TEU | a unit representing a 20-foot-long container |
| TMDL | total maximum daily load |
| TMP | West Oakland Truck Management Plan |
| TPH | total petroleum hydrocarbons |
| tpy | tons per year |
| TRU | transport refrigeration units |
| TSCA | Toxic Substances Control Act |
| TSS | total suspended solids |
| ULCV | Ultra Large Container Vessel |
| UPRR | Union Pacific Railroad |
| US | United States |
| USACE | United States Army Corps of Engineers |
| USC | United States Code |
| USCG | United States Coast Guard |
| USDOE | United States Department of Energy |
| USDOT | United States Department of Transportation |
| USEPA | United States Environmental Protection Agency |
| USFWS | United States Fish and Wildlife Service |
| USPS | United States Postal Service |

| | |
|---|---|
| UTM | Universal Transverse Mercator |
| UWMP | urban water management plan |
| VMT | vehicle miles traveled |
| VOCs | volatile organic compounds |
| VTS | Vessel Traffic Service |
| WDR | Waste Discharge Requirement |
| WETA | Water Emergency Transportation Authority |
| WGCEP | Working Group on California Earthquake Probabilities |
| WHO | World Health Organization |
| WOCAP | West Oakland Community Action Plan |
| WRRP | Waste Reduction and Recycling Plan |
| YBM | Young Bay Mud |
| ZEV | zero-emission vehicle |

# EXECUTIVE SUMMARY

The Port of Oakland (Port), in partnership with the United States Army Corps of Engineers (USACE), is proposing the Oakland Harbor Turning Basins Widening Project (Proposed Project) at the Oakland Seaport (Seaport) in Alameda County, California. The Proposed Project involves widening the diameter of the existing turning basins in the Seaport. The Port, as the Lead Agency pursuant to the California Environmental Quality Act (CEQA), prepared this Draft Environmental Impact Report (EIR) to inform decision-makers at the Port, other responsible agencies, and the public of the potential physical effects on the environment that could result from implementation of the Proposed Project.

## ES.1. PROPOSED PROJECT LOCATION AND EXISTING USES

The Seaport[1] is at the western end of the City of Oakland, adjacent to the eastern shoreline of San Francisco Bay (Bay), south of the Interstate 80 San Francisco-Oakland Bay Bridge, and north of the City of Alameda (Alameda). The Seaport is served by the Oakland Harbor, a federal commercial waterway, which generally consists of the Entrance Channel, the Outer Harbor Channel and its Outer Harbor Turning Basin (OHTB), and the Inner Harbor Channel and its Inner Harbor Turning Basin (IHTB). The Oakland Harbor waterways are deep-draft navigation channels that support commercial vessel access to the Seaport. The Seaport is the only deep-draft container port in Northern California, and services more than 99 percent of the containerized goods for Northern California.

The Outer Harbor Channel is immediately south of the San Francisco-Oakland Bay Bridge, and the Inner Harbor Channel is in the waterway between the Seaport and Alameda. The IHTB and OHTB are widened areas of the Inner and Outer Harbor Channels that allow commercial vessels to turn around; the IHTB is approximately 1,500 feet in diameter and the OHTB is approximately 1,650 feet in diameter. The channels and turning basins were last improved to provide a water depth of 50 feet mean lower low water (MLLW)[2] and widened turning basins—a construction effort that concluded in 2009 (-50-Foot Project). Since the completion of the -50-Foot Project, routine dredging (removal of material from the bottom of the Bay or channel) has been conducted to maintain the authorized depth of -50 feet MLLW.

The landside locations of Proposed Project improvements include:

- a portion of Port-owned property at Howard Terminal to the north of the IHTB;
- private property along the Alameda shoreline to the southeast of the IHTB (referred to in this Draft EIR as the "Alameda Site"); and
- Port-owned property at Berth 26 in the Outer Harbor Terminal.

[1] For this document, the Seaport encompasses areas beyond Port-owned lands that rely on the Port's operations and the Oakland Harbor waterway. Therefore, the Seaport spans and includes approximately 1,300 acres of Port-owned waterfront and inland lands, approximately 200 acres of land owned by City of Oakland, and approximately 300 acres of private land owned and operated by entities such as the Union Pacific Rail Road and Schnitzer Steel Industries/Radius Recycling, for a total of approximately 1,800 acres.

[2] Mean lower low water refers to the water elevation of the lowest low tides averaged over a 19-year period.

Howard Terminal is not currently an active container terminal for offloading cargo from container vessels, but serves a variety of maritime support uses including truck parking, container storage, vessel berthing (docking) for maintenance and storage, and training of longshore workers and other logistics services that support Port operations. On the Oakland (northern) side of the IHTB, land uses along the shoreline from Howard Terminal and to the west are characterized by maritime and industrial uses associated with the Seaport.

The Alameda Site is developed with two warehouse buildings that are currently leased by Continental Terminals Annex as a storage facility for coffee beans. On the Alameda (southern) side of the IHTB, light industrial and maritime land uses adjacent to the IHTB are surrounded primarily by single- and multi-family residential development and parks, some of which are currently in construction.

Berth 26 is in the TraPac Terminal container handling and storage yard and is paved. Land uses in the Outer Harbor Terminal consist of maritime and industrial uses associated with international and domestic trade.

## ES.2. PROPOSED PROJECT OBJECTIVES

The purpose of the Proposed Project is to provide navigational improvements that address inefficiencies and suboptimal conditions currently experienced by vessels in the Oakland Harbor. Current container vessels calling the Port exceed the maximum dimensions of the constructed turning basins. The existing turning basins were designed and constructed for a 6,500 in twenty-foot equivalent unit (TEU) container vessel with a 1,139-foot length, 140-foot beam (width), and 48-foot draft (how deep the boat is under the water). The vessels transiting in the Oakland Harbor today are longer, wider, and can sit deeper than the design vessel that last served as the basis for improvement of the Oakland Harbor. The limiting factor that has resulted in transit restrictions and inefficiencies is the existing width of the turning basins. These inefficiencies are projected to not only continue, but to increase in the future because longer vessels are expected to transit the Oakland Harbor with greater frequency as fleet turnover trends continue to replace older, smaller vessels with newer, larger vessels.

Section 15124(b) of the California Environmental Quality Act (CEQA) Guidelines requires an EIR to include a statement of objectives sought by the Proposed Project. The Port has identified the following objectives for the Proposed Project:

- Optimize transit efficiencies for commercial deep-draft vessels across the entire Seaport for both the current and the projected increase in the frequency of calls to the Seaport by longer vessels;
- Maintain the Port's competitiveness as the principal ocean gateway for international cargo shipments in Northern California;
- Improve flexibility for commercial deep draft vessels calling the Seaport to connect to shore power to reduce their emissions while at berth, in alignment with the Port's vision of a zero emissions Seaport;
- Improve conditions for vessel maneuvering and safety, including reducing environmental risk associated with existing maneuvering limitations; and

- Modernize essential waterway infrastructure to fully accommodate the projected fleet mix of vessels calling the Seaport.

## ES.3. PROPOSED PROJECT

The Proposed Project involves widening both the IHTB and OHTB to accommodate a vessel that is 1,310 feet long and 193 feet wide, with an estimated cargo capacity of 19,000 TEUs.

Expansion of IHTB consists of widening the existing IHTB an additional 334 feet—from 1,500 feet to 1,834 feet—with a depth of -50 feet MLLW, consistent with the existing depth of the IHTB. In addition to in-water work to widen the IHTB, landside property would be removed at Howard Terminal and the Alameda Site. New bulkheads would be installed at Howard Terminal and the Alameda Site along the proposed modified shoreline and between the northwestern portion of the IHTB footprint and the Schnitzer Steel/Radius Recycling property, which lies to the west of Howard Terminal. Removal of land would occur via both landside excavation and dredging from the water. Dredging would be performed with an electric-powered dredge connected to existing electrical infrastructure adjacent to the Alameda shoreline or to electrical infrastructure that would be added on the eastern side of Howard Terminal near Berth 68.

The OHTB would be widened an additional 315 feet—from 1,650 feet to 1,965 feet—with a depth of -50 feet MLLW, consistent with the existing depth of the OHTB. Widening the OHTB does not require the removal of landside property and would be accomplished via dredging. To support electrical dredging for widening the OHTB, electrical infrastructure would be added near Berth 26.

The Proposed Project is designed to improve both vessel transit efficiencies and navigational safety in the Oakland Harbor. The Proposed Project is not a development project that removes a barrier to growth, shifts cargo from one port to another, or increases the Port's container handling capabilities. It is assumed that the economic variables that directly influence economic growth and subsequent demand for Port services remain constant under the Proposed Project and future conditions without the Proposed Project; therefore, the Port's total projected volume serviced would remain the same both with and without widening of the turning basins.

## ES.4. ENVIRONMENTAL IMPACTS

Chapter 3 of this Draft EIR describes the environmental resources present in the vicinity of the Proposed Project and examines the potential environmental impacts associated with the Proposed Project for each environmental resource topic considered under the CEQA Guidelines. Chapter 4 of this Draft EIR provides a cumulative effects analysis that describes the impacts of the Proposed Project in combination with those from current and reasonably foreseeable probable future projects. **Table ES-1** summarizes the individual project and cumulative environmental impacts that would result from implementation of the Proposed Project, mitigation measures that would avoid or reduce the magnitude of potentially significant impacts, and the resulting levels of significance for each impact. Even with implementation of mitigation measures, the Proposed Project would result in significant and unavoidable impacts related to air quality and noise.

## ES.5. ALTERNATIVES CONSIDERED

As required under Section 15126.6(a) of the CEQA Guidelines, an EIR must discuss a range of reasonable alternatives to the Proposed Project. In addition, even though it would not meet any of the Proposed Project objectives, CEQA Guidelines Section 15126.6(e) requires consideration of a No Project Alternative that represents the existing conditions, as well as what would reasonably be expected to occur in the foreseeable future if the project were not approved.

The following alternatives are evaluated in Chapter 5 this Draft EIR. These alternatives were identified as potentially feasible alternatives that would meet at least some of the project objectives and would potentially avoid or substantially lessen one or more of the significant environmental effects of the Proposed Project.

- Alternative 1 – Widening of IHTB Only
- Alternative 2 – Widening of the OHTB Only
- Alternative 3 – Widening of the IHTB and OHTB with use of Diesel Dredges
- Alternative 4 – No Project Alternative

Widening of the OHTB Only (Alternative 2) would be the environmentally superior alternative. Alternative 2 would eliminate the Proposed Project's significant and unavoidable air quality and noise impacts; however, Alternative 2 would fail to meet most of the project objectives. Widening of the IHTB Only (Alternative 1) would lessen the extent of environmental impacts compared to the Proposed Project but would not eliminate any of the Proposed Project's significant and unavoidable impacts; Alternative 1 would also fail to meet most of the project objectives. Widening of the IHTB and OHTB with use of Diesel Dredges (Alternative 3) would meet all of the project objectives but would increase the severity of significant and unavoidable air quality and noise impacts compared to the Proposed Project.

**Table ES-1: Summary of Proposed Project Impacts, Mitigation Measures, and Resulting Level of Significance**

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Aesthetics** | | |
| **Impact AES-1:** Would the Proposed Project have a substantial adverse effect on a scenic vista? | None required | Less than Significant |
| **Impact AES-2:** Would the Proposed Project substantially damage scenic resources, including but not limited to trees, rocks, outcroppings, and historic buildings, within a state scenic highway? | None required | Less than Significant |
| **Impact AES-3:** Would the Proposed Project substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage point)? If in an urbanized area, would the Proposed Project conflict with applicable zoning and other regulations governing scenic quality? | None required | Less than Significant |
| **Impact AES-4**: Would the Proposed Project create a new source of substantial light or glare that would adversely affect day- or nighttime views in the area? | None required | Less than Significant |
| **Impact C-AES-1:** Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative aesthetic impacts. | None required | Less than Significant |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Air Quality** | | |
| **Impact AIR-1:** Would the Proposed Project conflict with or obstruct implementation of an applicable air quality plan? | **MM AIR-1: Construction Air Quality Mitigation**<br>The Port shall require the contractor to implement construction-related air quality emission reduction measures. All requirements will be included in applicable bid documents, purchase orders, and contracts, with the contractors demonstrating the ability to supply the compliant on- or off-road construction equipment for use prior to any ground-disturbing and construction activities. The measures are as follows:<br>a. Require all diesel-fueled off-road construction equipment used on land to be equipped with United States Environmental Protection Agency Tier 4 final compliant engines or better as a condition of contract unless a unique piece of equipment is not available as a Tier 4 engine.<br>b. Use zero-emission and hybrid-powered equipment, to the greatest extent possible. The performance criterion for meeting this standard assumes availability by at least two commercial rental facilities in the San Francisco Bay Area Air Basin, to the greatest extent possible.<br>c. Require all on-road heavy-duty trucks to conform to the most stringent emissions standard as a condition of their contract. This currently means a 2015 model year or newer truck.<br>d. Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than two minutes. Provide clear signage that posts this requirement for workers at the entrances to the site. The Port will conduct random monthly surveys to check for compliance with idling times to ensure compliance with this measure. | Significant and Unavoidable |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Air Quality (Cont'd)** | | |
| | e. Require all construction equipment to be maintained and properly tuned in accordance with manufacturer's specifications. Equipment shall be checked by a certified mechanic in accordance with manufacturer's specifications and determined to be running in proper condition prior to operation.<br>f. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.<br>g. All haul trucks transporting soil, sand, or other loose material off site shall be covered.<br>h. All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day, or other suitable practices to remove dirt from tire mechanisms shall be employed to minimize occurrences of trackout. The use of dry power sweeping is prohibited.<br>i. All vehicle speeds on unpaved roads shall be limited to 15 mph.<br>j. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.<br>k. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph in a given hour.<br>l. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.<br>m. Unpaved roads providing access to sites 100 feet or further from a paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel. | |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Air Quality (Cont'd)** | | |
| | n. Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's General Air Pollution Complaints number shall also be posted on a publicly visible sign to ensure compliance with applicable regulations.<br>o. Limit the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities.<br>p. Install wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.<br>q. Plant vegetative ground cover (e.g., fast-germinating native grass seed) in disturbed areas as soon as possible and water the ground cover appropriately until vegetation is established.<br>r. Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.<br>s. Minimize the amount of excavated material or waste materials stored at the site.<br>Hydroseed or apply non-toxic soil stabilizers to construction areas, including previously graded areas, that are expected to be inactive for at least 10 calendar days. | |
| **Impact AIR-2:** Would the Proposed Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard? | **MM AIR-1: Construction Air Quality Mitigation** | Significant and Unavoidable |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Air Quality (Cont'd)** | | |
| **Impact AIR-3:** Would the Proposed Project expose sensitive receptors to substantial pollutant concentrations? | **MM AIR-1: Construction Air Quality Mitigation** | Significant and Unavoidable |
| **Impact AIR-4:** Would the Proposed Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? | None required | Less than Significant |
| **Impact C-AIR-1:** Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to expose sensitive people to substantial pollutant concentrations. | **MM AIR-1: Construction Air Quality Mitigation** | Significant and Unavoidable |
| **Biological Resources** | | |
| **Impact BIO-1:** Would the Proposed Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, United States Fish and Wildlife Service, or National Marine Fisheries Service? | **MM BIO-1A: Silt Curtains**<br>Silt curtains shall be used when dredging sediment with elevated levels of chemical contaminants, as determined through the pre-construction sediment quality characterization and as required by Project permits, or when dredging within 250 meters (or 820 feet, as determined by the pre-construction eelgrass survey) of eelgrass beds. Prior to in-water construction, a silt curtain shall be deployed from the water's edge and pushed out to the deployed location to avoid entrapping aquatic wildlife species.<br>**MM BIO-1B: Worker Education Program**<br>A worker education program shall be implemented for special-status fish, birds, and marine mammals that could be adversely impacted by construction activities. The program shall include a presentation to all workers on biology, general behavior, distribution, habitat needs, sensitivity to human activities, legal protection status, and project-specific protective measures for each species. Workers shall also be provided with written materials containing this information. Written material shall be provided in different languages as needed. | Less than Significant with Mitigation |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Biological Resources (Cont'd)** | | |
| | **MM BIO-1C: Pile-Driving–Related Measures**<br>The following measures shall be implemented to reduce potential impacts from pile driving on special-status fish, marine mammals, and birds:<br>• To the extent feasible, all pilings or similar in-water structures shall be installed and removed with vibratory pile drivers only. If feasible, vibratory pile driving shall be conducted following USACE's Proposed Additional Procedures and Criteria for Permitting Projects under a Programmatic Determination of Not Likely to Adversely Affect Select Listed Species in California.<br>• An impact pile driver shall only be used where necessary to complete installation of piles or in-water structures in accordance with seismic safety or other engineering criteria. If impact driving is needed for in-water pile installation, the following measures shall be implemented:<br>• Prior to the start of impact pile driving, the Port, in coordination with USACE, shall prepare NMFS-approved Hydroacoustic and Biological Monitoring Plan (described above) to protect fish and marine mammals.<br>○ Piles driven with an impact driver shall employ a "soft start" technique to give fish an opportunity to move out of the area before full-powered impact driving begins. Only a single impact hammer would be operated at a time.<br>○ The impact hammer shall be cushioned using a 12-inch-thick wood cushion block during all impact hammer pile-driving operations.<br>○ During impact pile-driving of steel piles, a bubble curtain shall be used to attenuate underwater sound levels.<br>○ The Port, in coordination with USACE, shall monitor and verify sound levels during pile-driving activities. The sound monitoring results would be made available to NMFS and other regulatory agencies as needed. | |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Biological Resources (Cont'd)** | | |
| | • A Hydroacoustic and Biological Monitoring Plan shall be prepared prior to the start of construction for review and approval by NMFS. This plan shall provide details on the methods used to monitor and verify sound levels during pile-driving activities. The plan shall include specific measures to minimize exposure of marine mammals and fish to high sound levels, including conditions requiring construction work to temporarily stop.<br>• To the extent feasible, based on Project design, cost, and schedule considerations, impact pile driving shall not occur during the bird breeding season of February 1 to August 15. If impact pile driving must occur during the bird breeding season, work areas plus an appropriate buffer area determined by a qualified biologist shall be surveyed by a qualified biologist to verify the presence or absence of nesting raptors or other birds. If the survey indicates the potential presence of nesting raptors or other nesting birds, an appropriately sized buffer shall be applied around the nest in which no work would be allowed until the young have successfully fledged, so that nesting birds are not disturbed by the Project activity. In general, buffer sizes of 200 feet for raptors should suffice to prevent disturbance to birds nesting in the urban environment, but the buffers may be increased or decreased, as appropriate, depending on the bird species and the level of disturbance anticipated near the nest.<br>In addition, the Long Term Management Strategy program dredging work window for California least tern in the Proposed Project vicinity is August 1 through March 15 each year. If impact pile-driving activities must occur outside of this work window, the Port shall coordinate with the USACE to initiate additional consultation with USFWS to obtain written authorization to work outside this window. | |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Biological Resources (Cont'd)** | | |
| **Impact BIO-2:** Would the Proposed Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, United States Fish and Wildlife Service, or National Marine Fisheries Service? | **MM BIO-1A: Silt Curtains (also MM HYD-1)**<br>**MM BIO-1C: Pile-Driving–Related Measures**<br>**MM BIO-2: Eelgrass Surveys**<br>Prior to the start of any in-water construction, the Port, in coordination with USACE, shall conduct an NMFS-approved eelgrass survey, consistent with the measures described in the NMFS October 2014 California Eelgrass Mitigation Policy and Implementation Guidelines (CEMP). The survey shall include the following:<br>• Before in-water construction activities occur in the marine environment, eelgrass surveys shall be conducted in the in-water work areas plus a 250-meter (820-foot) buffer, and at an appropriate reference site(s). Surveys shall take place within 60 days before the start of construction, consistent with the methods outlined in the CEMP.<br>• After construction, a post-action survey of the eelgrass habitat in the in-water work areas plus a 250-meter (820-foot) buffer, and at an appropriate reference site(s), shall be completed. Surveys shall take place within 30 days of completion of construction, or within the first 30 days of the next active growth period that follows completion of construction and occurs outside of the active growth period.<br>• Areas of direct and indirect impact shall be determined from an analysis that compares the pre-action condition of eelgrass habitat with the post-action conditions from this survey, relative to eelgrass habitat change at the reference site(s), in accordance with the methods described in the CEMP. | Less than Significant with Mitigation |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Biological Resources (Cont'd)** | | |
| | • If impacts to eelgrass are known to occur prior to construction, based on the preconstruction survey, or observed to occur after construction, the Port, in coordination with the USACE, shall develop a mitigation plan to achieve no net loss in eelgrass function, following the steps recommended in the CEMP. Potential mitigation options include comprehensive management plans, in-kind mitigation, mitigation banks and in-lieu-fee programs, and out-of-kind mitigation, as defined in the CEMP. | |
| **Impact BIO-3:** Would the Proposed Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | None required | Less than Significant |
| **Impact C-BIO-1:** Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative biological impacts. | **MM BIO-1A: Silt Curtains**<br>**MM BIO-1B: Worker Education Program**<br>**MM BIO-1C: Pile-Driving–Related Measures**<br>**MM BIO-2: Eelgrass Surveys** | Less than Significant with Mitigation |
| **Cultural Resources** | | |
| **Impact CUL-1:** Would the Proposed Project cause a substantial adverse change in the significance of a historical resource as defined in Public Resources Code Section 15064.5? | None required | No Impact |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Cultural Resources (Cont'd)** | | |
| **Impact CUL-2:** Would the Proposed Project cause a substantial adverse change in the significance of an archaeological resource pursuant to Public Resources Code Section 15064.5? | **MM CUL-2: Inadvertent/Unanticipated Archaeological Cultural Resources Discovery Protocols**<br>If a potential archaeological resource is discovered during Project construction, the following actions shall be taken:<br>1. Dredging and excavation work, or any other activities at the locations and within 50 feet of the finds must halt.<br>2. The crew member(s) shall immediately notify the Project Construction Manager and the Port Project Manager.<br>3. Work can be shifted to other Project areas to avoid loss of work time. However, work shall only resume in the suspected area once the situation has been properly examined and assessed by a qualified archaeologist, and the Port has given notification that work may resume.<br>To ensure that the work force is aware of the regulatory protections afforded to cultural resources, the potential impacts that could occur with the inadvertent discovery of previously unknown archaeological resources during Project construction, how to recognize archaeological resources, as well as the procedures to be followed in the event of such a discovery, the Port shall provide a cultural resources awareness training to the Project's prime contractor and subcontractors involved with sediment- and soil-disturbing activities. The Port shall also provide a construction "ALERT" sheet for the Project prepared by a qualified archaeologist. The ALERT sheet shall contain, at a minimum, visuals that depict each type of artifact that could potentially be encountered, as well as the procedures to be followed in the event of a potential discovery (see below), and the contact information of those Port personnel who are to be contacted in the event of a discovery. Prior to any soil-disturbing | Less than Significant with Mitigation |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Cultural Resources (Cont'd)** | | |
| | activities, each contractor shall be responsible for ensuring that the ALERT sheet is circulated to all field personnel. The ALERT sheet shall also be posted in a visible location at the Project site, as well as being available at any time during construction.<br>In the event that potential archaeological resources are inadvertently discovered during Project construction, all activity within a 50-foot radius of the find shall be stopped, the appropriate Port personnel shall be notified as listed above, and a qualified archaeologist shall be retained by the Port to examine the find. Project personnel shall not collect or move any uncovered materials whether suspected to be archaeological in nature or not. The archaeologist shall provide a preliminary evaluation of the find(s) to determine whether it meets the definition of a historical or unique archaeological resource.<br>If the find(s) meets the definition of a historical resource (i.e., it is California Register of Historical Resources-eligible) or unique archaeological resource under CEQA, then it shall be avoided and preserved in place (the preferred method if feasible). Feasibility of avoidance shall be determined with consideration of factors such as the nature of the find, Project design, costs, and other considerations. If avoidance is not feasible, as determined by the Port, the qualified archaeologist shall prepare a treatment plan that includes measures to reduce impacts to the resource. The treatment plan measures may include, but need not be limited to, design changes to limit disturbance of the resource and/or data recovery. | |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Cultural Resources (Cont'd)** | | |
| **Impact CUL-3:** Would the Proposed Project disturb any human remains, including those interred outside of dedicated cemeteries? | **MM CUL-3: Inadvertent/Unanticipated Discovery of Human Remains**<br>In the event that human remains are inadvertently discovered during Project construction, all work shall immediately halt in accordance with Health and Safety Code Section 7050.5 and Public Resources Code Sections 5097.94 and 5097.98. The Port shall also notify the Alameda County Coroner of the discovery. If the Alameda County Coroner determines that an investigation of the cause of death is required or that the remains are Native American, all work shall cease within 50 feet of the remains until appropriate arrangements are made. If the remains are Native American, the Port shall contact the California Native American Heritage Commission, pursuant to subdivision (c) of Section 7050.5 of the California Health and Safety Code. If the Port determines that avoidance is not feasible, then an alternative plan shall be prepared with specific steps and timeframe required to resume construction activities. | Less than Significant with Mitigation |
| **Impact C-CUL-1:** Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative impacts on historical resources (NRHP and/or CRHR listed or eligible to be listed), including both historic architecture and archaeological resources, including those with human remains. | **MM CUL-2: Inadvertent/Unanticipated Archaeological Cultural Resources Discovery Protocols**<br>**MM CUL-3: Inadvertent/Unanticipated Discovery of Human Remains** | Less than Significant with Mitigation |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Energy** | | |
| **Impact ENE-1:** Would the Proposed Project result in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during Project construction or operation? | **MM ENE-1: Switch to Diesel Dredging during Peak Electricity Demand Events**<br>The Port's Project Managers and the Port's supervising staff shall enroll in the California Independent System Operator's notification system prior to any dredging activities, so that Project Managers and Port supervisorial staff receive the Emergency Energy Alert notices. When an Emergency Energy Alert 3 Notice to prepare for rotating power outages is issued by the California Independent System Operator for the Northern California Region and/or the California Independent System Operator Grid and/or Alameda Municipal Power, the Port shall cease electric dredging activities, and may continue dredging activities using alternative means of power (diesel-generation). | Less than Significant with Mitigation |
| **Impact ENE-2:** Would the Proposed Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency? | None required | Less than Significant |
| **Impact C-ENE-1:** Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative energy impacts. | **MM ENE-1: Switch to Diesel Dredging during Peak Electricity Demand Events** | Less than Significant with Mitigation |
| **Geology/Soils** | | |
| **Impact GEO-1:** Would the Proposed Project expose people or structures to strong seismic ground shaking and seismic-related ground failure such as liquefaction? | None required | Less than Significant |
| **Impact GEO-2:** Would the Proposed Project result in substantial soil erosion or the loss of topsoil? | None required | Less than Significant |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Geology/Soils (Cont'd)** | | |
| **Impact GEO-3:** Would the Proposed Project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Proposed Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse? | None required | Less than Significant |
| **Impact GEO-4:** Would the Proposed Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property? | None required | Less than Significant |
| **Impact GEO-5:** Would the Proposed Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | **MM GEO-5: Inadvertent Discovery of Paleontological Resources**<br>Before construction begins, the Port shall ensure that all construction personnel receive awareness training that includes information on the possibility of encountering fossils during construction, and proper procedures in the event fossils are encountered.<br>Pursuant to State CEQA Guidelines Section 15064.5(f), in the event that any paleontological resources are discovered during ground-disturbing activities, all work within 50 feet of the resources shall be halted and the Port shall consult with a qualified paleontologist to assess the significance of the find. In the event of discovery of paleontological resources, the assessment shall be done in accordance with the Society of Vertebrate Paleontology standards. If any find is determined to be significant, appropriate avoidance measures shall be considered unless avoidance is determined unnecessary or infeasible. Feasibility of avoidance shall be determined with consideration of factors such as the nature of the find, Proposed | Less than Significant with Mitigation |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Geology/Soils (Cont'd)** | | |
| | Project design, costs, and other considerations. If avoidance is infeasible, other appropriate measures (e.g., data recovery, excavation) shall be instituted. Work may proceed on other parts of the Project site while measures for the paleontological resources are implemented. All significant paleontological materials recovered shall be subject to scientific analysis, professional museum curation, and/or a report prepared by a qualified paleontologist, as appropriate, according to current professional standards. | |
| **Impact C-GEO-1:** Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative impacts to geology, soils, seismicity, or paleontological resources. | **MM GEO-5: Inadvertent Discovery of Paleontological Resources** | Less than Significant with Mitigation |
| **Greenhouse Gas Emissions** | | |
| **Impact GHG-1:** Would the Proposed Project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment? | **MM GHG-1: Construction GHG Mitigation**<br>The Port shall require the contractor to implement construction-related GHG emission reduction measures. All requirements shall be included in applicable bid documents, purchase orders, and constructs, with the contractors demonstrating the ability to supply the compliant on- or off-road construction equipment for use prior to any ground-disturbing and construction activities. The measures to include are as follows:<br>• Use zero-emission and hybrid-powered equipment to the greatest extent possible. The performance criteria for meeting this standard are availability by at least two commercial rental facilities in the San Francisco Bay Area Air Basin. | Less than Significant with Mitigation |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Greenhouse Gas Emissions (Cont'd)** | | |
| | • Require all on-road heavy-duty trucks to be the most stringent emissions standard as a condition of contract. This currently means a 2015 model year or newer truck.<br>• Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than two minutes. Provide clear signage that posts this requirement for workers at the entrances to the site, and the Port will conduct random monthly surveys to check for compliance with idling times to ensure compliance with this measure.<br>• Use California Air Resources Board-approved renewable diesel fuel R99 or R100 in off-road construction equipment and on-road trucks.<br>• Use United States Environmental Protection Agency SmartWay-certified trucks for deliveries and equipment transport.<br>• Require all construction equipment be maintained and properly tuned in accordance with manufacturer's specifications. Equipment should be checked by a certified mechanic and determined to be running in proper condition prior to operation.<br>• Encourage and provide carpools, shuttle vans, transit passes, and/or secure bicycle parking to construction workers, and offer meal options on site or shuttles to nearby meal destinations for construction employees.<br>• Recycle or salvage nonhazardous construction and demolition debris.<br>• Develop a plan to efficiently use water for adequate dust control because substantial amounts of energy can be consumed during the pumping of water. | |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Greenhouse Gas Emissions (Cont'd)** | | |
| **Impact GHG-2:** Would the Proposed Project conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs? | None Required | Less than Significant |
| **Impact C-GHG-1:** Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative GHG impacts. | **Mitigation Measure GHG-1: Construction GHG Mitigation** | Less than Significant with Mitigation |
| **Hazards and Hazardous Materials** | | |
| **Impact HAZ-1:** Would the Proposed Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or through reasonably foreseeable upset and accidental conditions involving the release of hazardous materials? | None Required | Less than Significant |
| **Impact HAZ-2:** Would the Proposed Project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (i.e., the "Cortese List") and could create a significant hazard to the public or the environment? | None Required | Less than Significant |
| **Impact HAZ-3:** Would the Proposed Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | **MM TRA-1: Traffic Control Plan** (see Transportation section below) | Less than Significant with Mitigation |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Hazards and Hazardous Materials (Cont'd)** | | |
| **Impact C-HAZ-1:** Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative hazards and hazardous materials impacts. | **MM TRA-1: Traffic Control Plan** | Less than Significant with Mitigation |
| **Hydrology/Water Quality** | | |
| **Impact HYD-1:** Would the Proposed Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface- or groundwater quality? | **MM HYD-1: Silt Curtains**<br>Silt curtains shall be used when dredging sediment with elevated levels of chemical contaminants, as determined through the pre-construction sediment quality characterization and as required by Project permits, or when dredging within 250 meters (or 820 feet, as determined by the pre-construction eelgrass survey) of eelgrass beds. Prior to in-water construction, a silt curtain shall be deployed from the water's edge and pushed out to the deployed location to avoid entrapping aquatic wildlife species. | Less than Significant with Mitigation |
| **Impact HYD-2:** Would the Proposed Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? | None Required | Less than Significant |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Hydrology/Water Quality (Cont'd)** | | |
| **Impact HYD-3:** Would the Proposed Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would (1) result in a substantial erosion or siltation on- or off-site; (2) substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site; (3) create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (4) impede or redirect flood flows? | None Required | Less than Significant |
| **Impact HYD-4:** Would the Proposed Project in flood hazard, tsunami, or seiche zones risk release of pollutants due to project inundation? | None Required | Less than Significant |
| **Impact HYD-5:** Would the Proposed Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? | **MM HYD-1: Silt Curtains** | Less than Significant with Mitigation |
| **Impact C-HYD-1:** Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant hydrology and water quality impacts. | **MM HYD-1: Silt Curtains** | Less than Significant with Mitigation |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Land Use/Planning** | | |
| **Impact LUP-1:** Would the Proposed Project physically divide an established community? | None Required | Less than Significant |
| **Impact LUP-2:** Would the Proposed Project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? | None Required | Less than Significant |
| **Impact C-LUP-1:**Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative land use impacts. | None Required | Less than Significant |
| **Noise** | | |
| **Impact NOI-1:** Would the Proposed Project generate a substantial temporary or periodic increase in ambient noise levels at sensitive receptors. | **MM NOI-1A: Pile Driving Noise-Reducing Techniques and Muffling Devices**<br>The Port shall require the construction contractor to use noise-reducing pile-driving techniques if conducted within 1,500 feet of receptors identified in **Table 3.12-14** that could be subject to significant pile-driving noise. Construction contractors shall be required to use construction equipment with state-of-the-art noise shielding and muffling devices. For impact hammer driving, these techniques shall include use of cushion blocks during pile installation activities within 1,500 feet of sensitive receptors in Oakland and Alameda. The impact pile hammer shall be cushioned using a wood cushion block or other material sufficient to obtain an 11 dBA reduction for all impact hammer pile-driving operations. For all pile-driving activities, at least 14 calendar days prior, the Port, in coordination with USACE, shall notify residents within 1,500 feet of the pile-driving activities of the dates, hours, and expected duration of such activities. | Significant and Unavoidable |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Noise (Cont'd)** | | |
| | **MM NOI-1B: Erection of a Temporary Noise Barrier**<br>To address significant nighttime noise impacts at the Mosley Avenue residences in Alameda, the Port shall require contractors, as a condition of contract, to construct a temporary 12-foot noise barrier along the southern edge of the harbor on the Alameda side of the turning basin during nighttime dredging activities at the Alameda Site. The barrier shall be installed at a location approximately 220 feet from the noise source and 380 feet from the nearest receptors. The barrier's location would serve as a lateral extension of the existing warehouse structure on the Alameda Site, north of the athletic fields. The barrier shall be of solid construction with no apparent gaps. Barriers are generally constructed with two layers of 0.5-inch-thick plywood (with joints staggered), and K-rail or other support; or a limp mass barrier material weighing 2 pounds per square foot.<br>**MM NOI-1C: Truck Operation Restriction in Alameda**<br>The Port shall require contractors, as a condition of contract, to monitor and limit truck trip generation so that no more than 23 truck trips per hour (approximately one truck every 3 minutes) enter or egress the Alameda Site work area as part of the Project Traffic Control Plan. | |
| **Impact NOI-2:** Would the Proposed Project generate excessive groundborne vibration or groundborne noise levels? | None Required | Less than Significant |
| **Impact C-NOI-1:** Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative noise and vibration impacts. | None Required | Less than Significant |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Recreation** | | |
| **Impact REC-1:** Would the Proposed Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | None Required | Less than Significant |
| **Impact REC-2:** Would the Proposed Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | None Required | Less than Significant |
| **Impact C-REC-1:** Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative impacts on recreation. | None Required | Less than Significant |
| **Transportation** | | |
| **Impact TRA-1:** Would the Proposed Project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities? | **MM TRA-1: Traffic Control Plan**<br>The Port shall require the construction contractor, as a term of the construction contract, to develop a comprehensive construction traffic control plan (TCP) that includes measures to minimize the effects of Project-related construction traffic on overall circulation, including traffic, transit, bicycle, and pedestrian routes, safety, and emergency access.<br>Measures in the construction TCP would include at minimum the following:<br>• Site plans for ingress and egress locations showing existing signage/striping, speed limits, locations of proposed temporary traffic controls (e.g., signage, flaggers), and detours (if required), to minimize vehicle, bicycle and pedestrian conflicts and ensure safety for all travelers, particularly during periods of heavy hauling activity; | Less than Significant with Mitigation |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Transportation (Cont'd)** | | |
| | • Encourage passenger vehicle use of alternative routes (to avoid construction traffic);<br>• Identification and enforcement of designated truck haul routes. Enforcement may include compliance monitoring and reporting by the contractor;<br>• Advance written notification of neighboring residents, businesses, and other property owners, as well as the Cities of Oakland and Alameda and key stakeholders of any substantial increases in construction traffic (e.g., ramping up of hauling activity);<br>• Maintenance of adequate emergency access at the Project sites and general access for neighboring properties at all times; and<br>• Designated construction worker parking locations and management plan (e.g., carpool/vanpool programs, and leased parking in remote/off-site parking facilities). | |
| **Impact TRA-2:** Would the Proposed Project Result in inadequate emergency access? | **MM TRA-1: Traffic Control Plan** | Less than Significant with Mitigation |
| **Impact TRA-3:** Would the Proposed Project change vessel traffic patterns, resulting in unplanned or regularly occurring delays, substantial adverse change in freedom of movement, increased safety risks, or introduction of safety hazards? | None Required | Less than Significant |
| **Impact C-TRA-1:** Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative transportation impacts. | **MM TRA-1: Traffic Control Plan** | Less than Significant with Mitigation |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Tribal Cultural Resources** | | |
| **Impact TCR-1:** Would the Proposed Project have a substantial adverse effect on a tribal cultural resource, defined in Public Resources Code Section 21074? | **MM TCR-1: Inadvertent/Unanticipated Tribal Cultural Resources Discovery Protocols**<br>If tribal cultural resources or potential tribal cultural resources are discovered during Project construction, the following actions shall be taken:<br>1. Dredging and excavation work, or any other activities at the locations and within 50 feet of the finds must halt.<br>2. The crew member(s) shall immediately notify the Project Construction Manager and the Port Project Manager.<br>3. Work can be shifted to other Project areas to avoid loss of work time. However, work shall only resume in the suspected area once the situation has been properly examined and assessed by a qualified archaeologist, and the Port has given notification that work may resume.<br>To ensure that the work force is aware of the regulatory protections afforded to tribal cultural resources, the potential impacts that could occur with the inadvertent discovery of previously unknown precontact archaeological resources during Project construction, how to recognize precontact archaeological resources that could be determined to also represent tribal cultural resources, as well as the procedures to be followed in the event of such a discovery, the Port shall provide a cultural resources awareness training to the Project's prime contractor and subcontractors involved with sediment- and soil-disturbing activities. The Port shall also provide a construction "ALERT" sheet for the Project prepared by a qualified archaeologist. The ALERT sheet shall contain, at a minimum, visuals that depict each type of precontact artifact that could potentially be encountered, as well as the procedures to be followed in the event of a potential discovery (see below), and the contact information of those Port personnel who are to be contacted in the event of a discovery. | Less than Significant with Mitigation |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Tribal Cultural Resources (Cont'd)** | | |
| | Prior to any soil-disturbing activities, each contractor shall be responsible for ensuring that the ALERT sheet is circulated to all field personnel. The ALERT sheet shall also be posted in a visible location at the Project site.<br>In the event that potential precontact archaeological resources are inadvertently discovered during Project construction, all activity within a 50-foot radius of the find shall be stopped, the appropriate Port personnel shall be notified as listed above, and a qualified archaeologist shall be retained by the Port to examine the find. Project personnel shall not collect or move any uncovered materials—whether suspected to be archaeological in nature or not. The archaeologist shall provide a preliminary evaluation of the find(s) to determine if a precontact archeological resources is represented; and if so, whether it meets the definition of a potential tribal cultural resource.<br>If the find(s) meet the definition of a potential tribal cultural resource under CEQA, then it shall be avoided and preserved in place (the preferred method if feasible). Feasibility of avoidance shall be determined with consideration of factors such as the nature of the find, Project design, costs, and other considerations. If avoidance is not feasible, as determined by the Port, the Port will consult the appropriate tribal entities as well as the qualified archaeologist to prepare a treatment plan that includes measures to reduce impacts to the resource. The treatment plan measures may include, but need not be limited to, design changes to limit disturbance of the resource, minimizing processing of materials for reburial, minimizing handling of tribal cultural resources objects, leaving objects in place within the landscape, or returning tribal cultural resources objects to a location in the general vicinity of the Proposed Project where they will not be subject to future disturbance. Data recovery as well as the development of interpretive materials may also be deemed appropriate. | |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Tribal Cultural Resources (Cont'd)** | | |
| **Impact C-TCR-1:** Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative impacts on tribal cultural resources. | **MM TCR-1: Inadvertent/Unanticipated Tribal Cultural Resources Discovery Protocols** | Less than Significant with Mitigation |
| **Utilities/Service Systems** | | |
| **Impact UTL-1:** Would the Proposed Project require or result in the construction of new or expanded water supply, wastewater collection or treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? | None Required | Less than Significant |
| **Impact UTL-2:** Would the Proposed Project have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years? | None Required | Less than Significant |
| **Impact UTL-3:** Would the Proposed Project result in a determination by the wastewater treatment provider, which serves or may serve the Project, that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments? | None Required | Less than Significant |

| Proposed Project Impact | Mitigation Measure(s) | Level of Significance after Mitigation (if required) |
|---|---|---|
| **Utilities/Service Systems (Cont'd)** | | |
| **Impact UTL-4:** Would the Proposed Project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? | None Required | Less than Significant |
| **Impact UTL-5:** Would the Proposed Project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? | None Required | Less than Significant |
| **Impact C-UTL-1:** Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative impacts on utilities and service systems. | None Required | Less than Significant |

Notes:

CEMP = California Eelgrass Mitigation Policy and Implementation Guidelines
CEQA = California Environmental Quality Act
dBA = A-weighted decibels
GHG = greenhouse gas
MM = Mitigation Measure
NMFS = National Marine Fisheries Service
PG&E = Pacific Gas and Electric Company
Port = Port of Oakland
TCP = traffic control plan
USACE = United States Army Corps of Engineers
USFWS = United States Fish and Wildlife Service

# 1. INTRODUCTION

The Port of Oakland (Port), in partnership with the United States Army Corps of Engineers (USACE), is proposing the Oakland Harbor Turning Basins Widening Project (referred to in this Draft Environmental Impact Report [Draft EIR] as the Proposed Project) at the Oakland Seaport (Seaport) in Alameda County, California. The Proposed Project involves construction to widen the diameter of the existing turning basins in the Seaport.

The Port is the Lead Agency pursuant to the California Environmental Quality Act (CEQA), with primary responsibility for carrying out and approving the Proposed Project (CEQA Guidelines Section 15367); the Port is also the non-federal sponsor of the Proposed Project. Pursuant to CEQA, this Draft EIR was prepared to inform decision-makers at the Port, other responsible agencies, and the public of the potential physical effects on the environment that could result from implementation of the Proposed Project. This Draft EIR analyzes the Proposed Project's potential environmental impacts, recommends mitigation measures to lessen or eliminate adverse impacts, and examines feasible alternatives to the Proposed Project. A brief overview of the environmental review process and a description of opportunities for public comment are provided below, along with an explanation of how this Draft EIR is organized.

## 1.1. ENVIRONMENTAL REVIEW PROCESS

As the Lead Agency, the Port is responsible for the Proposed Project's environmental review under CEQA. CEQA requires the Lead Agency to prepare an EIR when a project could significantly affect the physical environment. The Port determined that the Proposed Project could potentially cause significant environmental impacts, and that preparation of an EIR is the appropriate CEQA document to address environmental impacts from the Proposed Project. The Draft EIR's key purpose is to inform decision-makers at the Port, other responsible agencies, and the public. The Port will review and consider the information contained in this Draft EIR prior to taking action on the Proposed Project. CEQA requires that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority. This Draft EIR was prepared in compliance with CEQA (Public Resources Code Section 21000 et seq.), and the CEQA Guidelines (14 California Code of Regulations [CCR] Sections 15000 et seq.).

### 1.1.1. Notice of Preparation and Scoping

The Port published a Notice of Preparation (NOP) on May 31, 2022, pursuant to CEQA Guidelines Section 15082, notifying the public that a Draft EIR would be prepared for the Proposed Project, and inviting comments on the scope of the Draft EIR's analysis. The scoping comment period commenced on May 31, 2022, and ended on July 5, 2022. The NOP was sent to property owners within 500 feet of the Proposed Project sites, elected officials, agencies, organizations, and other interested parties. The NOP was published in the *Oakland Tribune*, *Oakland Post*, *Vision Hispana*, and *Sing Tao Daily*. A copy of the NOP was submitted to the State Clearinghouse, and subsequently posted to CEQA.net to solicit statewide agency participation in determining the scope of the Draft EIR. The NOP was also submitted to and posted by County of Alameda Clerk-Recorder for 30 days.

During the comment period, the Port held two virtual scoping meetings for the Proposed Project, via Zoom webinars. The scoping sessions provided a forum for public agencies and interested persons or groups to offer comments regarding the scope of the Draft EIR, including topics to be analyzed in the Draft EIR. The first meeting was held on June 14, 2022, from 12:00 p.m. to 1:00 p.m., and was attended by approximately 17 members of the public and agency representatives. The second meeting was held on June 15, 2022, from 6:00 p.m. to 7:00 p.m., and was attended by approximately 5 members of the public and agency representatives. The meeting presentation and a link to the recording of the June 14, 2022 meeting were posted on the Port's website: https://www.oaklandseaport.com/oakland-harbor-turning-basins-widening-navigation-study/ceqa-scoping-meetings/.

The NOP and copies of all written scoping comments submitted are included in Appendix A. All comments received were taken into consideration in the preparation of this Draft EIR.

### *Summary of Scoping Comments*

During the scoping period, the Port received a total of eleven comment letters or e-mails (refer to Appendix A) from the following federal, state, regional, and local agencies, and organizations:

- United States Environmental Protection Agency
- Native American Heritage Commission
- California Department of Transportation
- California Department of Toxic Substances Control
- California Department of Fish and Wildlife
- California Department of Justice
- Bay Area Air Quality Management District
- San Francisco Bay Conservation and Development Commission
- San Francisco Bay Regional Water Quality Control Board
- Sheppard, Mullin, Richter, & Hampton LLP, on behalf of Bay Ship & Yacht Co. and Alameda Commercial Properties, LLC
- Pacific Merchant Shipping Association

Among the comments received, the following issues were commonly requested as topics that should be addressed in the Draft EIR:

- Analysis of potential health risk to sensitive populations from the Proposed Project's construction and operation
- Analysis of air quality and greenhouse gas impacts from the Proposed Project's implementation, and inclusion of measures to minimize air quality and greenhouse gas emissions
- Measures to protect the West Oakland community from additional pollution impacts
- Analysis of impacts from operational changes as a result of Proposed Project implementation; in particular, effects related to air quality and traffic
- Analysis of growth inducement impacts as a result of Proposed Project implementation
- Meaningful opportunities for community engagement; in particular, for disadvantaged communities
- Description of soil, sediment, and groundwater quality in areas to be excavated and dredged

- Avoidance and minimization measures to reduce construction impacts on special-status species and the aquatic environment
- Identification of the Proposed Project's regulatory compliance/permitting requirements
- Consideration of alternatives that would lessen environmental impacts
- Analysis of cumulative impacts of constructing and operating the Proposed Project alongside other projects approved and pending at the Port

### 1.1.2. Public Review of this Draft EIR

The Port is circulating this Draft EIR for a 45-day public review and comment period. During the public review period, interested individuals, organizations, and agencies may comment on the Draft EIR.

- Written comments on the Draft EIR must be received by November 17, 2023, and may be submitted in the following ways:
  - Online via form submission at: www.portofoakland.com/turningbasins
  - By email to: TurningBasins@portoakland.com
  - By mail to:

    Port of Oakland
    Environmental Programs and Planning Division
    Attn: Ms. Khamly Chuop
    530 Water Street
    Oakland, CA 94607
  - Public meeting: Provide comments orally or in writing during any of the three public meetings

During this review period, printed copies of the Draft EIR will be available for public review at the following nine locations, which include the Port of Oakland headquarters and eight public libraries:

Port of Oakland, Lobby
530 Water Street
Oakland, CA 94607

Oakland Public Library, West Oakland Branch
1801 Adeline Street
Oakland, CA 94607

Oakland Public Library, Asian Branch
388 9th Street #190
Oakland, CA 94607

Oakland Public Library, Central Library
125 14th Street
Oakland, CA 94612

Oakland Public Library, César E. Chávez Branch
3301 E. 12th Street #271
Oakland, CA 94601

Oakland African American Museum and Library
659 14th Street
Oakland, CA 94612

Oakland Public Library, Golden Gate Branch
5606 San Pablo Avenue
Oakland, CA 94608

Alameda Public Library, West End Branch
788 Santa Clara Avenue
Alameda, CA 94501

San Leandro Public Library, Main Library
300 Estudillo Avenue
San Leandro, CA 94577

An electronic copy of this Draft EIR can also be viewed and downloaded at https://www.oaklandseaport.com/oakland-harbor-turning-basins-widening-navigation-study/.

The Port will host three public meetings during the public review period to accept comments on the Draft EIR, including one in-person meeting and two virtual meetings. The specific dates, times, and locations of the public meetings have been provided in the Notice of Availability and on the Port's website. The Notice of Availability was sent via electronic mail to elected officials, agencies, organizations, and other interested parties. The Notice of Availability was published in the *Oakland Post*, *Alameda Sun*, *East Bay Times, Vision Hispana*, *Sing Tao Daily,* and *Oaklandside*. In addition, postcard mailers indicating the availability of the Draft EIR for public review and the dates and times of the public meetings were sent to residents and businesses associated with the four nearest zip codes of the Proposed Project sites: 94607, 94612, 94606, and 94501.

### 1.1.3. Final EIR and Project Approval

All comments received on this Draft EIR during the public review period will be considered and addressed in a "Responses to Comments" document in the Final EIR. The Responses to Comments document and the Final EIR will also present any changes to this Draft EIR resulting from public and agency comments. This Draft EIR and its appendices, together with the Responses to Comments document and any changes to the Draft EIR will, upon completion, constitute the Final EIR.

Prior to any decision on the Proposed Project, the Board of Port Commissioners will review the Final EIR and consider certifying the document at a regularly scheduled board meeting. Upon certification of the Final EIR, the Board of Port Commissioners may proceed with project approval actions. Approval of the Proposed Project would be preceded by written findings for each significant environmental effect identified in the EIR (referred to as CEQA findings; CEQA Guidelines Section 15091), and if necessary, a statement of overriding considerations (CEQA Guidelines Section 15093). At the time that CEQA findings are adopted, the Board of Port

Commissioners would also adopt a mitigation monitoring and reporting program for adopted mitigation measures to avoid or reduce significant effects on the environment.

## 1.2. CONTENT AND ORGANIZATION

This Draft EIR has been organized as follows:

- **Executive Summary.** The Executive Summary provides summaries of the Proposed Project, environmental impacts, proposed mitigation measures, and Proposed Project alternatives.
- **Chapter 1, Introduction.** This chapter describes the purpose and content of the Draft EIR, and describes the CEQA review process, the scoping process, the comment and review process, and the organization of this Draft EIR.
- **Chapter 2, Project Description.** This chapter provides a detailed description of the Proposed Project, including a description of the Proposed Project location and setting, existing site conditions, construction activities of the Proposed Project, and a list of discretionary approvals and permits required for Proposed Project implementation. It also includes a discussion of the Proposed Project objectives.
- **Chapter 3, Environmental Analysis.** This chapter describes the environmental resources and potential impacts of the Proposed Project for each environmental resource. The introduction to the chapter describes key environmental analysis terms used in this document and the analysis, including the impact classifications and resource areas not further analyzed and the basis for no further analysis. Each environmental resource analyzed in detail in Chapter 3 is discussed in a separate subsection. Each subsection provides the background and methodology (including the regulatory context, significance thresholds, and analysis methodology for the environmental resource), a description of the existing conditions for that environmental resource, a discussion of the environmental impacts that could occur as a result of the Proposed Project, a determination of whether the impact is considered to be significant, any mitigation measures that would reduce the magnitude of an identified potentially significant impact, and the level of significance after mitigation. Each impact and subsequent mitigation measure, if applicable, is identified separately. The specific environmental topic areas that are addressed in Chapter 3 include the following:
    - Section 3.2 Aesthetics
    - Section 3.3 Air Quality
    - Section 3.4 Biological Resources
    - Section 3.5 Cultural Resources
    - Section 3.6 Energy
    - Section 3.7 Geology and Soils
    - Section 3.8 Greenhouse Gas Emissions
    - Section 3.9 Hazards and Hazardous Materials
    - Section 3.10 Hydrology and Water Quality
    - Section 3.11 Land Use/Planning
    - Section 3.12 Noise
    - Section 3.13 Recreation

  - Section 3.14 Transportation
  - Section 3.15 Tribal Cultural Resources
  - Section 3.16 Utilities and Service Systems
- **Chapter 4, Cumulative Impacts.** This chapter provides a cumulative effects analysis that describes the impacts of the Proposed Project in combination with those from current and reasonably foreseeable probable future projects.
- **Chapter 5, Alternatives.** This chapter describes the process by which alternatives to the Proposed Project were developed and screened. This chapter also evaluates likely environmental impacts of the potential alternatives and identifies the environmentally superior alternative.
- **Chapter 6, Other CEQA Considerations.** This chapter describes the significant and unavoidable effects of the Proposed Project, the significant and irreversible environmental changes of the Proposed Project, and the potential for the Proposed Project to result in growth inducement.
- **Chapter 7, List of Preparers and Contributors.** This chapter lists the names and affiliations of those persons who prepared this Draft EIR.
- **Chapter 8, References.** This chapter includes a consolidated list of all references used during preparation of this Draft EIR.
- **Appendices.** The following appendices include supporting background information or analyses relevant to content presented in this Draft EIR:
  - Appendix A – Notice of Preparation and Scoping Comments
  - Appendix B – Air Quality and Greenhouse Gas Analysis Technical Report
  - Appendix C – Health Risk Assessment
  - Appendix D – Cultural Resources Inventory Report
  - Appendix E – Hydrodynamic Analysis
  - Appendix F – Noise and Vibration Analysis Supporting Material

# 2. PROPOSED PROJECT DESCRIPTION

The proposed Oakland Harbor Turning Basins Widening Project (Proposed Project) involves widening the turning basins at the Oakland Seaport (Seaport). The turning basin in the Seaport's inner harbor (the Inner Harbor Turning Basin [IHTB]) would be widened by 334 feet, from its current diameter of 1,500 feet to 1,834 feet and would require removal of landside property along the shoreline at the Seaport in the City of Oakland and along the shoreline in the City of Alameda. The turning basin in the Seaport's outer harbor (the Outer Harbor Turning Basin [OHTB]) would be widened by 315 feet, from its current diameter of 1,650 feet to 1,965 feet; widening the OHTB does not require the removal of landside property.

This chapter provides a detailed description of the infrastructure improvements required to implement the Proposed Project, including the proposed construction methods and schedule. This chapter also describes the Proposed Project location and setting, and the existing conditions at the Seaport and Alameda shoreline where construction activities would occur. In addition, this chapter identifies the Port of Oakland's (Port) Proposed Project objectives, and lists the discretionary approvals required for the Proposed Project.

## 2.1. PROPOSED PROJECT LOCATION AND SETTING

The Proposed Project is located in both the City of Oakland and in the City of Alameda (Alameda). For this document, the Seaport encompasses areas beyond Port-owned lands that rely on the Port's operations and the adjacent waterway. Therefore, the Seaport spans and includes approximately 1,300 acres of Port-owned waterfront and inland lands, approximately 200 acres of land owned by City of Oakland, and approximately 300 acres of private land owned and operated by entities such as the Union Pacific Railroad (UPRR) and Schnitzer Steel Industries/Radius Recycling (Schnitzer/Radius Recycling), for a total of approximately 1,800 acres. The Seaport is at the western end of the City of Oakland, adjacent to the eastern shoreline of San Francisco Bay (Bay), south of the Interstate 80 (I-80) San Francisco-Oakland Bay Bridge, and north of Alameda (**Figure 2.1-1**, **Figure 2.1-2**, and **Figure 2.1-3**).[3] A channel of the waterway separates Alameda from the Seaport. To distinguish Port-specific container handling operations and activities from the Seaport as a whole, the word Port is used in lieu of Seaport where applicable throughout this Draft EIR.

The Seaport is served by the Oakland Harbor, a federal commercial waterway, which generally consists of the Entrance Channel, the Outer Harbor Channel and OHTB, and the Inner Harbor Channel and IHTB (**Figure 2.1-3**). The Oakland Harbor is a federally authorized channel and its navigation features (depth and width of channels/turning basins) are maintained by the United States Army Corps of Engineers (USACE) (i.e., the USACE is responsible for payment and performance of maintenance dredging). The Oakland Harbor waterways are deep draft navigation channels that support commercial vessel access to the Seaport. The Entrance Channel, which serves as the approach channel to Oakland Harbor, begins south of the San Francisco-Oakland Bay Bridge and southwest of Yerba Buena Island, and continues east to the beginning of the Outer Harbor Channel and the Inner Harbor Channel. The Outer Harbor Channel is immediately south of the San Francisco-Oakland Bay Bridge, and the Inner Harbor Channel is in the waterway between the Seaport and Alameda. The IHTB and OHTB are widened areas of the Inner and Outer Harbor Channels that allow commercial vessels to turn around.

[3] Additional information on Seaport facilities is available at https://www.oaklandseaport.com/seaport-resources/.

**Figure 2.1-1 Oakland Seaport Location**



**Figure 2.1-2 Current Seaport Facilities and Oakland Harbor Waterway**

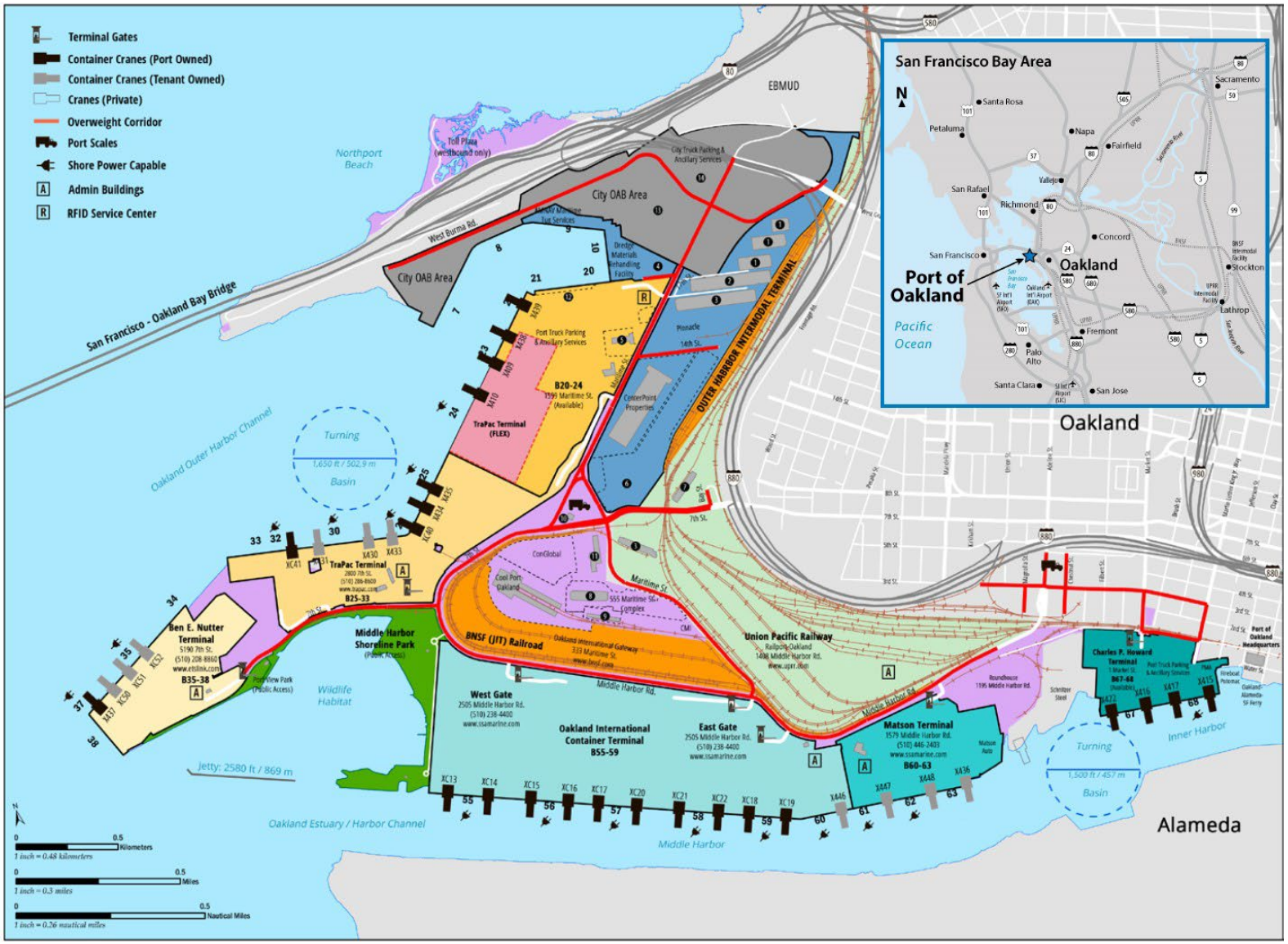
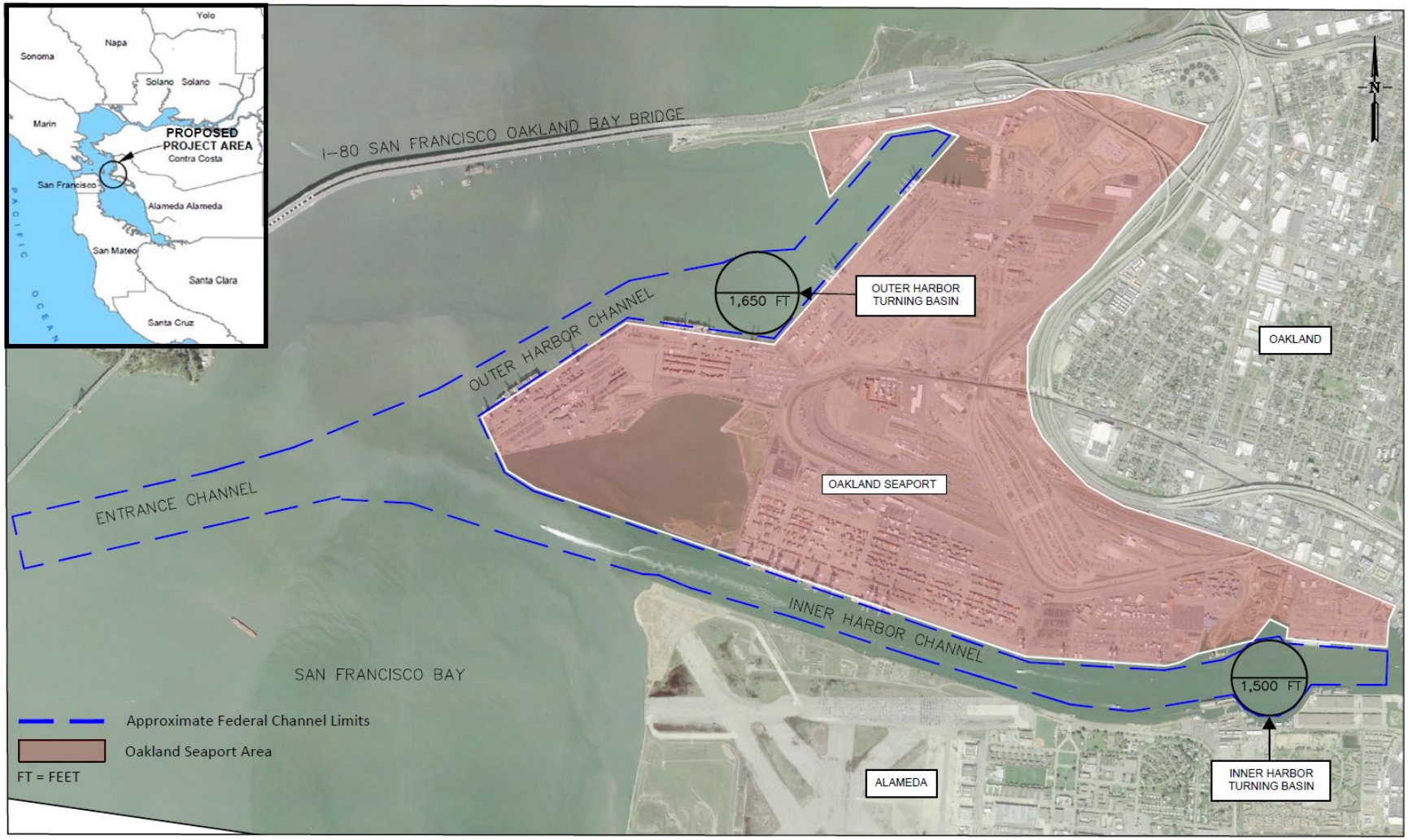


**Figure 2.1-3 Oakland Harbor Commercial Waterway Limits**



The landside locations of proposed improvements at the IHTB include a portion of property owned by the Port (Howard Terminal) to the north of the IHTB, and a portion of private property owned by FIC Alameda 365 LLC along the Alameda shoreline to the southeast of the IHTB (referred to in this Draft EIR as the "Alameda Site"); these properties are described in Section 2.2. On the Oakland (northern) side of the IHTB, land uses along the shoreline from Howard Terminal and to the west are characterized by maritime and industrial uses associated with the Seaport. To the east of Howard Terminal is Jack London Square, a pedestrian-oriented mixed-use and entertainment area. Howard Terminal is bordered to the north by the Embarcadero West roadway and UPRR mainline rail tracks, beyond which is a mixture of light-industrial, commercial, and multi-family residential uses. The closest Oakland residences to the IHTB are the Phoenix Lofts, located approximately 0.25 mile to northeast along 2nd Street. On the Alameda (southern) side of the IHTB, light industrial and maritime uses adjacent to the IHTB are surrounded primarily by single- and multi-family residential development and parks, some of which are currently in construction. The closest existing residences to the IHTB in Alameda are approximately 500 feet to the south along Mosley Avenue.

In the Seaport's Outer Harbor Terminal, the Proposed Project's landside activities would occur near Berth 26, in the TraPac Terminal; and at Berth 10, at the northeastern end of the Outer Harbor Terminal. Land uses in the Outer Harbor Terminal consist of maritime and industrial uses associated with international and domestic trade. The nearest residences are those in West Oakland, east of Interstate 880 (I-880), more than 0.5 mile away from the OHTB and Berth 10.

## 2.2. EXISTING SITE CONDITIONS AND USES

The Seaport is primarily a container port. The Seaport includes container terminals, general purpose berths, freight rail yards, one break bulk cargo (goods that do not fit in standard shipping containers) terminal (located at Schnitzer/Radius Recycling), cargo transloading (the unloading of goods from one container to another or from one container into a warehouse facility, or the transferring of cargo from one mode of transportation to another) and storage facilities (warehouses and yards for container storage and truck parking).

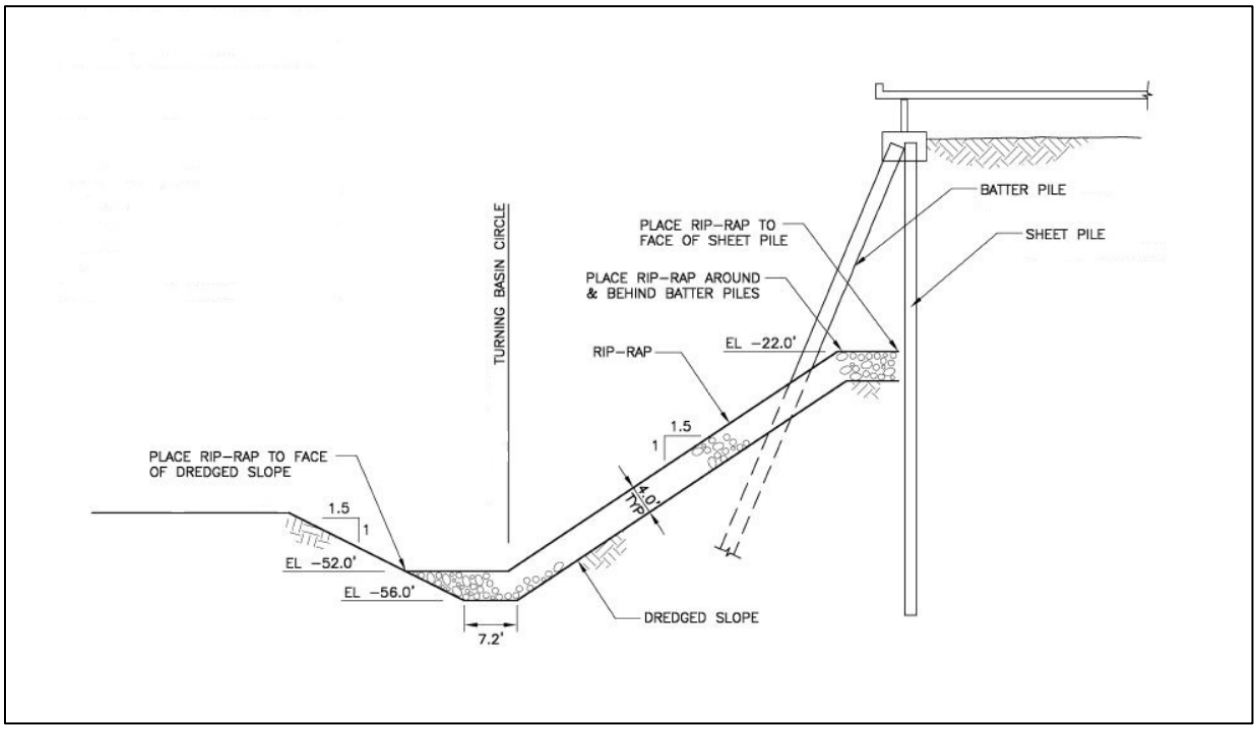
The Seaport's active container terminals currently include the TraPac Terminal, Ben E. Nutter Terminal, Oakland International Container Terminal, and Matson Terminal (**Figure 2.1-2**). The volume of shipping containers serviced at the Seaport is measured in twenty-foot equivalent units (TEUs) – a unit representing a 20-foot-long container. The Seaport's active container terminals service almost 2.4 million TEUs annually.[4] Based on 2021 data, the Seaport is the ninth-busiest container port in the United States based on total TEUs serviced; it is ranked among the three principal Pacific Coast gateways in the United States for containerized cargoes, along with San Pedro Bay in Southern California and Puget Sound in the Pacific Northwest. The Seaport is the only deep draft container port in Northern California, and services more than 99 percent of the containerized goods for Northern California. Additional information about waterside and landside operations at the Seaport is presented in Sections 2.2.1 and 2.2.2.

Most of the uplands (landside areas) surrounding the turning basins are surfaced in pavement (concrete or asphalt) or other impermeable surfaces associated with industrial and supporting ancillary maritime uses. These developed surfaces may include stormwater design features. The land adjacent to the turning basins consists of wharfs and bulkheads. A bulkhead serves as a

[4] Based on cargo throughput volume from 2012 through 2022. Available online at: https://www.oaklandseaport.com/performance/facts-figures/.

retaining wall between land and water; it consists of sheet piles, batter piles, riprap, and anchor tie-backs that secure the bulkhead in place. An example of a typical bulkhead can be found in **Figure 2.2-1**. These impermeable surfaces and associated aboveground facilities are built largely on artificial fill.[5]

**Figure 2.2-1 Typical Bulkhead Cross-Section**




The Proposed Project improvements and construction activities would occur at the following locations (the Proposed Project sites) described below and shown in **Figure 2.2-2**:

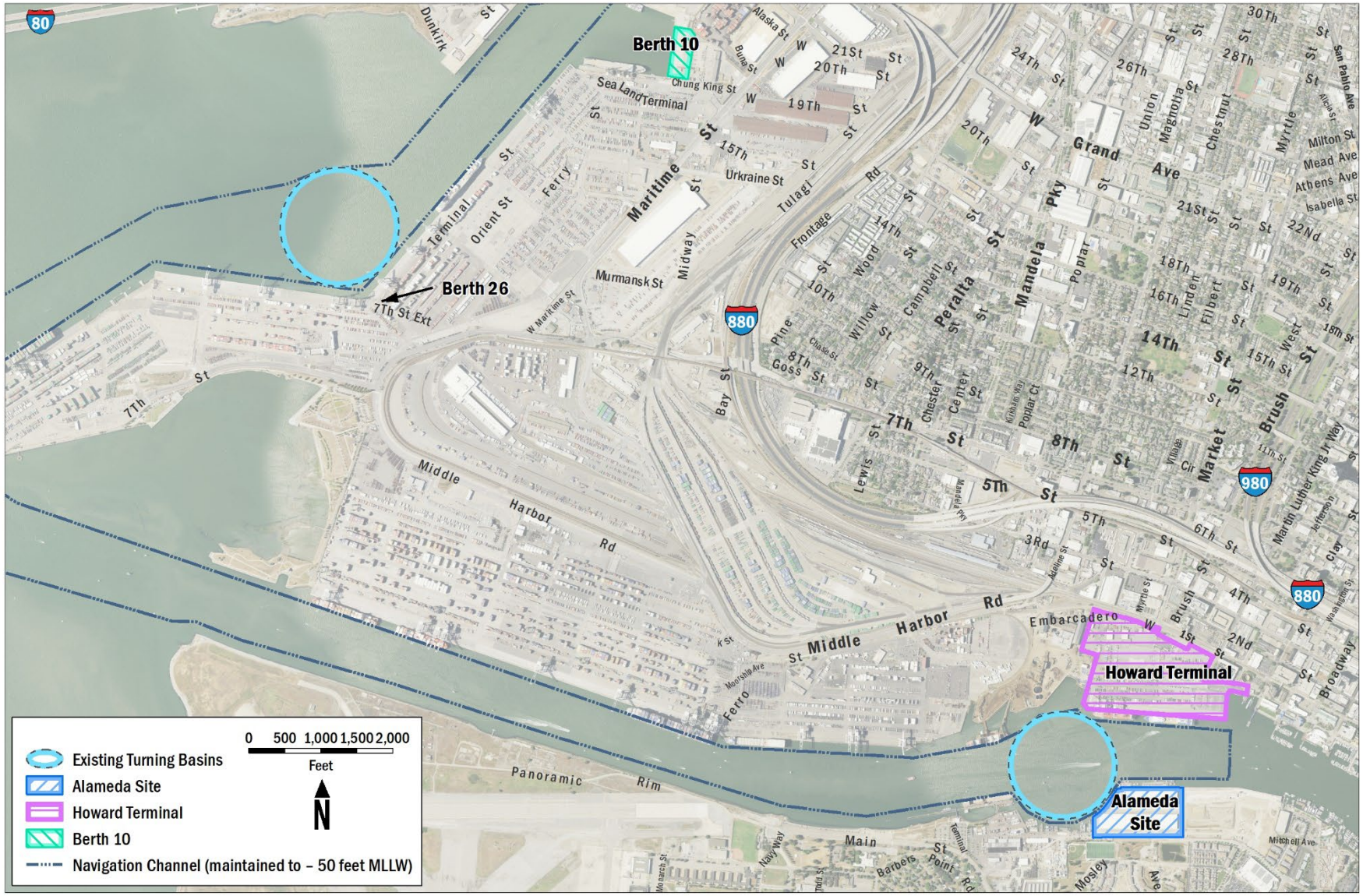
- Howard Terminal;
- Alameda Site;
- Berth 26;
- Berth 10; and
- The Inner and Outer Harbor Channels and Turning Basins.

## *Howard Terminal*

Howard Terminal occupies approximately 50 acres adjacent to the IHTB and Inner Harbor Channel with approximately 2,000 feet of dock (or berth) length adjacent to the Inner Harbor Channel. Howard Terminal is at 1 Market Street at the eastern extent of the Seaport (**Figure 2.2-2**). Howard Terminal is not currently an active container terminal for offloading cargo from container vessels but serves a variety of maritime support uses including truck parking, container storage, vessel berthing (docking) for maintenance and storage, and training of longshore workers and other logistics services that support Seaport operations.

[5] Artificial fill is land that was created by placement of materials such as soil, sediment, rock, sand, and gravel, or some combination thereof.

**Figure 2.2-2 Locations of Proposed Project Improvements and Construction Activities – Existing Conditions**



The majority of Howard Terminal is on land, except for the southern portion, which is a pile-supported wharf structure above water. Howard Terminal does not have an existing bulkhead, but instead has a rock dike underneath the wharf structure that retains land.

As described in Section 3.9, Hazards and Hazardous Materials, the soil and groundwater beneath Howard Terminal have been impacted by historic industrial uses of the site. Howard Terminal has land use restrictions on the site and is under the regulatory jurisdiction of the Department of Toxic Substances Control (DTSC). These restrictions require notice and approval before any excavation activities or changes in land use take place.

### *Alameda Site*

The Alameda Site is approximately 19 acres of privately owned property with two warehouse buildings. The property is situated north of the western end of Mitchell Avenue (**Figure 2.2-2**). The north warehouse is approximately 140,000 square feet and contains four warehouse bays. The south warehouse is approximately 210,000 square feet and contains six warehouse bays. The warehouses stand on a pile-supported wharf, and unlike Howard Terminal, the Alameda Site has an existing bulkhead along the western shoreline that retains land. The warehouses are currently leased by Continental Terminals Annex as a storage facility for coffee beans. In addition, waterside areas adjacent to this property are leased by Centerline Logistics for berthing fuel barges (barges are non-motorized vessels, and a fuel barge is a tank barge used for transporting fuel) and tugs.

### *Berth 26*

Berth 26 is located within the 123-acre TraPac Terminal in the Outer Harbor (**Figure 2.2-2**). The landside area for Berth 26 is in TraPac's container handling and storage yard and is paved. Berth 26 is accessed from the TraPac Terminal entrance on Maritime Street.

### *Berth 10*

Berth 10 occupies approximately 4.4 acres on the northeastern end of the Outer Harbor (**Figure 2.2-2**). Berth 10 is used for rehandling[6] dredged material (dredged material generally consists of sediment that has settled at the bottom of the Bay or channel but may also include material that has been placed underwater such as rock for slope protection), including drying of the material, and loading it onto trucks for transport to disposal locations. Dredged material rehandling at Berth 10 is conducted in accordance with the Port's Berth 10 Dredge Material Re-handling Facility Maintenance and Operations Plan and is authorized by San Francisco Bay Conservation and Development Commission Permit No. M1992.041.13, the San Francisco Regional Water Quality Control Board Water Quality Certification for the Port's maintenance dredging program, and San Francisco Regional Water Quality Control Board Waste Discharge Requirement (WDR) Order No. R2-2013-0019. Berth 10 is accessed from Maritime Street via 17th Street. Only non-hazardous dredged material is permitted to be rehandled at Berth 10.

### *Inner and Outer Harbor Channels and Turning Basins*

The authorized width of the Inner Harbor Channel is 800 feet; the IHTB is approximately 1,500 feet in diameter and is located approximately 4.0 miles east of the Entrance Channel (**Figure 2.1-3**). The authorized width of the Outer Harbor Channel is 900 feet; the OHTB is approximately 1,650 feet in diameter, and is located approximately 2.3 miles northeast of the

[6] It is considered rehandling due to the material being "handled" or moved a second time, with the first time being when the material is initially dredged.

Entrance Channel (**Figure 2.1-3**).[7] The channels and turning basins were last improved to provide a water depth of 50 feet below the mean lower low water (MLLW)[8] and widened turning basins—a construction effort that concluded in 2009 (-50-Foot Project). Since the completion of the -50-Foot Project, routine dredging (removal of material from the bottom of the Bay or channel) has been conducted to maintain the authorized depth of -50 feet MLLW.

The Inner Harbor Channel and IHTB serve the Oakland International Container Terminal, Matson Terminal, Howard Terminal, and Schnitzer/Radius Recycling Terminal. Schnitzer/Radius Recycling is situated on private property between Matson Terminal and Howard Terminal. The Inner Harbor Channel also serves the shipyard in Alameda , passenger ferry route network, and the United States Coast Guard. The Outer Harbor Channel and OHTB serve the TraPac Terminal, Ben E. Nutter Terminal, and Outer Harbor berths, including Berth 10. The Inner and Outer Harbor Channels and Turnings Basins are also used for recreational boating by privately owned motorized and non-motorized pleasure craft.

## 2.3. PORT OPERATIONS

From 2014 through 2019,[9] approximately 1,500 container vessels[10] called (or visited) the Port each year. This includes both international and domestic vessels.[11] In 2020, 2021, and 2022, container vessel calls totaled 1,232, 848, and 817, respectively. Container vessels are serviced at one of the four active container terminals to service (or move) import and export container cargo between vessels and land. From 2014 through 2019, the average cargo throughput was 2.4 million TEUs each year. In 2020, 2021, and 2022, the cargo volume throughput was 2.5, 2.4, and 2.3 million TEUs, respectively.

Since 2009, there has been an almost even split between loaded imports and loaded exports (Appendix C [Economics] of USACE 2023). Most commodities passing through the Port include food and agricultural products due to its proximately to the Central Valley of California, followed by crude materials (pulp/wastepaper and scrap metal), apparel, furniture, consumer electronics, and manufactured electrical and mechanical equipment. Once a vessel is at berth (or dock), ship-to-shore cranes move the containers from the vessel to land. Once on land, equipment is used to move a container onto a truck for transport to its next destination: whether to an off-dock container storage yard, distribution warehouse, transloading facility, or railyard. Port operations, on average, include approximately 2 million round-trip truck trips[12] each year. Sections 2.3.1 and 2.3.2 describe waterside and landside activities in more detail.

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[7] Dimensions provided for the channels and turning basins refer to the federally authorized limits of the navigation channel.

[8] Mean lower low water refers to the water elevation of the lowest low tides averaged over a 19-year period.

[9] Representing five years of pre-COVID pandemic data.

[10] Container vessels here include conro vessels that are equipped to transport both containers and vehicles. Conro vessels calling the Port are predominantly domestic vessels from Hawaii, used predominately to transport container cargo, and serviced at Matson Terminal. Some non-containerized vehicles (i.e., personal automobiles and commercial trucks) are also serviced by conro vessels. Conro vessels accounted for approximately 1 to 3 percent of vessel calls for the years 2014 through 2019 (approximately 20 calls per year). In 2020, 2021, and 2023, the number of conro vessels that called the Port were 32, 50, and 52, respectively.

[11] Domestic vessels here consist predominately of conro vessels serviced at Matson Terminal (see previous footnote). Oakland International Container Terminal also has a domestic service line that includes one container vessel from Hawaii that calls the Port approximately one time per week.

[12] Average truck trips reported in the Port of Oakland Emissions Inventory for 5 years: 2005, 2012, 2015, 2017, and 2020, and includes both trucks going to and from the Port and internal trips to intraport warehouses and railyards.

## 2.3.1. Waterside

### *Vessel and Tugboat Activities*

The movement of vessels to and from a dock (or berth) requires pre-planning and in-time adjustments because schedule changes are common. Specifically, incoming vessels may need to navigate to a nearby anchorage in the Bay (referred to as anchoring, being at anchor, or as a location anchorage) or slow their approach for vessel traffic while waiting for a berth to be available. While waiting for a berth, vessels operate their diesel-fueled engines. When there are a higher number of vessels requiring berths, the likelihood of disruptions to the schedule increases. In contrast, transitioning to larger vessels that carry more cargo and require fewer visits to the Port, the scheduled arrivals, and available berths to accommodate these vessels can be planned with more certainty and less risk of delays requiring vessels to wait (leading to diesel engine emissions).

An individual vessel wait time depends on whether their assigned dock is available, whether the prevailing weather conditions permit a transit, and the availability of pilots, tugs, and terminal labor. With set terminal labor shifts to work vessels, it is common to witness multiple container vessels arriving and departing around the same time of day, primarily in the early morning or late afternoon. Today, vessels longer than a specific length are restricted in how and when they transit to and from a berth (see vessel maneuvering restrictions below), further contributing to inefficiencies and delays. Reducing maneuvering restrictions would enhance transit flexibility, leading to improved transit efficiencies and safety for vessels arriving and departing a berth in addition to reducing associated vessel air emissions, however, it does not change the number of containers the Port can service. By improving navigation efficiencies, vessels would also be able to berth sooner, thus connecting to shore power more quickly.

Vessels (this includes container and bulk vessels) are assisted by vessel-assist tugboats to maneuver to and correctly position at an anchor or a berth. These tugboats provide additional forces for maneuvering and positioning a vessel by pushing against it or by pulling it with the use of large tug lines (ropes). These tugboats are necessary because large vessels are unable to turn on their own in an area with limited space.

Once docked, a container vessel will typically plug into landside electric power (shore power) and turn off all engines. Circa 2012-2013, the Port installed landside improvements such as substations, switchgear, and vaults to make shore power available for vessels. The Port's shore power plug-in rate was 93 percent for the month of July 2023. This percentage is based on the number of vessels that plugged into shore power out of the total number of vessels that called the Port, including vessels that were not equipped to plug in or were unsuccessful in plugging in even though they were shore power equipped. The shore power overall plug-in rate from January through July 2023 was 83 percent. A more detailed description about vessel shore power at the Port is included in the environmental setting of Section 3.6, Energy.

### *Vessels that Call the Port*

The existing turning basins were last widened during the -50-Foot Project completed in 2009 by USACE and the Port. The original design vessel (circa 1998) for the -50-Foot Project was a vessel with an overall length of 1,139 feet and a carrying capacity of 6,500 TEUs.[13] This size vessel

[13] Other vessel characteristics including a 140-foot beam and 48-foot draft were also factored into the design of the turning basins at that time.

corresponds to a Post-Panamax Generation I (PPX1) vessel class based on length and TEU capacity. Therefore, the existing turning basins were designed to accommodate PPX1 and smaller vessels.

The PPX1 vessel—as well as the next-generation Post-Panamax Generation II (PPX2) vessel—refers to vessels that were too large to fit through the original Panama Canal and have a general carrying capacity of 9,300 TEUs and below. The two classes of vessels smaller than the PPX1 include the Sub-Panamax (smallest) and Panamax (next smallest), both vessels that fit through the original Panama Canal prior to its redesign in 2016 and both with a carrying capacity of generally 4,800 TEUs and below.

Following the PPX1 and PPX2, the next largest vessel class includes the Post-Panamax Generation III (PPX3), generally 15,000 TEUs and below, referred to as a "New Panamax" vessel that were designed to fit through the expanded Panama Canal locks, which opened in 2016. Finally, Post-Panamax Generation IV (PPX4) refers to those vessels that are too large to fit through the expanded Panama Canal (i.e., the "new" Post-Panamax vessels), with capacities above 15,000 TEUs—these vessels are also referred to as Ultra Large Container Vessels (ULCV). Although a PPX4 vessel has called the Port, they do so infrequently.

A summary of these vessel classes that regularly call the Port is provided in **Table 2.3-1**, listed in the order of size from smallest to largest with vessel class based on vessel length and TEU capacity.[14] This table also indicates which vessels are within the design parameters of the existing turning basins.

**Table 2.3-1 Container Vessel Class Summary**

| Class | Description | TEU Capacity (Minimum/ Maximum) | Overall Length (feet) | Within Design Parameters of the Existing Turning Basins? |
|---|---|---|---|---|
| SPX | Sub Panamax | <2,800 | 222 to 813.3 | Yes |
| PX | Panamax | 2,801 to 4,800 | 572 to 970 | Yes |
| PPX1 | Post-Panamax Generation I (Post-Panamax) | 4,801 to 6,800 | 661 to 1,045 | Yes |
| PPX2 | Post-Panamax Generation II (Super Post-Panamax) | 6,801 to 9,900 | 911 to 1,205 | No |
| PPX3 | Post-Panamax Generation III (New Panamax, or Ultra Post-Panamax) | 9,901 to 15,000 | Up to 1,220 | No |
| PPX4 | Post-Panamax Generation IV (New Post-Panamax) | 15,001+ | 1,295 to 1,315 | No |

Source: Summarized from Table 2-8 of Appendix C, Economics, of the April 2023 *Revised Draft Integrated Feasibility Report and Environmental Assessment (USACE 2023)*.

Note: TEU = a unit representing a 20-foot-long container

[14] Other distinguishing characteristics between vessel classes include vessel design draft, beam, and speed.

**Table 2.3-2** provides a summary of the number of container vessel calls to the Port by vessel class from 2014 through July 2023, and total vessel calls and TEU throughput for each year.

**Table 2.3-2 Vessel Calls to the Port by Vessel Class and Annual Cargo Throughput**

| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | July 2023 |
|---|---|---|---|---|---|---|---|---|---|---|
| SPX | 109 | 244 | 283 | 266 | 258 | 175 | 191 | 204 | 271 | 102 |
| PX | 485 | 280 | 311 | 234 | 165 | 140 | 141 | 113 | 113 | 52 |
| PPX1 | 518 | 425 | 522 | 500 | 516 | 352 | 257 | 144 | 133 | 90 |
| PPX2 | 273 | 287 | 405 | 446 | 413 | 374 | 436 | 225 | 181 | 167 |
| PPX3 | 174 | 177 | 204 | 152 | 191 | 210 | 203 | 157 | 118 | 129 |
| PPX4 | 0 | 1 | 2 | 0 | 0 | 0 | 4 | 5 | 1 | 2 |
| **Total Calls** | **1,559** | **1,414** | **1,727** | **1,598** | **1,543** | **1,251** | **1,232** | **848** | **817** | **542** |
| **Annual Throughput (million TEU)** | **2.4** | **2.3** | **2.4** | **2.4** | **2.5** | **2.5** | **2.5** | **2.4** | **2.3** | **1.1** |

Notes: Table includes all containers vessels, both international and domestic, except for the year 2014, which does not include domestic vessels (due to data not being available); data for 2023 is from January through July 2023.

TEU = a unit representing a 20-foot-long container

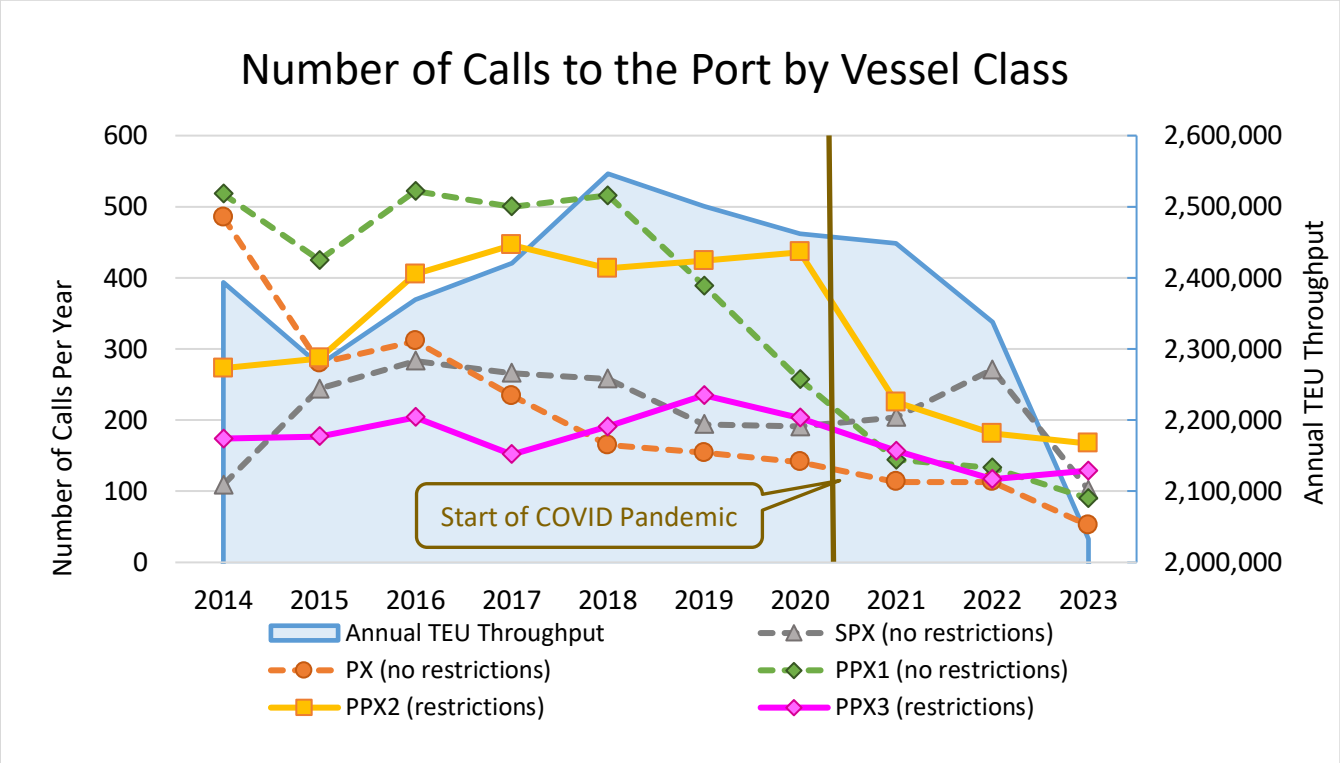
Source: Port data, 2023

**Figure 2.3-1** shows vessel calls by vessel class from 2014 through July 2023. PPX4 vessels are not included due to PPX4 vessels calling the Port infrequently.

From 2014 through 2019 (prior to the COVID-19 pandemic), the following were observed: a downward trend in the number of calls from smaller vessels (SPX, PX, and PPX) that have no restrictions in using the existing turning basins; and a steady and slightly upward trend in vessel calls from larger vessels (PPX2 and PPX3) that currently have restrictions in using the existing turning basins. The PPX4 vessels, which have the greatest number of restrictions, have called the Port infrequently with no distinguishing trend.

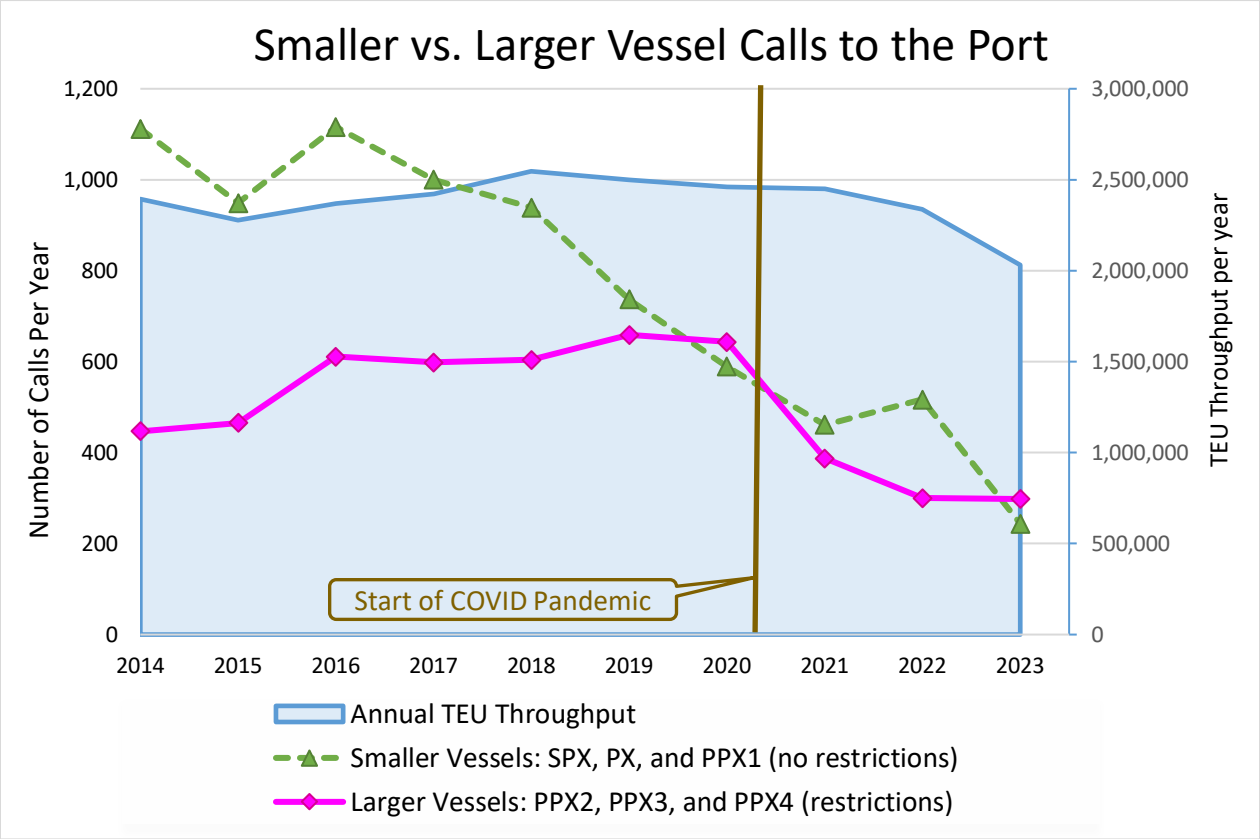
From 2020 through 2022, SPX calls increased due to the extremely high demand for container shipping services during the COVID-19 pandemic; during this time, cargo owners and ocean carriers looked to SPX charters to move their cargo, because other smaller vessels (PX, PPX, and PPX2) were in use. Although SPX vessel calls increased after 2020, PX and PPX1 calls have continued their downward trend, similar to decreases in vessel calls from larger PPX2 and PPX3 vessels, which may be attributed to adjustments from the COVID pandemic as well as the general industry trend of fewer larger vessels moving the same amount of cargo. As also shown in **Table 2.3-2**, the amount of cargo serviced at the Port has remained generally steady despite a significant decrease in the number of total vessels calling the Port. **Figure 2.3-2** provides the same data as **Figure 2.3-1**, with vessel classes grouped by smaller vessel classes (SPX, PX, and PPX1) that have no restrictions to use the existing turning basins, and larger vessel classes (PPX2, PPX3, and PPX4) that have restrictions to use the existing turning basins.

**Figure 2.3-1 Vessel Calls to the Port by Vessel Class**




Notes: Dashed lines are the smallest vessel classes (SPX, PX, and PPX1) that have no restrictions to use the existing turning basins. Solid lines are the larger vessel classes (PPX2 and PPX3) that have restrictions to use the existing turning basins. Chart does not include the largest vessel class (PPX4) that call the Port infrequently. Chart includes all container vessels both international and domestic, except for the year 2014**,** which does not include domestic vessels. For 2023, vessel data are from January through July 2023; TEU throughput was based on a projection through the end of the year, which in turn was based on TEU throughput from January through July 2023.

**Figure 2.3-2 Smaller vs. Larger Vessel Class Calls to the Port**




Notes: Dashed lines represent the combined total calls from smaller vessel classes (SPX, PX, and PPX1) that have no restrictions to use the existing turning basins. Solid lines represent the combined total calls of the larger vessel classes (PPX2, PPX3, and PPX4) that have restrictions to use the existing turning basins. Chart includes all container vessels both international and domestic, except for the year 2014 which does not include domestic vessels.

The smaller vessel classes are trending downward, except from 2021 to 2022, due to the extremely high demand for container shipping services during the pandemic. Similar to the previous figure, the larger vessels (PPX2, PPX3, and PPX4) vessels showed a steady and slightly increasing trend until 2020 through 2022 when there is a decreasing trend.

**Table 2.3-3** shows the percent of vessel calls that called the Port by smaller versus larger vessels. From 2014 through 2020, the percentage of smaller vessel classes decreases every year with exceptions in 2021 and 2022 due to unprecedented disruptions in the global maritime industry during the COVID-19 pandemic.

**Table 2.3-3 Smaller vs. Larger Vessel Class Calls to the Port—Percent of Total**

| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | July 2023 |
|---|---|---|---|---|---|---|---|---|---|---|
| Smaller Vessels (no restrictions) | 71% | 67% | 65% | 63% | 61% | 53% | 48% | 54% | 63% | 45% |
| Larger Vessels (restrictions) | 29% | 33% | 35% | 37% | 39% | 47% | 52% | 46% | 37% | 55% |

Notes:

Smaller vessels = SPX, PX, and PPX1 vessel classes

Larger vessels = PPX2, PPX3, and PPX4 vessel classes

2023 data is from January through July 2023.

### *Vessel Maneuvering Restrictions*

As introduced above, for use of the turning basins, the length of a vessel is the primary limiting factor, because the entire vessel's length must be able to maneuver within the basins. Design criteria for determining the width of a turning basin includes the vessel's length, space requirements for assist tugs working around the vessel, water movement, and safety considerations related to the interaction between environmental conditions (currents, waves, and wind) and a vessel. For this reason, the industry standard for turning basins is to provide a minimum of 20 percent of the vessel's length on either side (bow and stern) as a buffer (San Francisco Bar Pilots 2023a). The width of the existing turning basins cannot accommodate the minimum 20 percent industry standard for larger vessels, and specific restrictions are in place for all vessels that are longer than 1,115 feet transiting the Oakland Harbor and requiring use of the turning basins (San Francisco Bar Pilots 2023b).

These restrictions include scheduling transits around specific tide, current, and wind conditions, limiting transiting to daylight hours, an additional pilot, and using a required number of vessel-assist tugs in accordance with specific horsepower requirements. Waiting until these conditions (some of which, such as the tides, can occur as little as twice a day) are met can delay vessels from transiting. In addition, vessels in the IHTB have the added difficulty of counteracting the effects of a narrow turning basin, including the drift caused by the channel's natural current. While midturn, vessels are perpendicular to the current and act like a dam.

Additionally, vessels longer than 1,210 feet (corresponding to some PPX3 and all PPX4 class vessels) that need to berth at terminals located in the Inner Harbor are not permitted to use the IHTB for turning due to their length and are restricted to docking portside only with their bow

[front] pointed east. This restriction could impact the ability for a vessel to use shore power (the primary compliance option to reduce emissions at berth) and decrease a vessel's ability to depart in an emergency because they are required to be towed out of the Inner Harbor Channel stern end (back of the vessel) first, before turning and departing.

The PPX4 or ULCV has additional restrictions to use both the Inner and Outer Harbor, but particularly, the Inner Harbor. PPX4 vessels typically range from 1,295 to 1,315 feet in length; therefore, they require additional tugs, pilots, and specific schedules to maneuver. Additionally, large tides and resultant strong currents can cause navigation issues for larger vessels transiting to and from Oakland's harbors. **Table 2.3-4** provides a summary of restrictions by vessel class.

**Table 2.3-4 Vessel Classes that Call the Port and Vessel Restrictions Summary**

| Vessel Class | TEU Capacity (Minimum/ Maximum) | Overall Length (feet) | Additional Restrictions for Use of the Existing Turning Basins |
|---|---|---|---|
| SPX | <2,800 | 222 to 813.3 | No restrictions |
| PX | 2,801 to 4,800 | 572 to 970 | No restrictions. |
| PPX1 | 4,801 to 6,800 | 661 to 1,045 | No restrictions. |
| PPX2 | 6,801 to 9,900 | 911 to 1,205 | Vessels longer than 1,115 feet: Tide, current, wind, tugboat, and daylight restrictions with an additional pilot. |
| PPX3 | 9,901 to 15,000 | Up to 1,220 | Vessels longer than 1,115 feet: Tide, current, wind, tugboat, and daylight restrictions with an additional pilot.<br>Vessels longer than 1,210 feet at the IHTB: cannot use the existing IHTB to turn around, must dock portside only, and must leave by backing out. |
| PPX4 | 15,001+ | 1,295 to 1,315 | Tide, current, wind, tugboat, and daylight restrictions.<br>Inner Harbor: cannot use the existing IHTB to turn around, must dock portside only, and must leave by backing out. |

Note:

TEU = a unit representing a 20-foot-long container

Current inefficiencies and delays associated with larger vessels can range from an additional one to two hours while in transit to several days waiting for an arrival or departure window, which can lead to further cascading delays for other vessels calling the Seaport, thereby increasing both transportation costs to, and air pollutant emissions from, all impacted vessels. Further, the limited width of the turning basin increases the potential of groundings or allisions (contact with a structure) during the turning of larger vessels, which are inherently more

difficult to maneuver against the external forces applied by winds, waves, and currents, and could result in safety and environmental risks, such as oil spills.

### *Other Waterside Activities*

Refueling of vessels while at berth (called a bunkering event) is an activity that commonly takes place at the Port. A bunkering event is accomplished by pumping fuel from a fuel barge to a vessel while at berth. In 2020, 239 bunkering events occurred. During these events, a fuel barge is towed approximately 10 nautical miles from Richmond, California to the Port and either returns to Richmond the same day or stays at the Port or at nearby Treasure Island if the bunkering event will take place over several days.

The Seaport's navigational waterways are maintained, or dredged, to facilitate vessel access to the various terminals. The USACE dredges the channels and turning basins annually. The Port dredges berths (majority of which are maintained to -50 feet MLLW), which are the areas directly adjacent to the wharf structure at each terminal. Each year the Port dredges between 12 and 22 berths that are selected based on lease commitments and the amount of sediment that has accumulated over the past year. Berths 67 and 68 are adjacent to Howard Terminal and are permitted to a depth of -42 feet MLLW.

## 2.3.2. Landside

### *Terminal Cargo Handling Activities*

The Port is a landlord port, which means it leases land to companies, often referred to as marine terminal operators (or terminal operators), who directly manage transferring containers between transportation modes, including water, land, and rail. Annual throughput capacity (the total number of containers that can be moved in a year as constrained by available resources) between all four active container terminals is over 2 million TEUs (see **Table 2.3-2** above). These four active container terminals are currently operating on less acreage than historically used in the Port when a greater number of terminal facilities were active. The Port's total available acreage for container terminal operations remains unchanged; therefore, when market conditions require, acreage formerly used for container terminal operations can be restored.

Physical constraints of marine terminals include berth length, berth depth, and the useable land area of a terminal, all which are unchanged by the Proposed Project. Berth length of a marine terminal dictates berth capacity or the number of vessels that can be serviced simultaneously based on the length of the vessels. Longer vessels require more berth length to dock. For example, the Port's largest container terminal, Oakland International Container Terminal, was designed to accommodate up to five smaller PPX1 container vessels at one time with a total berth length of 6,000 feet. As vessels increase in length, the number of vessels the Oakland International Container Terminal can service in the same period of time decreases.

Although the overall size of the terminal is a constraint, container terminal operations have transitioned, and continue to transition, to a more densified operation which includes such methods as placing containers on the ground and in sorted piles (including the stacking of containers), which has replaced early day terminal operations where containers were staged and mounted on an over-the-road chassis (which does not allow for stacking of containers) in dedicated parking stalls. This operational shift has also introduced appointment systems to

manage container pickup and delivery by trucks. These appointment systems are maintained and managed by the individual terminal operators to moderate transactions (e.g., hourly truck arrivals to a terminal) in accordance with available equipment and staffing.

The cranes available to load and unload containers from a vessel, known as ship-to-shore gantry cranes, are electrified, and the total number of operational cranes at the Port has not changed since 2011. However, in response to larger vessels, modifications and replacements have occurred in recent years to increase crane height and outreach.[15] Power availability, vessel size, and the simultaneous berthing of vessels determines how many cranes are available to service a vessel. In addition, the use of additional cranes to service more total containers per hour is limited by the number of cranes available per marine terminal (e.g., currently a total of 25 cranes are in service: four at Ben E. Nutter Terminal, four at Matson Terminal, seven at TraPac Terminal, 10 at Oakland International Container Terminal), power availability, spacing needed between cranes, vessel size, and the simultaneous berthing of vessels. Typically, two to four cranes are used to service most vessels. At the Oakland International Container Terminal, three cranes were used at one point to service a 1,200-foot vessel. There is, however, a physical limit on how many cranes can be used for a single vessel given the width and spacing needed between cranes. Further, the additional width of larger vessels can require additional time to move containers to and from a vessel. With these constraints, larger vessels require more time at berth to be worked compared to smaller vessels.

As generally the second port of call on the West Coast, vessels that call the Port usually have already unloaded a greater number of import containers at their first port of call (e.g., Los Angeles/Long Beach or the Northwest Seaport Alliance [includes Ports of Seattle and Tacoma]). Therefore, in comparison to first ports of call, the Port serves a much smaller number of loaded import containers. Vessels that call the Port have been shown to have an average call utilization of 25.9 percent, meaning 25.9 percent of a vessel's total capacity is serviced (i.e., includes both discharged and loaded containers) while at the Port (The Tioga Group and Hackett Associates 2020). Larger vessels have also shown to have less call utilization compared to smaller vessels although the number of containers being serviced may be more.

Rail trackage is another constraint that limits the amount of rail cars and locomotives that can be accommodated at any given time.

### *Truck and Rail Activities*

The primary factor that impacts the number of trucks in a marine terminal at any one time is whether a terminal gate is open or closed (e.g., lunch period, weekend, or holiday). Terminal operators determine gate hours.

Port tenant operations at the Seaport have evolved and continue to adapt to improve freight movement efficiencies by modernizing and optimizing terminal infrastructure and leveraging advances in technology and communication systems. As introduced above, ocean carriers, marine terminal operators, trucking companies, and third-party logistics firms use advanced appointment systems to coordinate the pickup and delivery of a container; information is pre-loaded to

[15] In 2018, the Port raised two cranes at the Oakland International Container Terminal to accommodate larger vessels calling the Port. In 2021 a total of four large cranes capable of serving PPX4 class vessels were constructed: three at the Oakland International Container Terminal and one at the Ben E. Nutter Terminal. All four cranes replaced four existing cranes that were later demolished by the Port.

expedite both the pickup and delivery processes, which are scheduled to the predicted arrival and departure of vessels. Appointment systems allow efficient labor planning to help reduce hourly traffic on traveled roadways by managing the quantity of trucks allowed per hour, thereby eliminating uncontrolled surge volumes (when volume exceeds available labor and equipment). Additionally, gate hours have been extended with nighttime open hours to increase availability of total appointments, and to spread out deliveries throughout the day.

The Port, in partnership with the Alameda County Transportation Commission, is installing a series of information technology (IT) improvements called the Freight Intelligence Transportation System (FITS) within the Seaport as part of a larger suite of programs collectively referred to as the "GoPort Program" to add transparency and efficiencies for Seaport traffic management. Once FITS installation and commission are complete (anticipated early 2024), the Port will commence a five-year pilot program to operate the system. FITS will use radio frequency identification device technology, smart cameras, automated traffic signal systems, changeable message signs, and various other IT improvements to optimize traffic, improve real-time communication flow, and provide increased security. During the pilot program and thereafter, the Port will evaluate its effectiveness for continuing its use. Also, as part of the GoPort Program and in partnership with the Alameda County Transportation Commission, a new grade separation along 7th Street is planned for construction ("7SGE Project"). Construction of the 7SGE Project is scheduled to commence in late summer 2023. The 7SGE Project will improve safety, efficiency, and reliability of truck and rail access to the Seaport along 7th Street, one of the three primary entry routes (the other entry routes being West Grand Avenue to the north and Adeline Street to the south) into the Seaport. The 7SGE Project will realign 7th Street and replace an existing railroad underpass between I-880 and Maritime Street to increase clearance for trucks and improve the shared pedestrian/bicycle pathway that will be separated from vehicular traffic.

The Seaport connects to three main freeways, including I-80, I-880, and State Route 24, with three primary access gateways: West Grand Avenue, 7th Street, and Adeline Street. These direct routes to highways allow trucks to quickly access or depart the Seaport. Local truck trips in the City of Oakland, and in particular West Oakland, and the City of Alameda must comply with designated truck routes (and related parking) in each respective jurisdiction. This includes the recently updated truck parking restrictions in West Oakland that were implemented through the West Oakland Truck Management Plan.

In addition, freight is also transported to and from the Port by rail. The Seaport's railyards are near-dock terminal facilities (separated from marine terminal facilities by a roadway and security fencing) that require a short over-the-road truck trip (known as a land-bridge move) from rail terminal to marine terminal. The Seaport includes two active railyards, the Port's Joint Intermodal Terminal operated by the Burlington Northern Santa Fe (BNSF), and the Oakland Intermodal Terminal owned and operated by UPRR. In 2016 (the most recent comprehensive year for rail data) the BNSF handled 7 percent and UPRR handled 8 percent of the Port's total volume, for a total of 15 percent moved by rail. For the BNSF, between 2016 and 2022, the average of rail cargo moved as a percent of the Port's overall total was 6 percent. The UPRR does not publish or provide volume data for its Oakland Intermodal Terminal.

### *Surge Cargo Management*

The Port's terminal operators routinely manage and control surge or pulse cargo volumes. During years that can be considered more typical,[16] an annual pattern of higher cargo volume takes place in the months of July, August, September, and October in preparation for the end of year holiday season and its associated higher consumer spending. The Port experiences an average increase of cargo volume of 7.2 percent (this includes all container volume, equivalent to approximately 14,000 more TEUs serviced) during these months than during non-surge months.[17] In addition, in the month preceding the Chinese New Year, cargo volume increases in advance of Chinese factories closing for the holiday. In these surge scenarios, the following are employed to control cargo surges:

- Terminal gate times are extended to include additional night and weekend hours;
- Chassis fleets are repositioned in advance to match the anticipated imports;
- Dockworkers are scheduled in advance; and
- The number of trucker appointments and hours of operation are optimized (such as requiring only dual transactions) to match the dockworker and equipment availability to load containers onto trucks.

More specific pre-planning tasks in anticipation of receiving a large cargo volume may include:

- Assessing the availably of space along rubber-tired gantry crane (RTG) lanes (or runs) so that upon arrival, containers can be immediately transported to these areas where later, an RTG crane, which provides the most efficient way of sorting through containers, will efficiently sort through containers within its lane to find and deliver a specific container to a truck when the truck arrives; and
- Identifying any groups of "free flow" containers from a vessel that will be transported to the same destination. For example, more than 100 containers from a vessel may all be designated to go to the same distribution center or railyard. If "free flow" containers are identified, they are placed in a "free flow" container pile that is located outside of an RTG lane. Instead, since each "free flow" container can be placed indiscriminately onto a truck going to the same destination, a top-pick handler is planned to load indiscriminately each "free flow" container from a "free flow" pile onto trucks. This type of container sorting and pile is one of the most efficient methods of moving containers. If planned, truck appointments and hours of operation would be optimized to match the anticipated top pick productivity rate and duration needed to complete moving the "free flow" pile.

## 2.4. PROPOSED PROJECT OBJECTIVES

The purpose of the Proposed Project is to provide navigational improvements that address inefficiencies and suboptimal conditions currently experienced by vessels in the Oakland Harbor. Transportation inefficiencies and high-risk transits occur when channels and maneuvering areas do not fully accommodate the vessels using them, and result in cascading effects on economic, environmental, and safety considerations. As described above regarding maneuvering restrictions, current container vessels calling the Port exceed the maximum dimensions of the constructed

[16] Based on years 2015 through 2019.
[17] Non-surge months include January through June and the months November and December.

turning basins. The existing turning basins were designed and constructed for a 6,500 TEU container vessel with a 1,139-foot length, 140-foot beam (width), and 48-foot draft (how deep the boat is under the water). The vessels transiting in the Oakland Harbor today are longer, wider, and can sit deeper than the design vessel that last served as the basis for improvement of the Oakland Harbor. The limiting factor that has resulted in transit restrictions and inefficiencies is the existing width of the turning basins. These inefficiencies are projected to not only continue, but to increase in the future because longer vessels are expected to transit the Oakland Harbor with greater frequency for a variety of reasons, including anticipated economic growth, other west coast port waterway improvement design criteria, fleet turnover, and projected world fleet production (Appendix C [Economics] of USACE 2023).

### *Proposed Project Objectives*

Section 15124(b) of the CEQA Guidelines requires an EIR to include a statement of objectives sought by the Proposed Project. The objectives assist the Port, as lead agency, in developing a reasonable range of alternatives to be evaluated in the EIR. The project objectives also aid decision-makers in preparing findings, or if necessary, a statement of overriding considerations.

The objectives of the Proposed Project are to:

- Optimize transit efficiencies for commercial deep draft vessels across the entire Seaport for both the current and the projected increase in the frequency of calls to the Seaport by longer vessels;
- Maintain the Port's competitiveness as the principal ocean gateway for international cargo shipments in Northern California;
- Improve flexibility for commercial deep draft vessels calling the Seaport to connect to shore power to reduce their emissions while at berth, in alignment with the Port's vision of a zero emissions Seaport;
- Improve conditions for vessel maneuvering and safety, including reducing environmental risk associated with existing maneuvering limitations; and
- Modernize essential waterway infrastructure to fully accommodate the projected fleet mix of vessels calling the Seaport.

## 2.5. PROPOSED PROJECT

The Proposed Project involves widening both the IHTB and OHTB to accommodate a vessel that is 1,310 feet long and 193 feet wide, with an estimated cargo capacity of 19,000 TEUs. Section 2.5.1 provides a summary description of the proposed landside and waterside improvements needed to widen both turning basins. Section 2.5.2 provides information regarding the construction schedule. Section 2.5.3 describes construction methods. Section 2.5.4 describes proposed staging areas, equipment to be used, and access. Section 2.5.5 describes operations and maintenance activities associated with the Proposed Project.

The Proposed Project is designed to improve both vessel transit efficiencies and navigational safety in the Oakland Harbor. The Proposed Project is not a development project that removes a barrier to growth, shifts cargo from one port to another, or increases the Port's container handling capabilities. It is assumed that the economic variables that directly influence economic growth

and subsequent demand for Port services remain constant under the Proposed Project and future conditions without the Proposed Project (The Tioga Group and Hackett Associates 2020); therefore, the Port's total projected volume serviced would remain the same with and without widening of the turning basins.

Throughput is the amount of cargo that can pass through a port, and for a container port, this is generally measured in TEUs. A port's maximum practical throughput is called the terminal's capacity (and for container terminals, its container handling capacity), which is how much cargo (or containers) the terminal could service given its size, configuration, and equipment. A terminal's capacity is limited by either the number of vessels it can accept ("berth-constrained'), or by how much cargo its landside facilities (e.g., container yard, truck gate) can service ("yard-constrained").

Much like widening a lane on a roadway to safely accommodate wider vehicles does not increase its vehicular handling capacity (i.e., allowing more cars to transit through the roadway), widening the turning basins to accommodate longer vessels does not change the Port's container handling capacity (i.e., the number of containers that can move through the Seaport). Widening the turning basins would not change the number of vessels able to berth, nor would it change the constraints of the yard. The Proposed Project does not include landside improvements to increase the Port's cargo (or container) handling capacity; and as a result, the Port's capacity remains constant with this Proposed Project.

Current landside operations include an appointment system and a comprehensive truck management plan to aid in the administration of cargo movement inside the Port. The Proposed Project does not include plans to modify these systems, which are designed to enhance and support efficiencies in container deliveries and pickups (e.g., truck movements), thereby aiding to reduce truck-related emissions on the local community.

Although the Proposed Project would increase efficiencies in waterside operations, it does not expand or create new landside cargo handling facilities at the Port and would not increase cargo throughput. Therefore, landside operations following widening of the turning basins are assumed to remain consistent with existing conditions. Additional discussion of factors that influence throughput at the Port, including economic forces and regional, national, and international goods movement, is included in the analysis of the Proposed Project's potential growth-inducing impacts, presented in Section 6.3 of this Draft EIR.

### 2.5.1. Overview of Proposed Improvements and Construction Activity by Location

Expansion of the IHTB consists of widening the existing IHTB an additional 334 feet—from 1,500 feet to 1,834 feet—with a depth of -50 feet MLLW, consistent with the existing depth of the IHTB. In addition to in-water work via dredging to widen the IHTB, landside property would be removed in two locations: Howard Terminal and the Alameda Site (**Figure 2.5-1** and **Figure 2.5-2**).

The OHTB would be widened an additional 315 feet—from 1,650 feet to 1,965 feet—with a depth of -50 feet MLLW, consistent with the existing depth of the OHTB. **Figure 2.5-3** shows the proposed widened OHTB relative to the current limits of the navigation channel. Widening the OHTB would be conducted via dredging and does not require the removal of landside property.

The improvements and modifications that would occur are described below for each location.

**Figure 2.5-1 Proposed Widening of Inner Harbor Turning Basin**

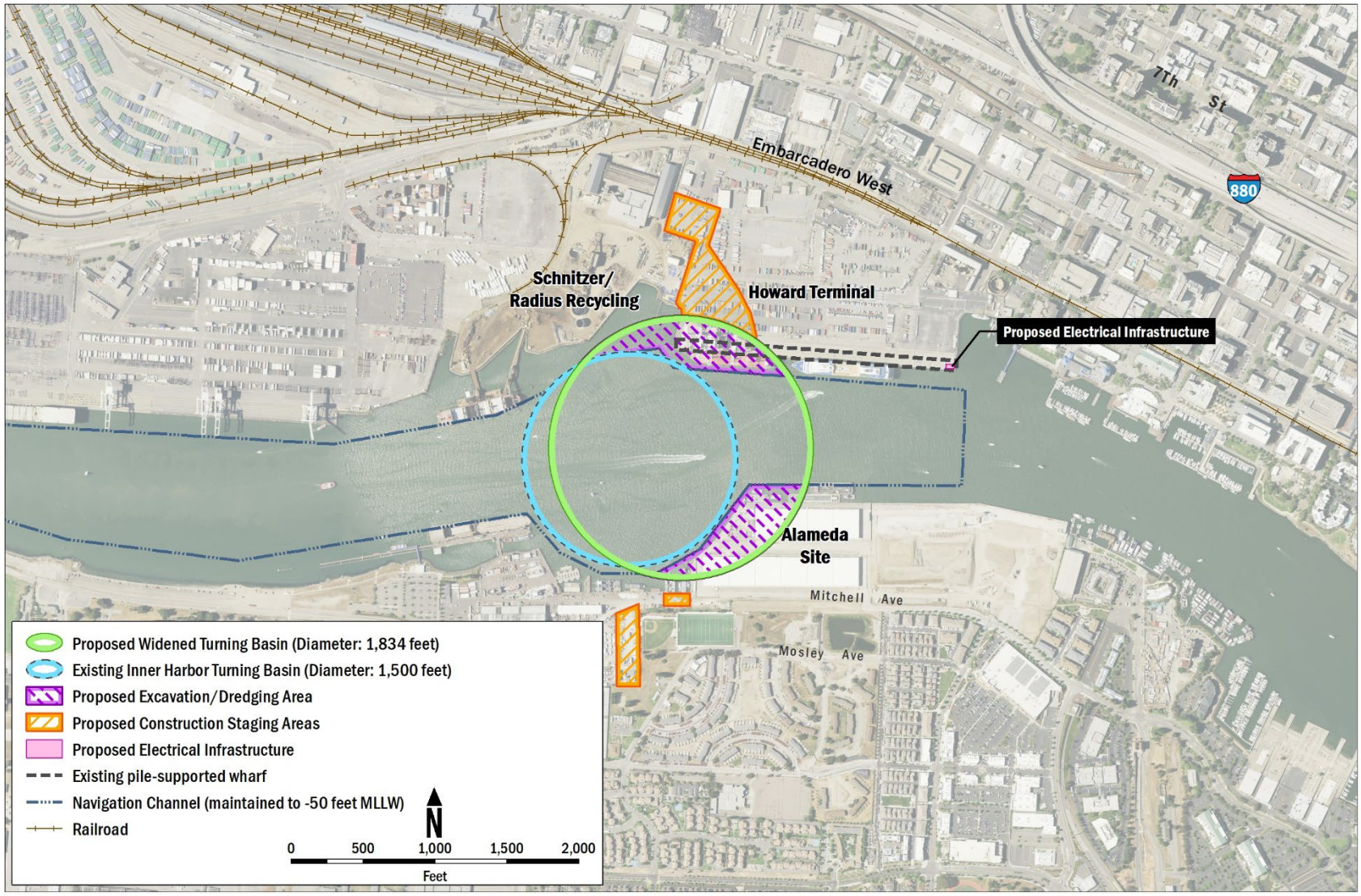


**Figure 2.5-2 Location of New Bulkheads at Inner Harbor Turning Basin**

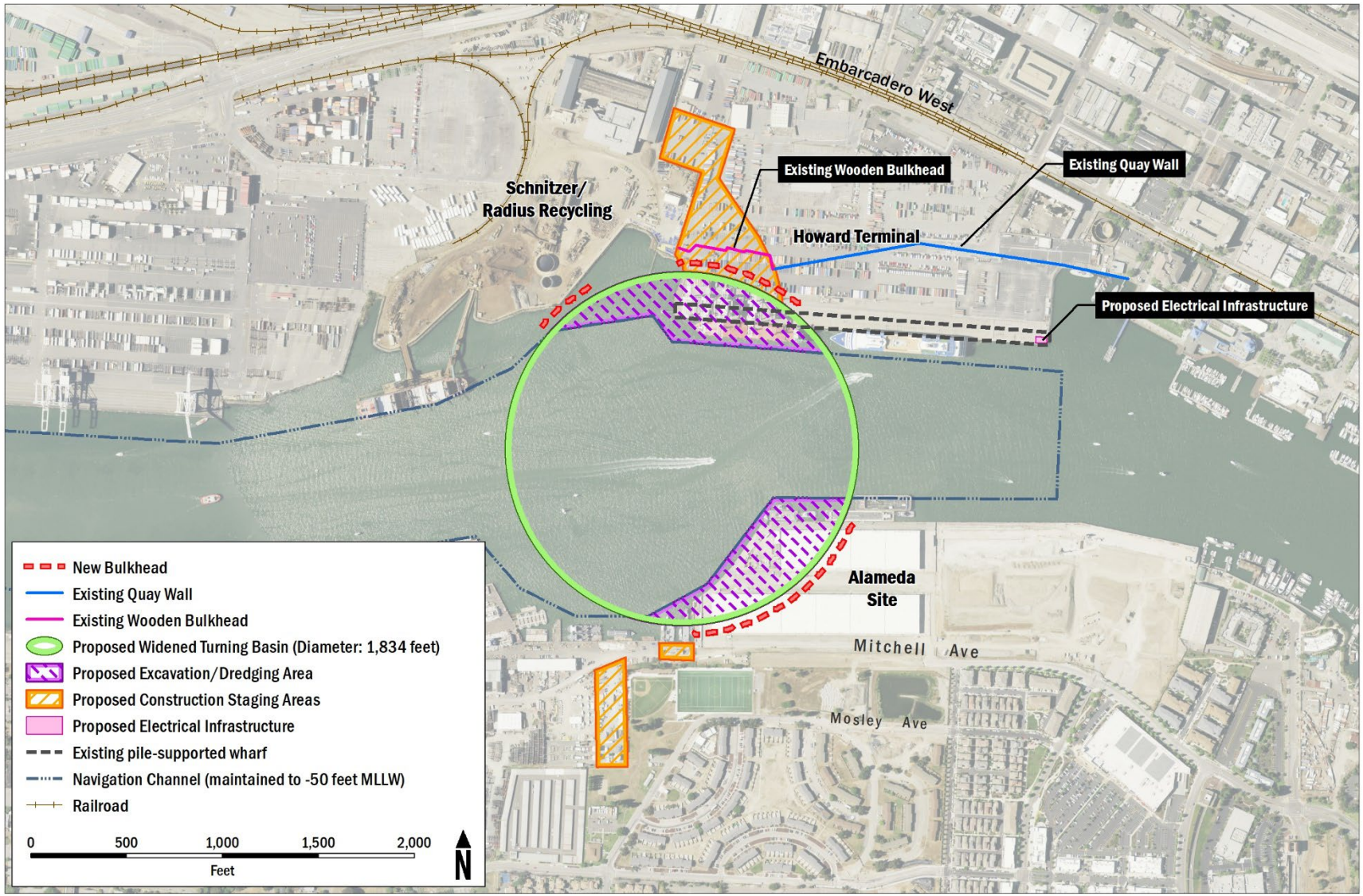
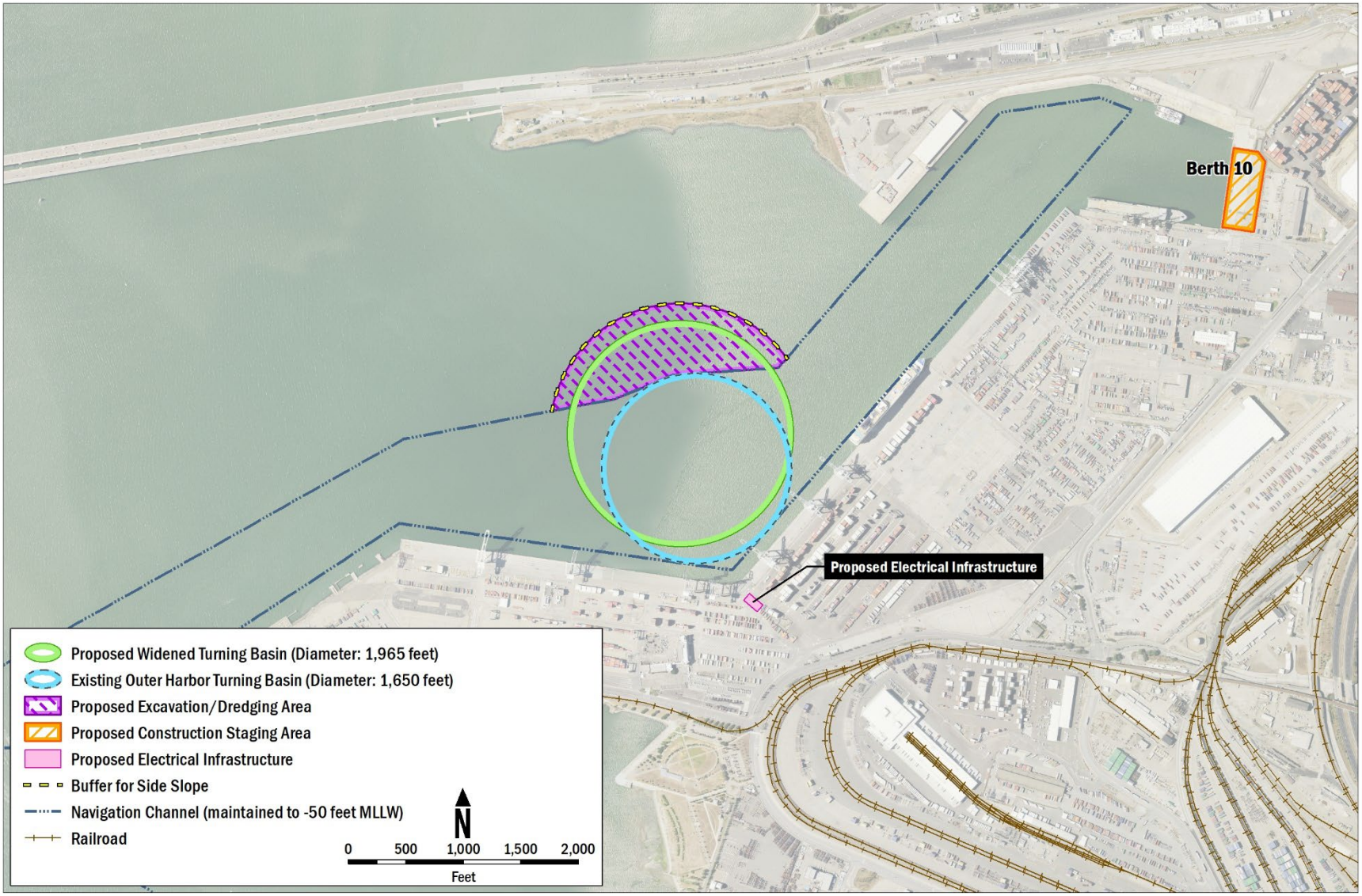


**Figure 2.5-3 Proposed Expansion of Outer Harbor Turning Basin**



### *Howard Terminal*

To widen the IHTB, approximately 4 acres of the southwestern corner of Howard Terminal would be removed, and approximately 850 linear feet of new bulkhead would be constructed along the proposed modified shoreline. Activities would include the demolition and removal of the existing asphalt pavement and concrete deck of the existing wharf structure, followed by the installation of a new bulkhead (**Figure 2.5-2**). Construction of the new bulkhead is assumed to include driving down approximately 70-foot-long sheet piles and 115-foot-long batter piles, most of which would be driven down landside with an estimated 10 percent of the piles for the new bulkhead installed through water (and considered in-water work). In addition, a concrete cap would be installed at the top of the sheet piles and batter piles. Concurrent with installation of the new bulkhead, piles that supported the demolished wharf structure would be removed. Approximately 24,900 cubic yards of landside soil would then be excavated between the new bulkhead and existing rock dike. Following installation of the new bulkhead and completion of landside excavation, approximately 244,200 cubic yards of material located below water would be dredged,[18] including a portion of the existing rock dike. Lastly, approximately 8,400 cubic yards of rock would be installed in the front of the new bulkhead for slope protection. The new bulkhead and rock slope protection would be similar to the typical section shown on **Figure 2.2-1**. Construction methods are further described in Section 2.5.3.

Dredging would be performed with an electric-powered dredge connected to existing electrical infrastructure adjacent to the Alameda shoreline or to electrical infrastructure that would be installed at Howard Terminal near Berth 68. A new lineup of electrical switchgear would be installed near the southeast corner of the Berth 68 wharf; no electrical improvements would be required outside the Seaport. This new switchgear lineup would be powered from the nearest existing substation, Substation SS-E-72, which is at the eastern edge of Berth 68, set back approximately 230 feet from the face of the wharf. The new switchgear lineup would be the connection point where the dredging operator would draw power to be used for the electrical dredging activities. This new switchgear lineup would allow the Port to control, isolate, and meter the power used during dredging activities. A switchgear lineup consists of an overall metal enclosure containing circuit breakers, switches, fuses, relays, current transformers, potential transformers, control power transformers, indicating instruments, panelboards, control panels, and other devices that together are referred to as "switchgear" or a "switchgear lineup." The switchgear would be smaller in height and dimensions than the closest existing substation, SS-E-72. The dredging operator would supply their own 12.47 kilovolt cable and terminations to directly connect to the Port's new switchgear lineup. These cables would then be connected to the dredging operator's on-board electrical equipment. This on-board electrical equipment would control the power used during dredging activities.

Existing utilities that would be impacted by the IHTB widening footprint (i.e., the area that would be excavated or dredged to widen the turning basin, or the construction footprint), such as electric, gas, water, storm drainage, and sanitary sewer, would be cut and capped and/or relocated in the remaining landside area of Howard Terminal, as needed. Site alterations may also include removal, replacement, or redesign of drainage infrastructure such as curbs and gutters resulting from upland excavation and reconfiguration of the shoreline. Specific utility replacement/relocation needs would be identified and addressed during the Proposed Project pre-construction engineering and design phase.

[18] Dredging is the removal of sediment and debris from the bottom of harbors, lakes, rivers, and other water bodies.

### *Alameda Site*

At the Alameda Site, widening of the IHTB would require partial demolition of the western portions of two existing warehouse buildings, estimated to impact two bays (out of an existing four bays) in the north building and three bays (out of an existing six bays) in the south building. Approximately 6 acres of the western side of the property would be removed, and approximately 1,200 linear feet of new bulkhead would be constructed along the proposed modified shoreline. Similar to Howard Terminal, the Alameda Site modifications would include demolition and removal of asphalt and concrete pavement of the existing wharf structure, installation of a new bulkhead along the proposed modified shoreline edge (**Figure 2.5-2**), removal of piles that supported the demolished wharf structure, and excavation of approximately 159,900 cubic yards of landside soil (for the Alameda site, this excavation would occur between the new bulkhead and the existing bulkhead). Construction of the new bulkhead would be similar to Howard Terminal, using approximately 70-foot-long sheet piles and 115-foot-long batter piles, with an estimated 10 percent of piles for the new bulkhead installed through the water. In addition, a concrete cap would be installed at the top of the sheet piles and batter piles. Following installation of the new bulkhead and completion of landside excavation, the existing bulkhead would be removed, and approximately 493,100 cubic yards of material located below water would be dredged. Lastly, approximately 11,700 cubic yards of rock would be installed in the front of the new bulkhead for slope protection. Dredging would be performed with an electric-powered dredge connected to existing electrical infrastructure adjacent to the Alameda shoreline or to electrical infrastructure that would be installed at Howard Terminal near Berth 68. Construction methods are further described in Section 2.5.3.

Similar to Howard Terminal, existing utilities at the Alameda Site that would be impacted would be cut and capped, and/or relocated in the remaining landside area of the Alameda Site. Specific utility replacement/relocation needs would be identified and addressed during the Proposed Project pre-construction engineering and design phase.

### *Inner Harbor Waterway*

Activities in the Inner Harbor Waterway, in addition to those occurring at Howard Terminal and the Alameda Site, would include installation of a bulkhead structure and dredging. An approximately 300- to 400-foot-long bulkhead, all of which would be under water, is assumed to be required between the northwestern portion of the IHTB footprint and Schnitzer/Radius Recycling Terminal to ensure that widening the IHTB does not compromise the shoreline stability at Schnitzer/Radius Recycling (**Figure 2.5-2**). The bulkhead would be constructed with up to 70-foot-long sheet piles. Approximately 6,000 cubic yards of rock would be placed to stabilize the bulkhead. In addition, dredging of approximately 143,300 cubic yards of existing Inner Harbor sediment (for areas currently under water) would be required to the north of the existing IHTB between Schnitzer/Radius Recycling and Howard Terminal for widening of the IHTB. The bottom of the channel in this submerged area is currently between -8 and -50 feet MLLW.

During the Proposed Project pre-construction engineering and design phase, a survey would be conducted to identify any remnant marine structures and navigation aids within the proposed IHTB widening footprint. Any structures within the proposed widening footprint would be removed and navigation aids would be relocated as appropriate.

### *Outer Harbor*

Approximately 1,342,000 cubic yards of sediment would be dredged north of the existing OHTB to widen the OHTB from 1,650 to 1,965 feet, with a depth of -50 feet MLLW and 3H:1V (three

horizontal to one vertical) side slopes. Within the widening footprint for the OHTB, the bottom of the Bay is currently between -9 and -50 feet MLLW. There are no land impacts within the proposed footprint of the widened OHTB.

To support electrical dredging for widening the OHTB, electrical infrastructure would be installed near Berth 26; no electrical improvements would be required outside the Seaport. A lineup of electrical switchgear would be installed adjacent to the nearest existing substation, Substation SS-C-57, which is approximately 270 feet southeast from the water's edge at Berth 26, and from which the dredging operator would then draw power to be used for the electrical dredging activities. The switchgear lineup would allow the Port to control, isolate, and meter power during dredging activities. The switchgear would be adjacent to existing electrical infrastructure and would be comparable in height and dimensions to the existing substation. The dredging operator would supply their own 12.47-kilovolt cable and terminations to directly connect to the Port's switchgear. These cables would then be connected to the dredging operator's on-board electrical equipment. This on-board electrical equipment would then control the power used during dredging activities.

In addition, as with the Inner Harbor Waterway, during the Proposed Project pre-construction engineering and design phase, a survey would be conducted to identify any remnant marine structures and navigation aids within the proposed OHTB widening footprint requiring removal or relocation as part of the Proposed Project.

## 2.5.2. Construction Schedule

Construction is expected to start in July 2027 and be completed in November 2029, for an approximate duration of 2 years, 4 months. **Table 2.5-1** summarizes the anticipated construction activities that would occur each year of construction and provides their location.

The estimated total construction duration at each work location is as follows:

- Berth 26: 3 months
- Howard Terminal: 12 months (8 months of landside construction and 4 months of in-water construction [including approximately 6 weeks of dredging])
- Inner Harbor Waterway for New Bulkhead by Schnitzer/Radius Recycling Terminal: 3 months
- Outer Harbor Dredging: 8 months
- Alameda Site: 20 months (14 months of landside construction and 6 months of in-water construction [including approximately 3 months of dredging)
- Inner Harbor Waterway Dredging: 1 month
- Berth 10 Dredged Material Rehandling: 1.5 months

Construction, excluding dredging, would occur Monday through Friday between the hours of 7 a.m. and 7 p.m. Dredging would be conducted 24 hours per day, 7 days per week. Dredging and other in-water construction work would be performed during the in-water work window of June 1 through November 30 of each construction year. During this in-water work window, special-status salmonids (steelhead and Chinook Salmon) are unlikely to be present in the Oakland Harbor work areas, and adherence to this work window is intended to reduce potential impacts on these protected fish species. Refer to Section 3.4, Biological Resources, for additional information regarding designated in-water work windows.

**Table 2.5-1 Anticipated Schedule of Construction Activities by Construction Year**

| Construction Year(s) | Activity | Location |
|---|---|---|
| 1 | Electrical Infrastructure Installation | Berth 26 and Howard Terminal |
| 1 | Concrete/Asphalt Pavement Demolition and Removal | Howard Terminal |
| 1 | On-Land and In-Water Pile Removal | Howard Terminal |
| 1 and 2 | New Bulkhead Installation | Howard Terminal |
| 2 | Landside Excavation | Howard Terminal |
| 2 | In-Water: Bulkhead Installation, Dredging, and Rock Installation | Howard Terminal |
| 2 | In-Water: Bulkhead and Rock Installation | Inner Harbor Waterway by Schnitzer/Radius Recycling Terminal |
| 2 | Dredging | Outer Harbor |
| 2 | Warehouse and Concrete/Asphalt Pavement Demolition and Removal | Alameda Site |
| 2 | New Bulkhead Installation | Alameda Site |
| 2 and 3 | Landside Excavation | Alameda Site |
| 2 and 3 | On-Land and In-Water Pile Removal | Alameda Site |
| 3 | In-Water: Removal of Existing Bulkhead | Alameda Site |
| 3 | In-Water: Bulkhead Installation, Dredging, and In-Water Rock Installation | Alameda Site |
| 3 | Dredging | Outer Harbor |
| 3 | Dredging and Dredged Material Rehandling | Inner Harbor Waterway, Berth 10 |

Notes:

Anticipated construction years are 2027 (year 1), 2028 (year 2) and 2029 (year 3). The schedule outlines expected general sequencing of activities over the three construction years regardless of actual construction start date. The order of activities shown may occur concurrently with other activities within the same construction year; the rows shown are not meant to indicate that the listed activities occur in consecutive order.

## 2.5.3. Detailed Construction Activities

This section provides descriptions of the methods that would be used to complete each construction activity.

Prior to the start of construction, a stormwater pollution prevention plan (SWPPP) would be prepared. The SWPPP would include erosion and sedimentation controls (such as silt fences and fiber rolls), protocols for the prevention and cleanup of any hazardous material spill during construction, and good housekeeping measures, such as protocols for site cleanup and disposal of trash and debris, hazardous material management and disposal, and vehicle and equipment fueling and maintenance. The SWPPP would be implemented and updated during construction to prevent discharges of sediment and other pollution sources (such as trash, demolition waste, fuels, oils, lubricants) to storm drains and surface waterways.

### *Electrical Infrastructure*

Construction for the added electrical infrastructure at Howard Terminal is assumed to include installation of new switchgear near the edge of the wharf at Berth 68, approximately 150 feet from substation SS-E-72. There are existing spare conduits and stub-outs at substation SS-E-72. Conduit work would potentially be limited to extending or rerouting the existing spare conduits to the location of the new switchgear. A new foundation arrangement would be installed for the new switchgear lineup and may include modification of the concrete wharf, but no excavation of soil would be required. Modifications to the concrete wharf would also be required for the placement of bollards and fencing that would be installed around the switchgear.

Construction for the added electrical infrastructure near Berth 26 in the Outer Harbor is assumed to include excavating a trench for new conduits that run from the new switchgear to existing utility vaults and Substation SS-C-57, backfilling this trench, and repaving with asphalt concrete. If an existing concrete slab at the site is unsuitable for the placement of the switchgear, excavation would be conducted for a new concrete foundation. Excavation would also be required for the placement of bollards and fencing that would be installed around the switchgear. The excavation for the foundations associated with the new switchgear, bollards, and fence posts—in addition to the trenching for the new conduit—would generate approximately 15 cubic yards of soil for off-site disposal and 15 cubic yards of pavement for off-haul to a local recycling facility.

### *Warehouse Demolition, Utilities, and Pavement Removal*

Demolition activities at Howard Terminal and the Alameda Site are assumed to include removing and/or relocating existing utilities that would be impacted by the construction footprint, cutting and removing the pavement surface, and removing portions of the existing warehouse structures (Alameda Site only). As applicable, demolition debris would be transported to a local recycler.

### *Bulkhead Installation*

Construction of the new bulkheads includes installing steel sheet piles and steel pipe batter piles and/or anchor tie-backs using pile-driving methods (use of a mechanical device to drive piles into the soil or sediment). Installation of sheet piles would likely be performed with a vibratory driver or an impact driver, and installation of batter piles (if required) would be performed with a

vibratory driver or an impact driver. Vibratory pile driving is a method in which the pile is vibrated into the sediment rather than being hammered in, as is done with an impact hammer. An impact pile driver would only be used where necessary to complete installation of piles or in-water structures in accordance with seismic safety or other engineering criteria. Additionally, a concrete cap would be installed along the top of the sheet piles and batter piles. Concrete would also be installed as needed to connect the bulkhead to the existing wharf structure.

Most piles for the new bulkheads at Howard Terminal and the Alameda Site would be installed landside, with the sheet piles driven into the ground following the pavement wharf and warehouse (Alameda Site only) demolition and removal.

The entire bulkhead structure near the Schnitzer/Radius Recycling Terminal and approximately 10 percent of the bulkhead installation at Howard Terminal and the Alameda Site would involve installing piles through water; this work would be completed during the June 1 through November 30 in-water work windows, and either from land or work barges (non-motorized vessel used as a platform for in-water construction). At Howard Terminal and the Alameda Site, the in-water bulkhead installation would be performed following the completion of landside activities and prior to dredging.

### *Landside Excavation and Transport*

For Howard Terminal and the Alameda Site, it is assumed that landside excavation of soils would occur to a depth of approximately -5 feet MLLW, which is approximately 15 feet below existing ground surface. Excavated soils would be placed directly into trucks for offsite disposal or would be stockpiled and subsequently loaded into trucks for transport to an offsite disposal location. Due to the historical industrial use of these sites and the documented presence of contaminants underlying portions of Howard Terminal, it is assumed that some landside excavated materials would be disposed at a Class I (hazardous) in addition to a Class II (non-hazardous) landfill.

Landside excavation activities may encounter groundwater that would require dewatering. If dewatering is required, extracted groundwater would be managed in accordance with all applicable laws and permitting requirements to be either discharged to the sanitary sewer, discharged to a storm drain, or transported to an off-site disposal location. No extracted groundwater is expected to be used for dust control.

### *Pile Removal*

Removal of piles at Howard Terminal and the Alameda Site would be performed by direct pull or with a vibratory pile driver, which can be used to extract piles in addition to installing them. Piles that cannot be pulled would, to the extent feasible, be cut 2 feet below the mudline or 2 feet below a planned depth elevation, which would be -52 feet MLLW if they are in a navigable waterway. At Howard Terminal, pile removal would occur at the same time as the installation of the new bulkhead and prior to landside excavation activities. At the Alameda Site, pile removal would occur following the new bulkhead installation and landside excavation activities. As applicable, the removed piles would be transported to a local recycler.

### *Bulkhead Removal*

Removal of existing bulkhead would only be required at the Alameda Site; there is not an existing bulkhead within the widening footprint at Howard Terminal. This work would be performed from work barges during the in-water work window following completion of the new bulkhead installation, landside pile removal, and landside excavation. As applicable, the removed bulkhead would be transported to a local recycler.

### *Dredging*

Dredging would be conducted to remove material deeper than 15 feet below ground surface (below the proposed limits of landside excavation at Howard Terminal and Alameda Site), because this material is expected to be below water and would require dredging from the waterside (versus excavation from the landside). Dredging would also be conducted to remove rock and sediment from Howard Terminal and the Alameda Site in addition to the submerged area between Howard Terminal and Schnitzer/Radius Recycling. For the OHTB, dredging would be conducted to remove sediment from the bottom of the Bay to widen the existing turning basin.

Dredging would be performed with an electric crane-mounted barge outfitted with a clamshell bucket (together referred to as a clamshell dredge). Equipped with a long boom (that acts like an arm) and cables, the crane would lower the clamshell bucket through the water for removing material where needed and bringing the material to the surface where it would be loaded onto the hulls of a barge or onto scows (a smaller type of barge). Clamshell dredges are equipped with a positioning computer system that helps the operator position the bucket at the correct location to remove material. Once the barge or scow is loaded, a towboat (also called a pushboat; a smaller type of tug compared to a vessel-assist tug) would then transport the barge or scow to its destination as described below. In addition, a tender pushboat (also a smaller type of tug compared to a vessel-assist tug) assists in positioning equipment and supporting the dredging operation.

Because dredging would be electric, the crane would connect to the newly installed electrical infrastructure at Berth 26 during dredging of the OHTB. The crane would connect to the existing electrical infrastructure in Alameda or new electrical infrastructure installed at Howard Terminal for the dredging of the IHTB.

A dredge operations plan would be submitted to all regulatory agencies before the start of dredge operations. All dredging and in-water construction activities would be consistent with the standards and procedures set forth in the Long-Term Management Strategy for dredging in San Francisco Bay waters to guide the disposal of dredged materials in an environmentally sound manner. This would include implementation of standard practices to minimize water quality impacts during dredging:

- Multiple horizontal dredge cuts would be taken where a thick horizontal volume needs to be dredged to avoid overfilling the bucket and causing spillage.
- An environmental bucket (a bucket equipped with rubber seals to minimize release of sediment during dredging) would be used where technically feasible.

- The cycle time[19] would be increased as needed to reduce the velocity of the ascending loaded bucket through the water column, which reduces potential to wash sediment from the bucket.
- No overflow or decant water (excess water off of the dredged sediment) would be allowed to be discharged from any barge, with the exception of spillage incidental to mechanical dredge operations.
- The load line on disposal barges would be predetermined, and the barge would not be filled above this predetermined level. Before each disposal barge is transported to a placement site, the dredging contractor and a site inspector would certify that it is filled correctly.

As required by project permits, a Water Quality Monitoring Plan would be developed that specifies sample locations, depths, constituents, and objectives during in-water construction work. The Water Quality Monitoring Plan would also specify when work would be suspended for water quality exceedances to comply with turbidity requirements stated in applicable permits (e.g., the Clean Water Act Section 401 Water Quality Certification).

### *Dredged Material Beneficial Reuse Placement*

All dredged material that is suitable for beneficial reuse[20] would be placed at a permitted beneficial reuse site. Dredged material would be loaded onto scows in the Proposed Project footprint and would then be transported by a towboat to a beneficial reuse site for placement. After the scow is emptied, the towboat would return with the empty scow to pick up a new load.

### *Dredged Material Rehandling*

Dredged material not suitable for beneficial reuse would be placed at Berth 10 for rehandling prior to continued transport to a disposal site. Dredged material would be loaded into a scow; when full, a towboat would transport the scow to Berth 10. Concurrently, the crane barge would be unplugged and a pushboat would transport the crane barge to Berth 10. The crane would then operate diesel engines to move the material from the barge onto land at Berth 10. The towboat would then return the crane-mounted barge to the dredging area, where it would be plugged into the electrical power supply to dredge additional material. Rehandling at Berth 10 would include the drying of material, including periodically moving the material to facilitate faster drying. When sufficiently dried, the material would be loaded onto trucks for transport to a Class II (non-hazardous) landfill.

### *Rock Slope Protection Installation*

Following dredging at Howard Terminal and the Alameda Site, and after installation of the in-water bulkhead structure near the Schnitzer/Radius Recycling Terminal, rock would be placed in front of the new bulkheads and the in-water retaining structure for slope protection. This work would be performed using an electric-powered crane from work barges during the in-water work window.

[19] The cycle time is the time it takes to complete one dredging cycle of lowering the bucket through the water column, collecting sediment, raising the bucket to the surface, and placing sediment on a barge or scow.

[20] Dredged material can be used as a resource rather than treated as a waste product. Beneficial uses can include habitat creation and restoration, beach nourishment, landfill cover, and land site remediation.

## 2.5.4. Other Construction Details

### *Construction Staging*

For the IHTB, construction staging—including a construction trailer, equipment and construction materials storage, potential excavated landside material stockpiles, and employee parking—are assumed to occur at Howard Terminal and the Alameda Site, immediately adjacent to or close to the excavation areas. Proposed construction staging areas would be fenced with entrance/exit gates. Preliminary proposed construction staging areas for the Howard Terminal and Alameda Site are shown in **Figure 2.5-1** and **Figure 2.5-2**. These staging areas would only be used if the construction work areas do not provide sufficient area for staging, which would partially depend on the specific sequencing of construction activities. The extent of area needed for staging and specific location(s) of staging areas for the Howard Terminal and Alameda Site will be further refined during the Proposed Project pre-construction engineering and design phase.

For the OHTB, construction staging—including equipment storage and employee parking, if necessary—would occur at Berth 10.

### *Construction Workforce and Equipment*

Depending on the concurrent activities occurring over the course of construction, the number of construction workers at any given time would range from approximately 8 to 90. **Table 2.5-2** lists the equipment and number of workers required for each construction activity. The construction activities are listed in the order they generally would occur; some activities would be performed concurrently.

### *Construction Traffic and Circulation*

Primary regional access to the construction work areas is provided by I-880, an auxiliary Interstate Highway that connects to I-80 and I-580 in Oakland (near the Emeryville border north of the Seaport) as well as I-980 (in downtown Oakland near the eastern end of the Seaport). Through Oakland, I-880 generally follows a northwest-southeast orientation, except for where it is near the southern area of Seaport, where it becomes a more a west-east orientation. I-880 provides the primary freeway access for the Port's maritime facilities, including the container terminals and intermodal yards, and generally separates the industrial and residential areas of West Oakland.

Construction workers would be expected to access the Proposed Project sites using multiple possible local street routes. Southwest of I-880, Howard Terminal is accessible via Market Street, Embarcadero West, 3rd Street, and 5th Street. From I-880 and downtown Oakland, access to the Alameda Site is provided via traveling south on Webster Street, west on Willie Stargell Avenue or Ralph Appezzato Memorial Parkway, and north on Main Street. Berth 10 is accessed from I-80 and I-880 via West Grand Avenue and Maritime Street and from I-880 via 7th Street and Maritime Street. These roadways and additional local roads that provide access to the Proposed Project sites are described in detail in Section 3.14.

**Table 2.5-2 Anticipated Construction Workforce and Equipment by Activity**

| Construction Activity | Number of Workers | Equipment Type (Quantity) |
|---|---|---|
| Electrical Infrastructure Installation | 5 on-site plus<br>1 truck driver | Backhoe/Loader (1)<br>Dump Truck (1)<br>Concrete Saw (1)<br>Smooth Drum Roller (1) |
| Warehouse Demolition | 13 on-site plus<br>2 truck drivers | Concrete Saw (2)<br>Dump Truck (2)<br>Excavator (1)<br>Compressor (1)<br>Torch (2) |
| Pavement Demolition and Removal | 8 on-site | Backhoe/Loader (1)<br>Concrete Saw (1)<br>Dozer (1)<br>Dump Truck (2) |
| Pavement, and Demolition Debris Hauling | 6 on-site plus 38 truck drivers | Excavator (2)<br>Dump Truck (38) |
| Sheet Pile/Bulkhead and In-Water Retaining Structure Installation | 6-9 on-site | Backhoe/Loader (1)<br>Crane (1)<br>Dump Truck (1)<br>Impact Driver (1)<br>Vibratory Driver (1)<br>Drilling Rig (1)<br>Dive Vessel (1)<br>Crane (1)<br>Barge (2)<br>Towboat/Pushboat (1) |
| Landside Excavation | 10 on-site | Excavator (2)<br>Dump Truck (2) |
| Landside Excavation Hauling | 6 onsite plus 75 truck drivers | Excavator (2)<br>Dump Truck (75) |
| Pile Removal | 26 on-site | Crane (2)<br>Barge (2)<br>Dive Vessel (2)<br>Excavator (2)<br>Vibratory Driver (2)<br>Compressor (2)<br>Generator (2) |

| Construction Activity | Number of Workers | Equipment Type (Quantity) |
|---|---|---|
| Pile Hauling | 10 on-site plus 2 truck drivers | Excavator (2)<br>Dump Truck (2) |
| Sheet Pile/Bulkhead Removal | 14 on-site | Crane (1)<br>Barge (2)<br>Dive Vessel (1)<br>Excavator (1)<br>Towboat/Pushboat (1)<br>Compressor (1)<br>Generator (1)<br>Torch (1) |
| Dredging (includes removal of material for placement at beneficial reuse site or transport to Berth 10 for rehandling) | 26 on-site | Barge (2)<br>Crane with Clamshell (1)<br>Towboat/pushboat (2) |
| Berth 10 Loading and Hauling | 28 on-site plus 38 truck drivers | Backhoe/Loader (1)<br>Crane (1)<br>Barge (2)<br>Tugboat/pushboat (1)<br>Excavator (1)<br>Dozer (1)<br>Dump Truck (38) |
| Rock Slope Protection Installation | 5 on-site | Crane (1)<br>Dump Truck (1)<br>Barge (1)<br>Tugboat/pushboat (1) |

Construction trucks (those delivering/removing equipment or hauling material) are specifically routed to follow designated truck routes established by the City of Oakland and City of Alameda (see **Figure 3.14-3** through **Figure 3.14-5** in Section 3.14). During construction, the maximum number of truck trips associated with equipment delivery and removal would range from 3 to 12 round trips per day; it should be noted that these trips would occur at the initiation and completion of different construction activities (as described above), and most days would not include truck trips associated with equipment delivery or removal. Truck trips for hauling demolition debris and excavated and dredged materials are presented in the next section.

### *Construction Materials and Debris Management*

The Proposed Project construction would generate debris materials consisting of demolished structures, removed utilities, removed pavement, excavated soils, and dredged sediment.

**Table 2.5-3** shows the estimated amount of excavated landside and dredged material from the Proposed Project. All material suitable for reuse would be placed at a beneficial reuse site for the protection, restoration, or creation of aquatic wetland habitats as either non-cover material (also referred to as surface; not acceptable for direct contact with the water) or cover material (also referred to as foundation; acceptable for direct contact with the water). The beneficial reuse of dredged material can benefit the environment by accelerating wetland establishment, creating habitat for special-status species, and supporting sea level rise adaptation efforts. The material that is not suitable for beneficial reuse would be disposed of at a landfill (Class I permitted landfill [for hazardous material] or a Class II permitted landfill [for non-hazardous material]).

**Table 2.5-3 Estimated Amounts of Excavated Terrestrial and Dredged Material and Placement Location**

| Material | Volume (Cubic Yards) | Placement Location |
|---|---|---|
| Potentially hazardous materials requiring Class I landfill disposal | 10,900 | Class I Landfill |
| Non-hazardous materials requiring Class II landfill disposal | 187,400 | Class II Landfill |
| Materials suitable for beneficial reuse as foundation/non-cover material (not acceptable for direct contact with water) | 1,712,300 | Beneficial use site, foundation material |
| Materials suitable for beneficial reuse as cover material (acceptable for direct contact with water) | 454,400 | Beneficial use site, cover material |
| Dredged rock from portion of rock dike (at Howard Terminal) and existing slope protection (at Alameda) | 82,600 | Beneficial reuse site, recycling/reuse |
| **Total** | **2,447,600** | |

Material to be excavated and dredged would be characterized (i.e., sampled and subjected to laboratory analysis) to determine whether it would be suitable for beneficial reuse or would require disposal at a landfill. The Port, in coordination with USACE, would develop and implement a sampling and analysis plan during the Proposed Project pre-construction engineering and design phase. The sampling and analysis plan would identify sampling locations within the areas to be excavated and dredged, sampling protocols, and the physical and chemical parameters for laboratory analysis of collected samples. The results of the laboratory analysis would be compared to specific acceptance criteria for a given beneficial reuse site (as described in the WDR permits for each beneficial reuse site) or landfill to determine where the material may be placed. For dredged material, the Dredged Material Management Office (DMMO)[21] reviews and approves sediment testing programs and suitability determinations for beneficial reuse and disposal locations. As noted above, the soil and groundwater beneath Howard Terminal have been impacted by historic industrial uses of the site, and Howard Terminal is under the regulatory jurisdiction of the DTSC; therefore, sampling and analysis in Howard Terminal would also be coordinated with DTSC. For additional information on material characterization, refer to Section 3.9, Hazards and Hazardous Materials.

For the purposes of this Draft EIR, the anticipated landfills to accept material from the Proposed Project include the Kettleman Hills Class I permitted landfill in Kettleman City, California, and the Keller Canyon Class II permitted landfill in unincorporated Contra Costa County near Pittsburg, California; these landfills were identified as the Class I and Class II landfills nearest to

[21] The DMMO is an interagency virtual office composed of representatives of San Francisco Bay Conservation and Development Commission, San Francisco Bay Regional Water Quality Control Board, USACE, California State Lands Commission, and the United States Environmental Protection Agency.

the Proposed Project sites that are expected to have sufficient capacity at the time of the Proposed Project's construction. Similarly, for the purposes of this Draft EIR, the anticipated recycler to accept material from the Proposed Project is Argent Materials in Oakland, and the assumed beneficial reuse site is the Montezuma Wetlands Restoration Project in Solano County. **Table 2.5-4** shows the estimated truck round trips for hauling demolished, excavated, and dredged materials. During construction, the maximum number of daily trucks trips associated with hauling demolished, excavated, and dredged materials would be 288 round trips (576 one-way trips) from Oakland and 262 round trips (524 one-way trips) from Alameda (refer to Section 3.14, Transportation, for additional discussion).

**Table 2.5-4 Truck Trips for Hauling Demolished, Excavated, and Dredged Materials**

| Howard Terminal | | |
|---|---|---|
| **Location** | **Volume Cubic Yards** | **Trips** |
| Class I landfill | 2,900 | 290 |
| Class II landfill | 25,800 | 2,580 |
| Recycler | 22,900 | 2,290 |
| **Alameda** | | |
| **Location** | **Volume (Cubic Yards)** | **Trips** |
| Class I landfill | 8,000 | 800 |
| Class II landfill | 151,900 | 15,190 |
| Recycler | 101,600 | 10,160 |
| **Inner Harbor Waterway** | | |
| **Location** | **Volume (Cubic Yards)** | **Trips** |
| Class II landfill | 9,700 | 970 |
| **Total for Howard Terminal, Alameda, and Inner Harbor Waterway** | | |
| **Location** | **Volume (Cubic Yards)** | **Trips** |
| Class I landfill | 10,900 | 1,090 |
| Class II landfill | 187,400 | 18,740 |
| Recycler | 124,500 | 12,450 |
| **All** | **322,800** | **32,280** |

Notes:

Volumes include 10 percent contingency and applicable bulking factor (15 to 25 percent) and are rounded up to nearest hundredth.

Truck trip numbers are round trips and based on a 10-cubic-yard truck size.

Sediment dredged from the OHTB would be transported by vessels to a beneficial reuse site for placement and would not require the use of trucks for transporting dredged sediment.

## 2.5.5. Proposed Project Operations and Maintenance

### *Operations*

Although the Proposed Project would not change projected cargo throughput at the Port, in-water operations following widening of the turning basins would have some changes compared to

existing conditions. The USACE performed an economic analysis of the impact on the Seaport of widening the turning basins, including a forecast in vessel calls by vessel class for the future with the Proposed Project and future without the Proposed Project scenarios (Appendix C of USACE 2023). The vessel fleet mix is expected to change in the future as a result of other economic and global influences to the shipping industry, including growth, efficiency improvements, and vessel emission improvements as well as the physical change to the turning basins. Projected cargo throughput growth and efficiency improvements are anticipated to occur regardless of implementation of the Proposed Project and were the same for both the Proposed Project and No Project future scenarios. For both scenarios, the trend is toward the use of larger vessels, resulting in fewer vessel calls to transport the same volume of cargo; however, under the Proposed Project, total vessel calls would be reduced because the future fleet mix would include a greater percentage of large vessels to transport the same volume of cargo. Refer to Section 3.1.1, Baseline Environmental Conditions, for additional discussion regarding the future operational baseline for vessel calls under the Proposed Project and future without the Proposed Project scenarios.

### *Maintenance*

Upon completion, maintenance of the Proposed Project would involve maintenance dredging, bulkhead inspections, and routine maintenance and repairs of bulkhead. As discussed earlier, the authorized Oakland Harbor commercial waterway is maintained by USACE. This responsibility will continue and will apply to the new improvements pursuant to the Proposed Project. USACE performs operations and maintenance (O&M) dredging in accordance with the Long-Term Management Strategy (LTMS)[22] and the Final Environmental Assessment/Environmental Impact Report for the Maintenance Dredging of the Federal Navigation Channels in San Francisco Bay Fiscal Years 2015-2024 completed by the San Francisco Regional Water Quality Control Board and USACE in April 2015 (2015 EA/EIR). As previously analyzed in the 2015 EA/EIR, the annual O&M volume for the Oakland Harbor waterway (including both turning basins) was anticipated for up to 1,055,000 cubic yards (cy) per year. However, average O&M dredging for the Oakland Harbor waterway is generally between 500,000 and 700,000 cy. The Proposed Project is estimated to add up to 93,000 cy of O&M material annually, which combined with the annual average is within the total volume range for the Oakland Harbor waterway analyzed in the 2015 EA/EIR. A new multi-year EA/EIR is planned for coverage of the USACE O&M dredging program for 2025-2034 and will be completed prior to construction of the Proposed Project.

The new bulkheads would require periodic inspections, and if necessary, routine maintenance and repairs. It is expected that the bulkhead would be visually inspected above and below water at an interval not to exceed three years. The inspector would remove any areas of accumulated debris or vegetation along the structure. Routine maintenance for minor wear and tear and to maintain the corrosion protection would be performed as needed.

[22] The LTMS program comprises state and federal regulatory agencies with primary authority to review and permit dredging and disposal activities in the San Francisco Bay Area. Participating agencies include USACE, United States Environmental Protection Agency, San Francisco Bay Regional Water Quality Control Board, State Water Resources Control Board, San Francisco Bay Conservation and Development Commission, and California State Lands Commission.

## 2.6. REQUIRED PROJECT APPROVALS

As stated in the Introduction in Chapter 1 of this Draft EIR, the Proposed Project is a partnership between the Port and the USACE. As the lead agencies, the Port and USACE are responsible for obtaining approvals and documenting compliance with applicable environmental laws and regulations. **Table 2.6-1** provides a list of required permits and approvals that are required or may be required for the Proposed Project.

This Draft EIR has been prepared by the Port pursuant to CEQA. The USACE is required to comply with the National Environmental Policy Act, which is a component of the Integrated Feasibility Report and Environmental Assessment the USACE published in December 2021 in Draft form, with a Revised Draft published in April 2023.

**Table 2.6-1 Permits and Approvals Anticipated for the Proposed Project**

| Authorizing Agency | Permits and Approvals Anticipated |
|---|---|
| United States Army Corps of Engineers | • National Environmental Policy Act Environmental Assessment<br>• Clean Water Act Section 404 authorization for dredge and fill of waters of the U.S. |
| United States Fish and Wildlife Service | • Federal Endangered Species Act Section 7<br>• Fish and Wildlife Coordination Act |
| National Marine Fisheries Service | • Federal Endangered Species Act Section 7<br>• Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat<br>• Marine Mammal Protection Act Incidental Harassment Authorization |
| California Department of Fish and Wildlife | • California Endangered Species Act/Fish and Game Code Section 2081 Incidental Take Permit |
| San Francisco Bay Conservation and Development Commission | • Coastal Zone Management Act Consistency Determination<br>• Major Permit |
| San Francisco Regional Water Quality Control Board | • Clean Water Act Section 401 Water Quality Certification<br>• National Pollutant Discharge Elimination System permit for stormwater discharge<br>• Coverage under Construction General Permit Order 2022-0057-DWQ |
| Board of Port Commissioners | • Certification of the EIR<br>• Adoption of CEQA Findings; Mitigation, Monitoring, and Reporting Program; and if applicable, Statement of Overriding Considerations<br>• Approval of the Proposed Project<br>• Port Development Permit |
| City of Alameda | • Building Permit |
| City of Oakland | • Building Permit |

Notes:

CEQA = California Environmental Quality Act
EIR = Environmental Impact Report

# 3. ENVIRONMENTAL IMPACT ANALYSIS

This Chapter, Environmental Impact Analysis, is the primary focus of this Draft Environmental Impact Report (Draft EIR). This Chapter describes the environmental resources present in the vicinity of the Proposed Project and examines the potential environmental impacts associated with the Proposed Project for each environmental resource (or topic) as further described below.

## 3.1. INTRODUCTION TO ENVIRONMENTAL ANALYSIS

This introductory section describes how environmental analysis is performed for each environmental resource topic and includes the key environmental analysis terms used throughout this document, including the impact classifications. It also identifies the resource topics that were and were not analyzed further in this Draft EIR.

The following Sections 3.2 through 3.16 contain detailed discussions of the potential environmental effects of implementation of the Proposed Project for the following environmental resource topics:

- Section 3.2 Aesthetics
- Section 3.3 Air Quality
- Section 3.4 Biological Resources
- Section 3.5 Cultural Resources
- Section 3.6 Energy
- Section 3.7 Geology and Soils
- Section 3.8 Greenhouse Gas Emissions
- Section 3.9 Hazards and Hazardous Materials
- Section 3.10 Hydrology and Water Quality
- Section 3.11 Land Use/Planning
- Section 3.12 Noise
- Section 3.13 Recreation
- Section 3.14 Transportation
- Section 3.15 Tribal Cultural Resources
- Section 3.16 Utilities and Service Systems

Each of the environmental resource topics are evaluated in detail in a separate section and include the following: an introductory summary of the resource topic including evaluation concepts and terminology, as applicable; discussion of the environmental setting; regulatory setting; significance criteria and methodology used in assessing impacts; potential impacts from the Proposed Project; and the identification of mitigation measures to reduce, where possible, any adverse effects from potentially significant impacts, and conclusions regarding the level of significance after mitigation.

The geographic extent over which the Proposed Project may result in impacts varies by resource topic. This is described in each resource topic section and is considered the analysis area for the subject resource topic. For some resource topics, the potential for impacts, and therefore the analysis area, is relatively focused to the specific areas where the Proposed Project construction activities would occur. For example, the potential for impacts to archaeological resources is limited to proposed locations of ground-disturbing activities where archaeological resources could be encountered. For other resource topics, like air quality and noise, impacts can extend over a broader area so the analysis area for such resources is larger. Although there is variability in the analysis area among resources topics, the environmental setting descriptions for all resource topics describe the existing conditions for that topic in the Proposed Project area or Proposed Project vicinity. These terms are used interchangeably in this Draft EIR to reference the areas near and surrounding the Proposed Project sites. As appropriate and relevant to the analysis of the potential impacts of the Proposed Project, the environmental setting conditions provide additional context on a city-wide, regional, or larger scale.

### 3.1.1. Baseline Environmental Conditions

An EIR must include a description of the physical conditions in the project's vicinity, often referred to as the "baseline," that provides a point of reference (or baseline) for assessing the environmental impacts of the proposed project and alternatives. Pursuant to Section 15125(a) of the CEQA Guidelines, the baseline should consist of conditions that exist at the time the NOP is published. The baseline for the Proposed Project is set as the date when the NOP was published: May 31, 2022. However, the utilization of historic or projected future baselines conditions is permitted pursuant to CEQA Guidelines Section 15125 (a)(1) to ensure the public and decision makers are provided the most accurate picture of the Proposed Project's impacts. Therefore, the Draft EIR will identify when historic or projected future baseline conditions—rather than the May 31, 2022, baseline—are used in the respective environmental topic analysis for a particular resource topic; where historic or projected future baseline conditions are used for a resource topic, it is noted in the respective resource section. For example, baseline noise levels considered in the analysis include noise measurements collected in 2019 and 2021. The 2019 data were existing measurements collected as part of the assessment of a proposed development on the adjacent Howard Terminal (i.e., the proposed Oakland Waterfront Ballpark District at Howard Terminal) and are included because they provide the noise environment at sensitive receptors north of Howard Terminal. Additional noise measurement data were collected in 2021 for additional sensitive receptors that could be impacted by the Proposed Project in support of a Technical Noise Memorandum that was used to inform analysis of noise impacts for the proposed turning basins widening under the National Environmental Policy Act (NEPA) by the USACE. As another example, discussion of projected future baseline conditions is presented in Section 3.3, Air Quality, where criteria air pollutant emissions were estimated using the number of vessel calls for each vessel class in the future for 2030, 2040, and 2050 for the Proposed Project (see additional discussion below) as well as the No Project future baseline scenarios.

As described in Section 2.5, the Proposed Project would not change the projected cargo throughput at the Port; the Port's total projected volume serviced would remain the same with and without widening of the turning basins. In addition, the Proposed Project does not include

landside improvements to increase the Port's cargo (or container) handling capacity; and as a result, the Port's capacity remains constant with this Proposed Project, and landside operations following widening of the turning basins are assumed to remain consistent with existing conditions, including management of cargo volume fluctuations. Therefore, impacts related to expanding the Port's capacity or changes in landside operations are not analyzed in this chapter. Additional discussion of factors that influence throughput at the Port, including economic forces and regional, national, and international goods movement, is included in the analysis of the Proposed Project's potential growth-inducing impacts, presented in Section 6.3 of this Draft EIR.

For each resource section, the environmental setting and regulatory setting discussion provides an environmental baseline. The environmental setting addresses the conditions that exist prior to implementation of the Proposed Project and defines relevant scientific terms. Environmental effects from existing activities and uses in a project analysis area are considered part of the baseline environmental setting conditions. For example, ongoing operations and maintenance activities at the Port, including annual maintenance dredging, are included in the baseline conditions for this Proposed Project. The regulatory setting presents relevant information about federal, state, regional, and/or local laws, regulations, and plans or policies that pertain to the environmental topic addressed in the section.

### *Future Operational Baseline for Vessel Calls*

The USACE performed an economic analysis of the impact on the Seaport of widening the turning basins, including a forecast in vessel calls by vessel class for the future with the Proposed Project and future without the Proposed Project scenarios (Appendix C of USACE 2023). Using the Harbor Sym Modeling Suite of Tools (HMST) developed by the Institute for Water Resources, transportation costs were found to be reduced with the Proposed Project's channel improvement modifications due to a more efficient future fleet mix.

The ability of the Port to service large vessels efficiently is expected to encourage carriers to replace smaller, less efficient vessels with larger, more efficient vessels on Oakland route services. HarborSym (a module of HMST) is a simulation model of vessel movements at a port for use in economic analyses. HarborSym does not assess landside operations; instead, it concentrates on specific vessel movements and transit rules on the waterway, fleet, and loading changes, as well as incorporating calculations for both in-harbor costs and costs associated with the ocean voyage. In addition, using other modules such as the Container Loading Tool and forecasted cargo volumes, and other data, HMST produces information on the fleet mix of vessels and number of calls for the vessels under the Proposed Project and No-Project scenarios but does not provide information on any landside operations. This allows for the use of the vessel fleet and number of calls predicted in the future to estimate the air emissions that would result from the change in vessel fleet and number of calls but does not allow for evaluation of any landside operational activities that may or may not change because of changes to vessel fleet type, number, and frequency of calls. Evaluation of any landside operational changes in emissions would require additional data not readily available at this time, because it is not an output of the HarborSym economic model.

Although the Proposed Project would not change projected cargo throughput at the Port, in-water operations following widening of the turning basins would have some changes compared to the future No Project baseline scenario. The estimates of future vessel fleet mix and vessel calls from

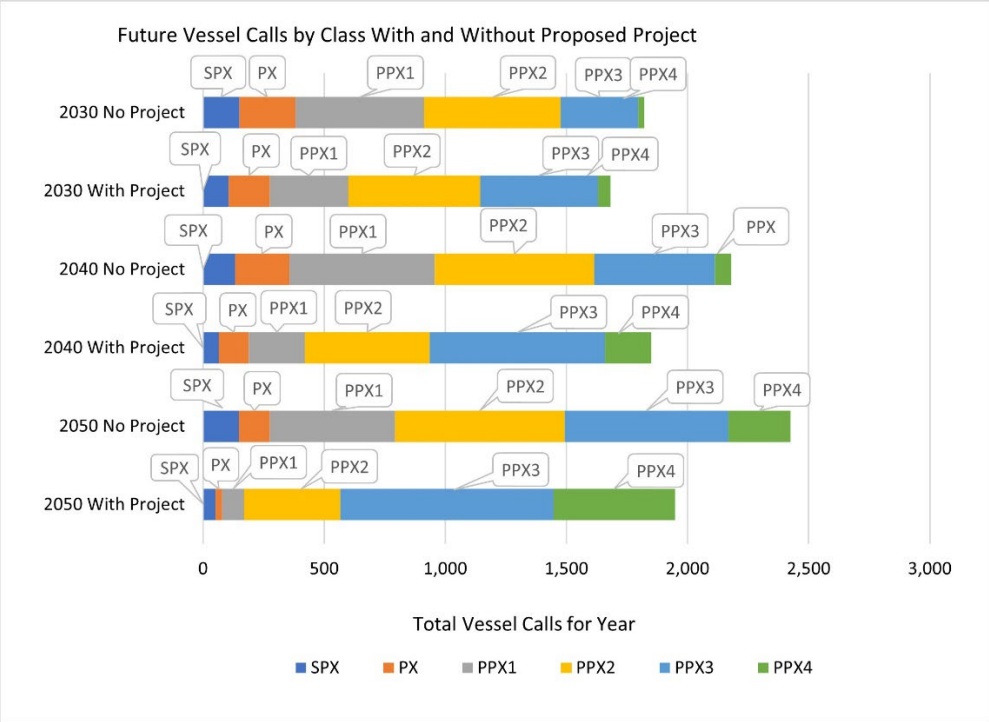
HMST were used as the basis for estimating differences in vessel air emissions from ocean going vessels and associated assist tugs under future operational conditions using future baseline years 2030, 2040, and 2050 to compare the Proposed Project operational emissions for vessel calls compared to the future No Project operational emissions for vessel calls. The use of the future operational baseline rather than the existing baseline is appropriate for this situation, and allowed under CEQA because the vessel fleet will likely change in the future as a result of other economic and global influences to the shipping industry, including growth, efficiency improvements, and vessel emission improvements as well as the physical change to the turning basins. The difference between the Proposed Project and No Project future information is the physical changes to the size of the turning basins. HarborSym does include several assumptions regarding projected cargo throughput and efficiency improvements that are anticipated to occur regardless of implementation of the Proposed Project and were the same for both the Proposed Project and No Project future scenarios. With or without the Proposed Project, the Port anticipates a 2.1 percent growth in cargo annually. It also includes planned harbor improvements that would be anticipated to occur under both the Proposed Project and No Project future scenarios. This approach is similar to traffic studies, which assume full build-out of other traffic improvements to determine the impact of a planned project in the future. **Table 3.1-1** and **Figure 3.1-1** show the number of vessels calls by vessel type for the Proposed Project and No Project in the future years 2030, 2040 and 2050. In all future years, the number of vessel calls is anticipated to be less under the Proposed Project scenario compared to the No Project future scenario.

**Table 3.1-1 Future Vessel Calls by Vessel Class**

| Vessel Class | No Project 2030 | Proposed Project 2030 | No Project 2040 | Proposed Project 2040 | No Project 2050 | Proposed Project 2050 |
|---|---|---|---|---|---|---|
| **SPX** | 150 | 106 | 132 | 66 | 149 | 52 |
| **PX** | 231 | 170 | 224 | 123 | 126 | 26 |
| **PPX1** | 532 | 323 | 600 | 231 | 518 | 92 |
| **PPX2** | 563 | 544 | 658 | 515 | 701 | 397 |
| **PPX3** | 321 | 488 | 498 | 725 | 675 | 880 |
| **PPX4** | 24 | 52 | 69 | 191 | 257 | 502 |
| **Total** | **1,821** | **1,683** | **2,181** | **1,851** | **2,426** | **1,949** |

Source: Appendix C of Oakland Harbor Turing Basins Widening, CA Navigation Study Revised Draft Integrated Feasibility Report and Environmental Assessment

**Figure 3.1-1 Future Vessel Calls by Class with and without the Proposed Project**




## 3.1.2. Impact Classifications

According to the CEQA statutes and guidelines, an EIR should define the threshold of significance and explain the criteria used to determine whether an impact is above or below that threshold. For each environmental resource topic, significance criteria are identified to determine whether implementation of the Proposed Project would result in a significant environmental impact when evaluated against the baseline conditions, as described in the environmental and regulatory setting.

Significance thresholds, which vary for each resource area, are provided in Sections 3.2 through 3.16 of this chapter. These thresholds are based on the questions in Appendix G of the CEQA Guidelines; factual or scientific information and data concerning resources potentially affected by the Proposed Project; regulatory standards of local, state, and federal agencies; and thresholds of significance previously adopted by public agencies or recommended by experts (see CEQA Guidelines Section 15064.7).

As required by Section 15126.2(a) of the CEQA Guidelines, the impact analysis addresses direct, indirect, cumulative, short-term, long-term, on-site, and off-site impacts, if applicable. Direct impacts are the primary effects that are caused by the Proposed Project; they occur at the same time and place. Indirect impacts are secondary effects that are reasonably foreseeable and caused by the Proposed Project but occur at a different time or place. CEQA defines cumulative impacts as two or more individual effects that, when considered together, are considerable and compound, or increase other environmental impacts (see Chapter 4 for further discussion of cumulative projects). In other words, cumulative impacts are the changes in the environment that result from the incremental impact of development of the Proposed Project and other projects with related impacts.

Impact statements are made for each threshold of significance evaluated for the Proposed Project and have an alphabetic designation that corresponds to the environmental topic, such as Impact "BIO" for biological resources. A number follows the alphabetic designation to designate the numerical sequence of the impact. For example, "Impact BIO-1" is the first potential biological resources impact identified, followed by "Impact BIO-2," and so forth. Mitigation measures are designated in the same manner, and the numbering of each mitigation corresponds with its impact. Where multiple mitigation measures are identified for a particular impact, they are numbered sequentially. For example, Mitigation Measures BIO-1A and BIO-1B both address Impact BIO-1.

The terminology listed below is used to denote the level of significance of environmental impacts of the Proposed Project and alternatives.

- **No Impact** – The Proposed Project would not cause a noticeable effect on the environment, as measured by the defined threshold of significance.
- **Less than Significant** – The impact of the Proposed Project does not reach or exceed the defined threshold of significance or would be eliminated or reduced to a less-than-significant level through compliance with existing local, state, and federal laws and regulations.
- **Significant** – The impact of the Proposed Project, before or after implementation of feasible mitigation measures, is expected to reach or exceed the defined threshold of significance. Feasible mitigation measures may or may not be available to reduce the significant impact to a less-than-significant level.
- **Less than Significant with Mitigation** – The impact of the Proposed Project before implementation of feasible mitigation measures is expected to reach or exceed the defined threshold of significance. Feasible mitigation measures are available to reduce the significant impact to a less-than-significant level.
- **Significant and Unavoidable** – The impact of the Proposed Project reaches or exceeds the defined threshold of significance. Feasible mitigation measures may be available to reduce the impact, but not to a less-than-significant level.

### 3.1.3. Resources Not Analyzed in Detail

This section presents information regarding environmental resource topics that were determined to have no impact from the Proposed Project. The resources discussed in the following sections were considered but were not addressed in the detailed impact analysis because they are not present in the Proposed Project analysis area, do not apply based on the scope of the Proposed Project, or otherwise would have no potential to be adversely impacted by the Proposed Project or alternatives.

#### *Agriculture and Forestry Resources*

The Proposed Project would take place in waters of San Francisco Bay, more specifically in the Oakland Harbor, and on adjacent landside areas in the Port and the City of Alameda, both highly urbanized areas with no existing agricultural production or forest resources. The Proposed Project is in an area designated as urban and built-up land by the California Department of Conservation's (CDOC's) Farmland Mapping and Monitoring Program; the Proposed Project

sites and surrounding area contain no designated Prime Farmland or Farmland of Statewide or Local Importance (CDOC 2018). No land under Williamson Act contract is on or near the Proposed Project sites (CDOC 2021). Therefore, the Proposed Project would not convert designated farmland or conflict with an existing Williamson Act contract.

The City of Oakland's zoning map does not apply to Port lands.[23] Port property is subject to the General Industry and Transportation guidelines under the City of Oakland General Plan. However, it is noted that the City of Oakland does not designate land uses for agriculture or forestry in its General Plan or Zoning Map (City of Oakland 2015, 2022). Similarly, the City of Alameda does not designate land uses for agriculture or forestry in its General Plan or Zoning Map (City of Alameda 2016, 2022). The Proposed Project sites do not contain agricultural production or forest land. Therefore, the Proposed Project would not conflict with existing zoning for agricultural use, forest land, or timberland, nor would it result in the loss or conversion of forest land. Therefore, no impact on agricultural or forestry resources would occur.

### *Mineral Resources*

The Proposed Project is on land classified by CDOC's Division of Mines and Geology as Mineral Resource Zone 1 (MRZ-1), which is defined as an area where adequate geologic information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence (CDOC 1987, 2022). As noted above, the City of Oakland's zoning map does not apply to Port lands, and Port property is subject to the General Industry and Transportation guidelines under the City of Oakland General Plan. Lands adjacent to the Seaport are not designated as a mineral resource zone by the City of Oakland General Plan (City of Oakland 2015). The Alameda Site is not zoned for, or immediately adjacent to, lands designated as a mineral resource zone by the City of Alameda General Plan (City of Alameda 2022). As a result, the Proposed Project would not interfere with any mineral extraction operations and would not result in the loss of land designated for mineral resources. Therefore, the Proposed Project would not result in the loss of availability of a known mineral resource and would not result in the loss of a locally important mineral resource recovery site. Therefore, no impact on mineral resources would occur.

### *Population and Housing*

The Proposed Project would not involve any activities that would directly or indirectly induce unplanned population growth or result in the construction of any housing. Over the approximate 2.5-year construction duration, the daily construction workforce for the Proposed Project would range between approximately 8 and 90 workers, depending on the concurrent activities occurring over the course of construction. It is expected that the local or regional labor force would be sufficient to meet construction demand. Although some construction workers could temporarily relocate from other areas, the increase in new workers would be considered an insignificant contributor to housing demand. As of January 2022, Alameda County had approximately 633,200 housing units and a vacancy rate of 5 percent, equating to approximately 32,000 available housing units (CDOF 2022); therefore, there is sufficient available housing to accommodate workers who may relocate. The Proposed Project would not result in any new permanent employment following the completion of construction. The Proposed Project would

[23] To date, the City of Oakland's zoning regulations have not been enforced at the Port, nor has the Port developed any zoning regulations for the Port.

neither displace existing housing nor require the construction of replacement housing. Therefore, no impacts pertaining to population and housing would occur.

### *Public Services*

The Proposed Project would not increase demand for fire or police protection services, given the relatively small construction workforce (ranging between approximately 8 and 90 workers) in the context of an urban area where the existing fire and police services serve a large population. and considering the temporary nature of construction activities. Accordingly, there would be no increase in demand over the baseline level of police and fire service currently required that would require construction of new facilities. Furthermore, the Proposed Project does not include the development of residential land uses that would result in an increase in population or increased enrollment at schools, and would not generate an increase in demand on existing public or private parks or other recreational facilities that would either result in or increase physical deterioration of the facility. Because the Proposed Project would not increase population, it also would not adversely affect service ratios, response times, or other performance objectives in a way that would require the provision of new or physically altered governmental facilities, the construction of which could have adverse environmental impacts. Therefore, no impacts would occur related to public services.

### *Wildfire*

The Proposed Project is not in a designated wildland area that would contain substantial forest fire risks or hazards. The Proposed Project sites are currently developed in a highly urbanized area of the Cities of Oakland and Alameda. The area does not contain dense vegetation and is surrounded by other developed properties, freeways, other roadways, and the San Francisco Bay estuary. Wildfire was added to the CEQA Guidelines as an environmental topic for consideration with regard to impacts that could occur in areas in or near State Responsibility Areas[24] or lands classified as very high fire hazard severity zones. The Proposed Project is not in or near a State Responsibility Area or lands classified as very high fire severity zones (CAL FIRE 2008). Therefore, no impact would occur with regard to wildfire.

## 3.1.4. Impacts from Proposed Project Maintenance Activities

As described in Section 2.5.5 of the Proposed Project Description, maintenance of the Proposed Project would involve maintenance dredging, bulkhead inspections, and routine maintenance and repairs of bulkhead.

Maintenance dredging under the Proposed Project would be consistent with current maintenance dredging of the federal navigation channels at Oakland Harbor, the environmental impacts of which were most recently analyzed in the *Final Environmental Assessment/Environmental Impact Report for the Maintenance Dredging of the Federal Navigation Channels in San Francisco Bay Fiscal Years 2015-2024* (2015 EA/EIR; USACE and RWQCB 2015). As previously analyzed in the 2015 EA/EIR, the annual maintenance dredging volume for the Oakland Harbor waterway (includes both turning basins) was anticipated for up to 1,055,000 cubic yards (cy) per year. However, average maintenance dredging for the Oakland

[24] State Responsibility Areas are recognized by the Board of Forestry and Fire Protection as areas where CAL FIRE is the primary emergency response agency responsible for fire suppression and prevention.

Harbor waterway is generally between 500,000 and 700,000 cy. The Proposed Project is estimated to add up to 93,000 cy of dredged material annually, which combined with the annual average, is within the total volume range analyzed for the Oakland Harbor waterway in the 2015 EA/EIR. A new multi-year EA/EIR is planned for coverage of the USACE maintenance dredging program for 2025-2034 and will be completed prior to construction of the Proposed Project; however, the potential impacts of maintenance dredging up to an additional 93,000 cy of material annually are disclosed throughout this chapter where applicable.

The new bulkheads would require periodic inspections, and if necessary, routine maintenance and repairs. It is expected that the bulkhead would be visually inspected above and below water at an interval not to exceed three years. The inspector would remove any areas of accumulated debris or vegetation along the structure. Routine maintenance for minor wear and tear and to maintain the corrosion protection would be performed as needed. These routine maintenance activities would be consistent with ongoing maintenance required for the existing bulkheads at the Seaport. Because the scope and scale of future inspections and routine maintenance and repair activities would be similar to ongoing maintenance activities, they would not represent a new or added source of environmental impacts relative to baseline conditions and are not further evaluated in this Draft EIR.

# 3.2. AESTHETICS

Under CEQA, aesthetics pertains to the visual impacts of a proposed project. Visual resources consist of the natural and manmade features that give a particular environment its aesthetic qualities. These features may be natural-appearing or modified by human activities. Together, they form the overall impression of an area, referred to as its landscape character. Landforms, water surfaces, vegetation, and manmade features are treated as characteristic of an area if they are inherent to the formation, structure, and function of the landscape. Landscape character is evaluated to assess whether a proposed project would appear compatible with the existing setting or would contrast noticeably with the setting and appear out of place.

Visual resources also include public values, goals, awareness, and concern regarding visual quality. The concept of visual sensitivity encompasses the relative degree of public interest in visual resources, and concern over adverse changes in the quality of that resource. Visual sensitivity is key in assessing how important an effect on the visual resource would be, and whether it represents a significant impact. Recreational and residential uses are generally considered to have high visual sensitivity, as are views from scenic routes or corridors.

Scenic vistas may be generally described as panoramic views of a large geographic area for which the field of view can be wide and extend into the distance. Scenic vistas are experienced from publicly accessible locations and include urban skylines, valleys, mountain ranges, or large bodies of water.

This section describes the aesthetic impacts of the Proposed Project based on its physical characteristics and potential visibility, and the extent to which the Proposed Project would change the perceived visual character and quality of the physical environment. Key viewpoints, which consist of representative photographs of the existing visual character of the Proposed Project area, are included as part of the discussion of the environmental setting. Photographs were selected based on the proximity of proposed improvements to publicly accessible vantage points. The locations of the key viewpoints and the direction of the views are shown in **Figures 3.2-1** and **3.2-2**.

## 3.2.1. Environmental Setting

The landscapes of the San Francisco Bay (Bay) Area are varied, unique, and recognized by many in the region and beyond. The basin formed by the Coast Ranges, East Bay hills, and the Bay itself are prominent physical features of the region. To the west, the Pacific Ocean and the Coast Ranges dominate the visual setting, stretching from Mount Tamalpais in the north to the Santa Cruz Mountains in the south. To the east, the Diablo Range, punctuated by Mount Diablo, provides a view of a different character. In the north, the vineyards of Napa and Sonoma Counties provide an agricultural landscape. Built features in the region—the Golden Gate and Bay Bridge and the San Francisco skyline in particular—are of international renown. Bay Area residents and tourists alike value the variety and quality of the visual experiences that are found throughout the region, including urban and rural public spaces, regional parks, and transportation corridors, including heavily traveled freeways, transit lines, and ferries. The Bay Area is also home to a number of bodies of water and waterways that flow through or are located in the region. Estuaries, creeks, and built waterways are found throughout the region, as well as the dominant body of water, San Francisco Bay, which reaches out to the northern- and southernmost counties of the Bay Area.

**Figure 3.2-1 Outer Harbor Turning Basin Key Observation Points and Public Parks**

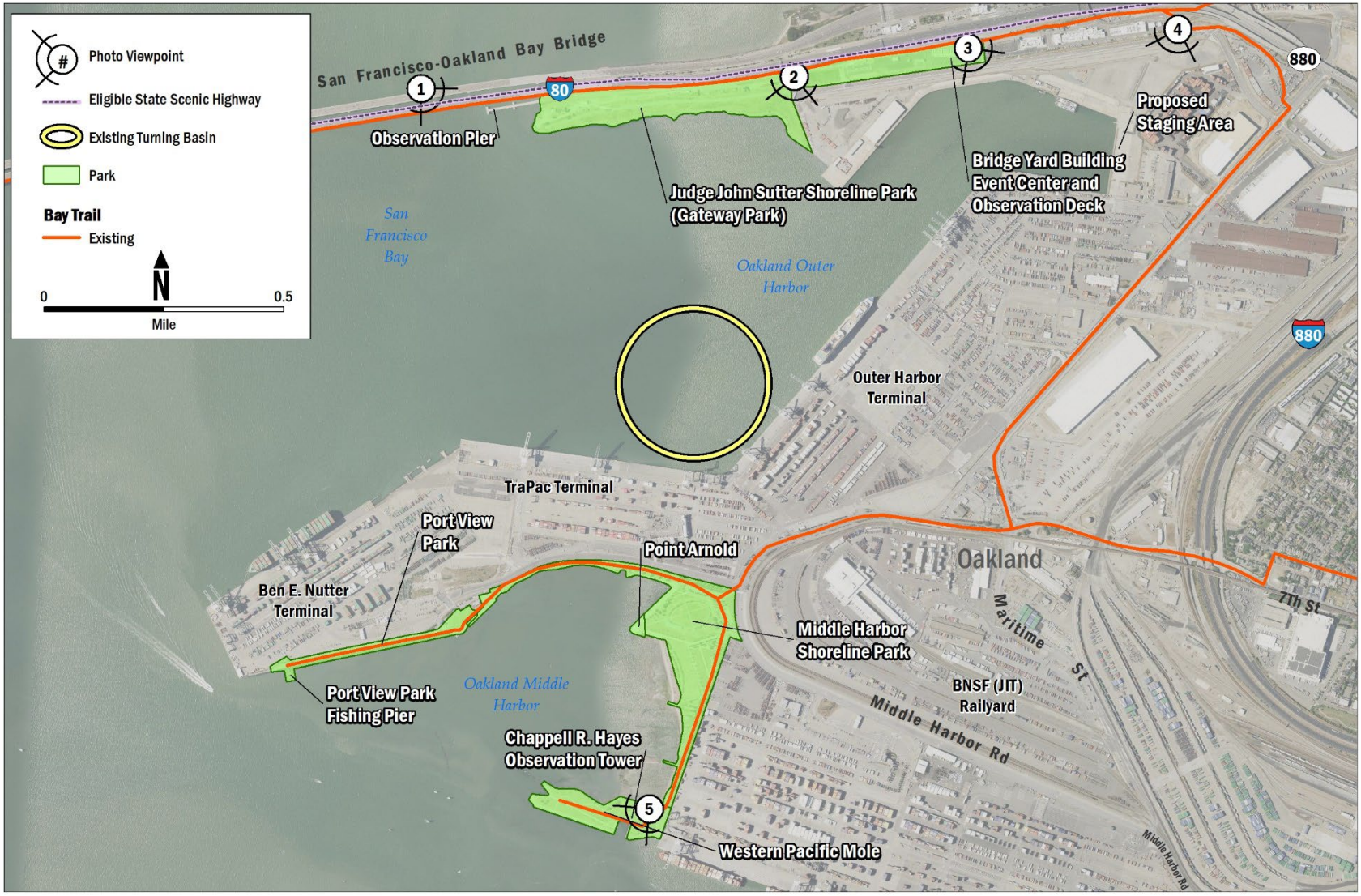


**Figure 3.2-2 Inner Harbor Turning Basin Key Observation Points and Public Parks**



The Seaport is at the western end of the City of Oakland, adjacent to the eastern shoreline of San Francisco Bay. The topography (terrain) in the vicinity of the Seaport is essentially flat. The Proposed Project area is predominantly characterized by maritime industrial uses associated with the Seaport; the City of Oakland, which borders the Seaport on the north and east, and contains urban uses including residential and commercial; and the City of Alameda, which borders the Inner Harbor Channel on the south (see **Figures 3.2-1** and **3.2-2**). The former Naval Air Station (NAS) Alameda, which also borders the Inner Harbor Channel on the south, is being redeveloped with a variety of urban uses, including residences, parks, and light industrial uses.

## *Existing Visual Character*

The visual character of the area surrounding each turning basin is described below. Public views from key viewpoints[25] are described, and representative photographs from land or water are provided for each key viewpoint indicated in **Figures 3.2-1** and **3.2-2**.

### Outer Harbor Channel and Turning Basin

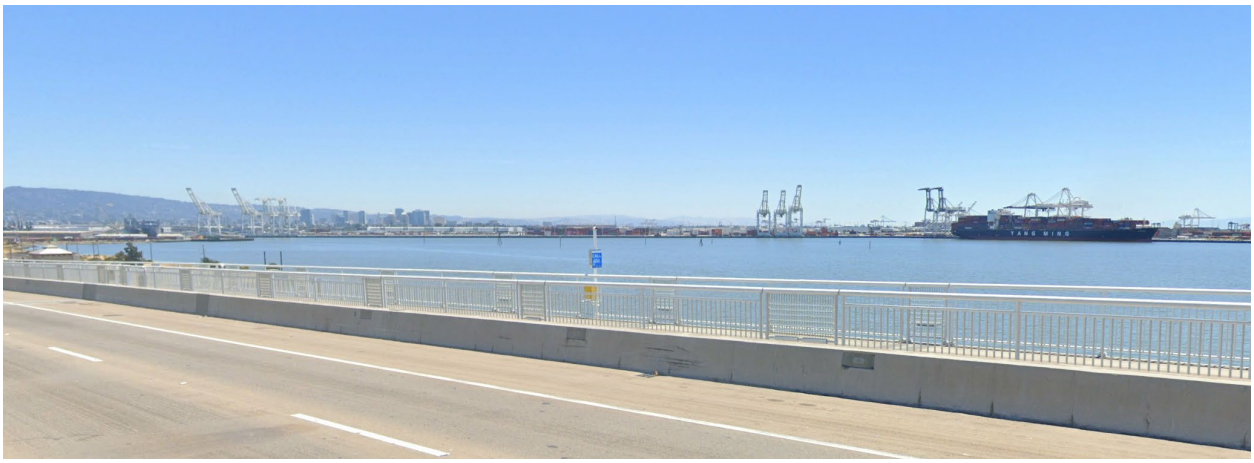
There are currently two major active marine terminals (i.e., TraPac and Ben E. Nutter) along the Outer Harbor in the Outer Harbor Terminal, with the TraPac terminal immediately adjacent to the south and east of the OHTB. The Outer Harbor Terminal includes 17 berths for various vessel lengths, mechanized cranes, container storage areas, and large paved parking lots for employees. The ocean-going container vessels that dock at these terminals, along with the berths, cranes, container storage, and nearby warehouses, give the area a distinct industrial waterfront visual character (**Figures 3.2-3** through **3.2-5**). Floodlighting on high-mast structures is present for operations and security and is visible at night throughout the immediate Bay Area. Channel markers are located along the western boundary of the Outer Harbor Channel and OHTB to guide vessels in navigating within the channel limits.

The elevated east span of the Bay Bridge, including the pedestrian path (also known as the Alexander Zuckerman Bay Bridge Trail), is north of the OHTB and connects the Oakland shoreline with Yerba Buena Island to the west. The Bay Bridge Trail is part of the San Francisco Bay Trail (Bay Trail), a bicycle and pedestrian path that runs along San Francisco Bay. The elevated span of the Bay Bridge provides expansive views to the east of the Outer Harbor (including the OHTB) and the Inner Harbor entrance for millions of motorists yearly, as well as recreationists (**Figure 3.2-3**).

On the northern side of the Outer Harbor, the 22.5-acre Judge John Sutter Shoreline Park (Gateway Park) is situated between the Oakland Harbor and I-80. A pedestrian observation pier at the western end of the park provides expansive views of the Bay Bridge, the San Francisco skyline to the west, and the Outer Harbor (including the OHTB) to the west, south, and east (**Figure 3.2-4**). The Bay Trail runs along the northern side of Judge John Sutter Shoreline Park (Gateway Park), and the shoreline in this area is flat, so park visitors and recreationists on the Bay Trail have expansive views to the south of the Outer Harbor and the associated vessels and cranes. The park includes the historic Bridge Yard Building, which is available for event rentals, and has an associated elevated viewing platform with views to the northeast of Berth 10, and views to the southwest of the OHTB (**Figure 3.2-5**).

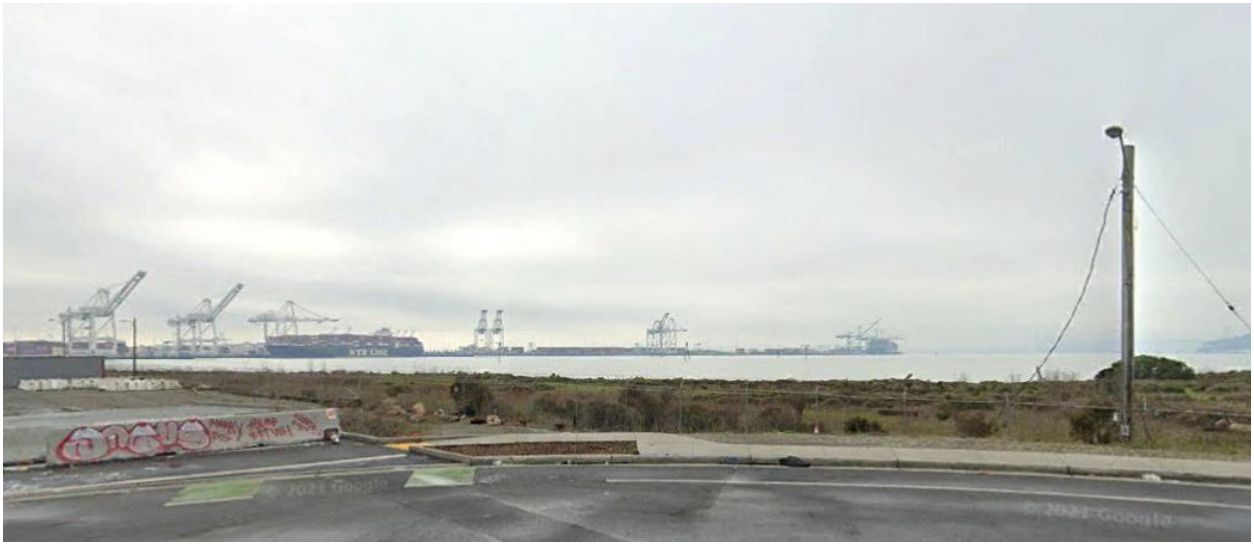
[25] Key viewpoints were identified based on available views of the Proposed Project sites from publicly accessible recreational facilities (e.g., parks and trails) and transportation corridors (both roadway and waterway).

**Figure 3.2-3 Viewpoint 1**



View of the Outer Harbor, OHTB, and Outer Harbor Terminal from the Bay Bridge and Bay Bridge Trail, looking southeast. Navigation aid markers are visible along the channel. Source: Google Earth 2023

**Figure 3.2-4 Viewpoint 2**



View of the Outer Harbor Channel, OHTB, and Outer Harbor Terminal from the Judge John Sutter Shoreline Park (Gateway Park) entrance, looking south. Source: Google Earth 2021

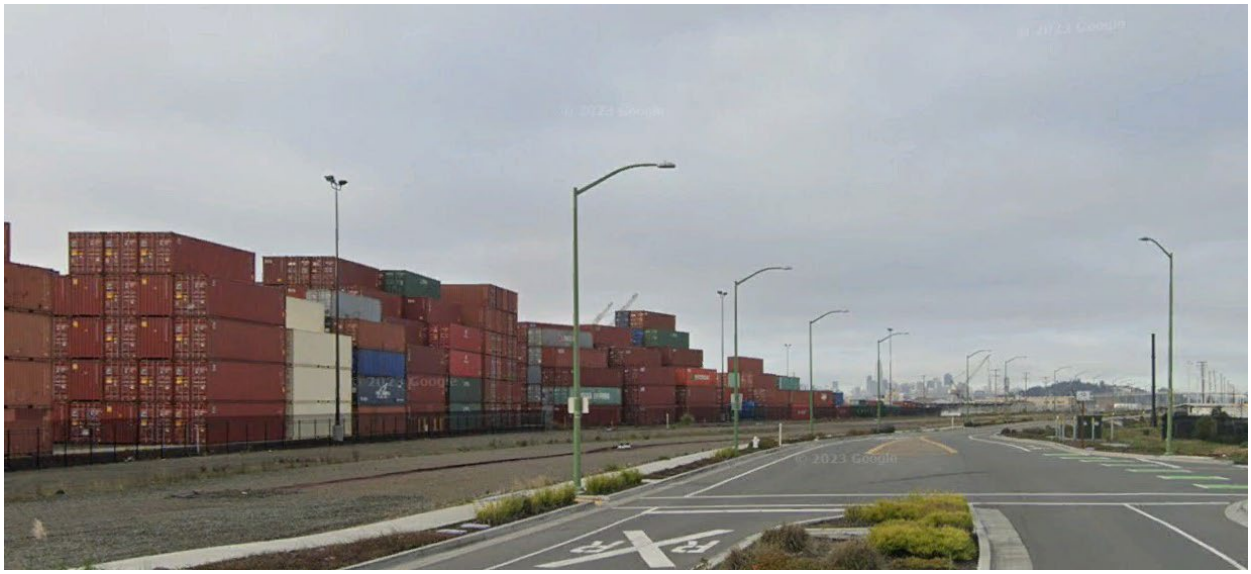
**Figure 3.2-5 Viewpoint 3**



View of tugboats at Berths 8/9, government lay berth vessel at Berths 9 and 20, and the Outer Harbor Terminals from the Judge John Sutter Shoreline Park (Gateway Park) Bridge Yard Building and Observation Deck at Burma Road, looking east. Source: Google Earth 2021

The area around Berth 10 is heavy industrial in nature, consisting of shipping containers, soil stockpiles, industrial buildings and warehouses, metal fencing, paved roadways, construction and container-moving equipment, construction material storage yards, truck packing, and high-mast light poles (**Figure 3.2-6**). The equipment and materials present at this location vary depending on specific projects and activities occurring at any given time; however, views remain primarily industrial in nature.

**Figure 3.2-6 Viewpoint 4**



View of shipping containers and the Outer Harbor terminal from the Bay Trail/Burma Road, looking south. Source: Google Earth 2023

## Inner Harbor Channel and Turning Basin

The Inner Harbor is bordered to the north by the Seaport (in the City of Oakland) and to the south by the City of Alameda. The Seaport's Middle Harbor is situated between the western channel entrance to the Inner Harbor and the Oakland International Container Terminal. The Middle Harbor includes Port View Park and Middle Harbor Shoreline Park. The Western Pacific Mole[26] in Middle Harbor Shoreline Park includes the Chappell R. Hayes Observation Tower, and provides scenic views of the surrounding landscape, including the Inner Harbor, the Oakland International Container Terminal, the City of Alameda, the Oakland Hills, San Francisco skyline, and the Coast Ranges to the southwest (**Figure 3.2-7**). Park visitors are unable to see the IHTB or the OHTB from the Chappell R. Hayes Observation Tower because the views are blocked by marine terminal infrastructure and equipment, including, but not limited to, containers.

**Figure 3.2-7 Viewpoint 5**



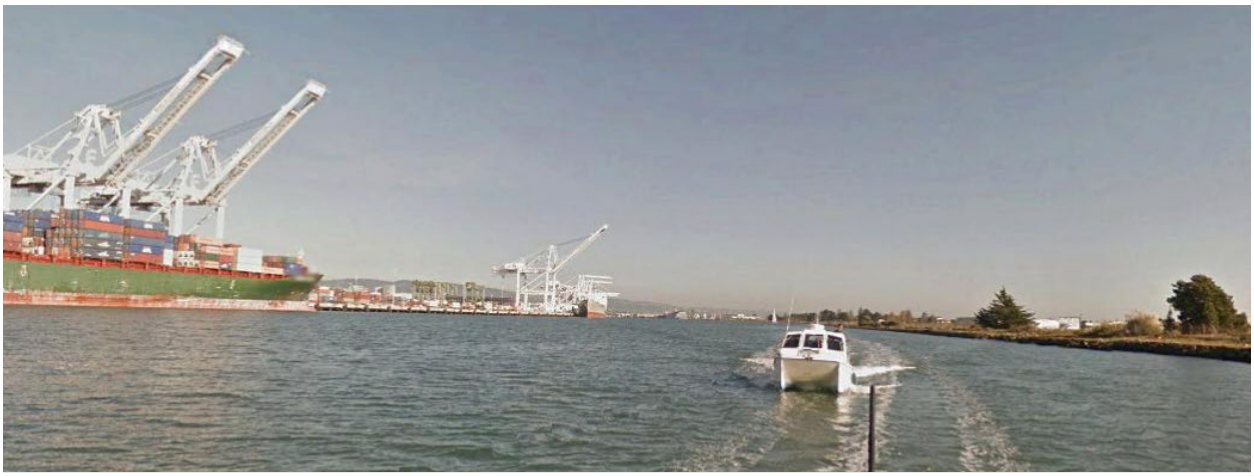
View of the Inner Harbor entrance, San Francisco skyline, and Chappell Hayes Observation Tower, from Middle Harbor Shoreline Park, looking southwest. Source: Google Earth 2021

As depicted in Figure 3.2-1, Port View Park includes a fishing and observation pier, which provides a vantage point similar to the observation tower, but from a lower elevation. Port View Park provides unobstructed views to the south and west of the Inner Harbor Channel entrance, affording park visitors views of vessels passing through the channel as well as views of the western end of the former NAS Alameda. Due to intervening development (marine terminal infrastructure and equipment), visitors to Port View Park are unable to see the IHTB.

Port facilities along the Inner Harbor Channel include the Oakland International Container Terminal and Matson Terminal, with views in this area characterized by industrial waterfront uses like those of the Outer Harbor. The southern side of this portion of the Inner Harbor includes the former NAS Alameda, the western portion of which is planned and approved for redevelopment as the Northwest Territories Regional Shoreline Park—a 158-acre open space that will include an extension of the Bay Trail, and benches for seated viewing opportunities. The IHTB is not visible from the planned park or the planned extension of the Bay Trail in this area; views in this area are dominated by maritime industrial facilities (**Figure 3.2-8**).

[26] Historically, the term "mole" was used in the San Francisco Bay Area to refer to the combined structure of a causeway and wooden pier or trestle upon which railroad tracks were extended into the Bay to link railroads with the ferry system.

**Figure 3.2-8 Viewpoint 6**



View of the Inner Harbor Channel and the planned Northwest Territories Regional Shoreline Park, from the Inner Harbor Channel, looking east. Source: Google Earth 2021

Adjacent to and east of the planned Northwest Territories Regional Shoreline Park, the former NAS Alameda has been redeveloped with light industrial uses; the Alameda Point Multi-Purpose Field; City View Skate Park; Alameda Point Soccer Fields; a landscaped open space "quad" area with pedestrian paths; and single-family residential housing (formerly base housing). Views in the area include the Inner Harbor Channel, followed by container cranes, and docked vessels at the Seaport, and the northeastern side of the IHTB in the middle ground (**Figure 3.2-9**).

**Figure 3.2-9 Viewpoint 7**



View of waterfront area, cranes and a vessel at Matson Terminal, with the Inner Harbor Channel and IHTB in the middleground and San Leandro Hills in the background, from Main Street and West Mall Square, looking east. Source: Google Earth 2021

Along the Alameda waterfront, across from the Matson Terminal at the Seaport, is the San Francisco Bay Ferry, Alameda Main Street Terminal, and the adjacent City of Alameda Main Street Dog Park. The dog park and the ferry terminal are connected via a portion of the Bay Trail along the waterfront (i.e., the Waterfront Main Street Park). An open lookout point is provided from Main Street to the west of the dog park. Views of the Inner Harbor Channel and the IHTB looking northeast from this area consist of typical maritime industrial activities, including, but not limited to, container terminals

and scrap metal recycling operations associated with the Seaport on the northern shore; large container vessels in the channel; and various buildings, cranes, and equipment associated with shipbuilding operations and repairs at the Bay Ship & Yacht Company. The City of Oakland skyline and the San Leandro Hills are also visible in the background from this location (**Figure 3.2-10**).

**Figure 3.2-10 Viewpoint 8**



View of black crane at Schnitzer/Radius Recycling, the Inner Harbor Channel and northwestern edge of IHTB, City of Oakland skyline, San Leandro Hills, ship construction building and cranes at Bay Ship & Yacht Company, Alameda Ferry Terminal, Main Street Dog Park, and Bay Trail, from the Bay Trail looking northeast. Source: Google Earth 2021

Middle Harbor Road and Adeline Street bound the Oakland International Container Terminal and Matson Terminal to the north, and the Union Pacific Railroad (UPRR) Intermodal Terminal is immediately north of both terminals across Middle Harbor Road. The UPRR Intermodal Terminal includes railroad tracks, rail cars, locomotives, cargo containers, and warehouse buildings. Farther north and east is I-880 (which includes elevated portions), which generally parallels the Seaport. North of Howard Terminal is Embarcadero West and industrial uses in the Acorn Industrial District[27] of the City of Oakland, contributing to the industrial setting in the area of the Seaport. Public views of the Inner Harbor Channel and IHTB from Middle Harbor Road, Adeline Street, I-880, and Embarcadero West are blocked by shipping containers, cranes, trucks, and buildings associated with Seaport operations. Therefore, no viewpoints of the Inner Harbor or IHTB are available from these locations on the northern side of the IHTB.

Schnitzer/Radius Recycling owns an approximately 29-acre property that abuts the northwestern side of the IHTB. The Schnitzer/Radius Recycling facility includes a large black crane on a wharf along with paved parking, and various industrial buildings and processing areas (**Figures 3.2-10** and **3.2-11**). Views of the northeastern portion of the IHTB are primarily heavy industrial in nature and are associated with maritime industrial operations. However, tall buildings that form the City of Oakland skyline are clearly visible in the middle ground, and the San Leandro Hills are visible in the background (**Figure 3.2-12**). There are channel markers at the northern and southern perimeter of the IHTB to guide vessels in navigating within the turning basin limits.

[27] The Acorn Industrial District is a neighborhood in the City of Oakland that is the location of a number of industrial businesses, including those related to the Seaport.

**Figure 3.2-11 Viewpoint 9**



View of Schnitzer/Radius Recycling facility with black mechanized crane and northwestern edge of the IHTB from the southern edge of the Inner Harbor Channel, looking north. Passenger ferry shown in transit. Source: Google Earth 2014

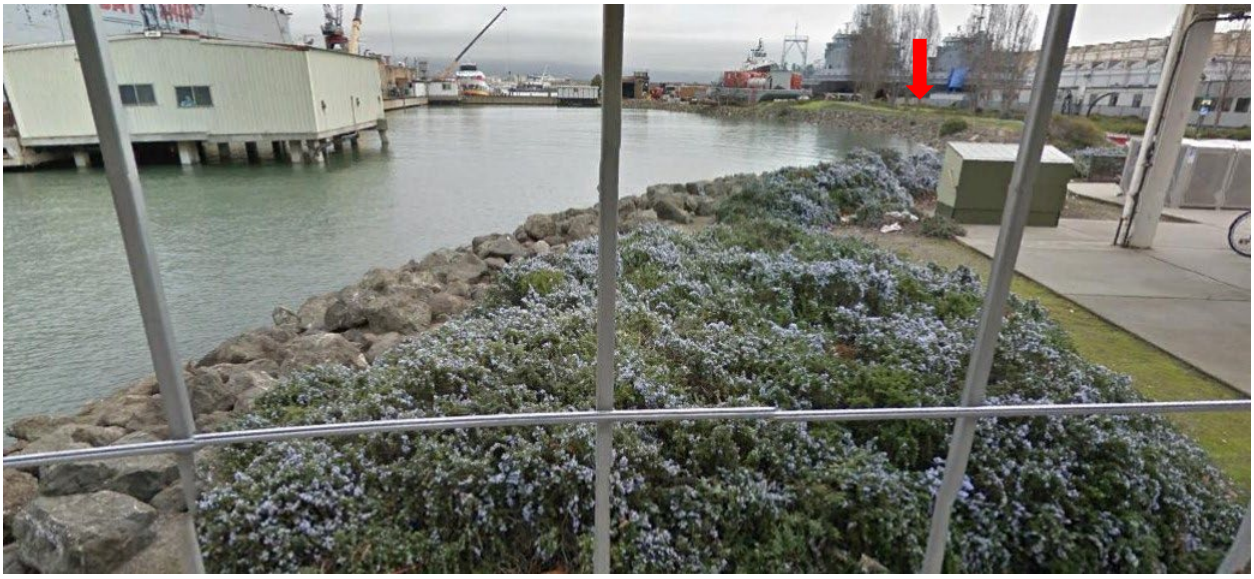
**Figure 3.2-12 Viewpoint 10**



View of the northeastern IHTB and Howard Terminal from the Inner Harbor Channel, looking northeast. Source: Google Earth 2014

On the southwestern side of the IHTB, the Bay Ship & Yacht Company operates on a parcel that includes large warehouses, equipment and materials storage, paved parking, and drydocks[28] along the channel. Waterside areas adjacent to Bay Ship & Yacht Company and the Alameda Site are leased by Centerline Logistics for berthing fuel barges (a tank barge used for transporting fuel). The San Francisco Bay Ferry Alameda Terminal is immediately adjacent to the Bay Ship & Yacht Company to the west. Views to the east from this location toward the IHTB consist of maritime heavy industrial shipbuilding operations, equipment, and warehouses (**Figure 3.2-13**).

**Figure 3.2-13 Viewpoint 11**



View of Bay Ship & Yacht Company landside facilities and associated docks at southwestern corner of the IHTB and the Bay Trail (red arrow) from the San Francisco Bay Alameda Ferry Terminal, looking east. Source: Google Earth 2021

A portion of the Bay Trail runs along the Alameda side of the Inner Harbor Channel, from the western end of the Main Street Dog Park, eastward to the edge of the Bay Ship & Yacht Company property (**Figure 3.2-14**). The southwestern side of the IHTB is adjacent to and east of this location. The viewshed in this area consists entirely of heavy industrial land uses including shipbuilding equipment, warehouses, boats, and paved roadways and parking, which block views of the IHTB.

[28] A drydock consists of a rectangular basin dug into the shoreline of a body of water and provided with a removable enclosure wall or gate on the side toward the water, or a submersible platform, both of which allow work to be done on a vessel's underwater components while out of water.

**Figure 3.2-14 Viewpoint 12**



View of eastern end of Bay Trail and Bay Ship & Yacht Company adjacent to the southwestern side of the IHTB, from the Bay Trail, looking east. Source: Google Earth 2016

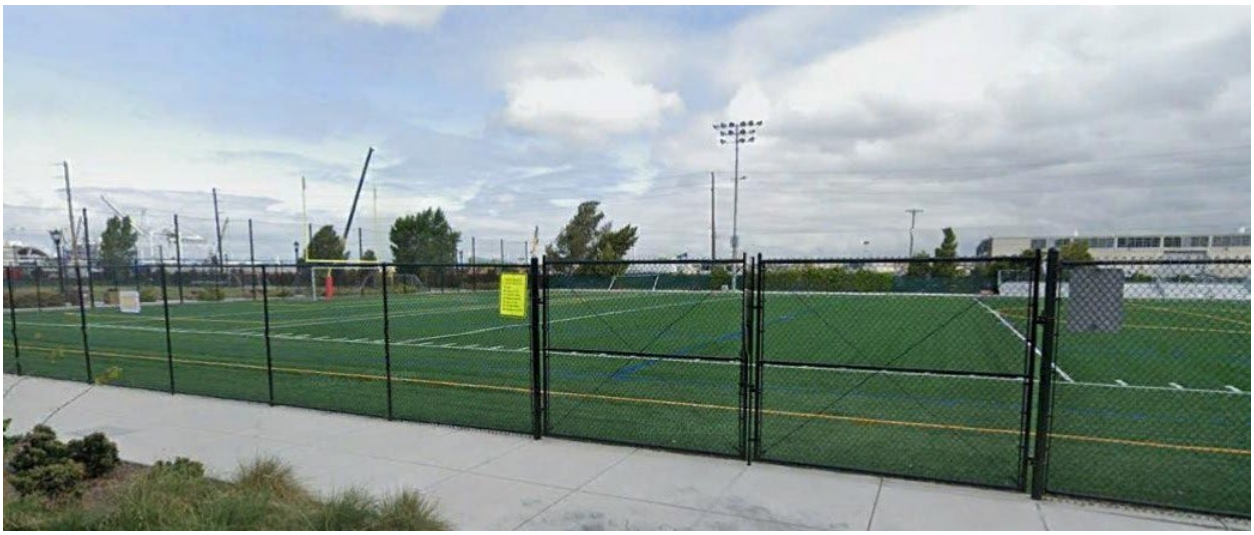
On the southeastern side of the IHTB, there are materials storage areas, vessel berthing areas, and large, white warehouse buildings (**Figure 3.2-15**). The City of Alameda's Estuary Park, created in 2017, is adjacent to and south of the maritime industrial operations. The City of Alameda's Estuary Park includes baseball and soccer fields (**Figure 3.2-16**), and a walking trail around a small wetland area. The northwestern corner of the park includes a limited view (partially blocked by vegetation, warehouses, and berthed boats) into the IHTB.

**Figure 3.2-15 Viewpoint 13**



View of southeastern side of the IHTB, including warehouses and vessels, and trees in the City of Alameda's Estuary Park, from the Inner Harbor Channel, looking southeast. Source: Google Earth 2021

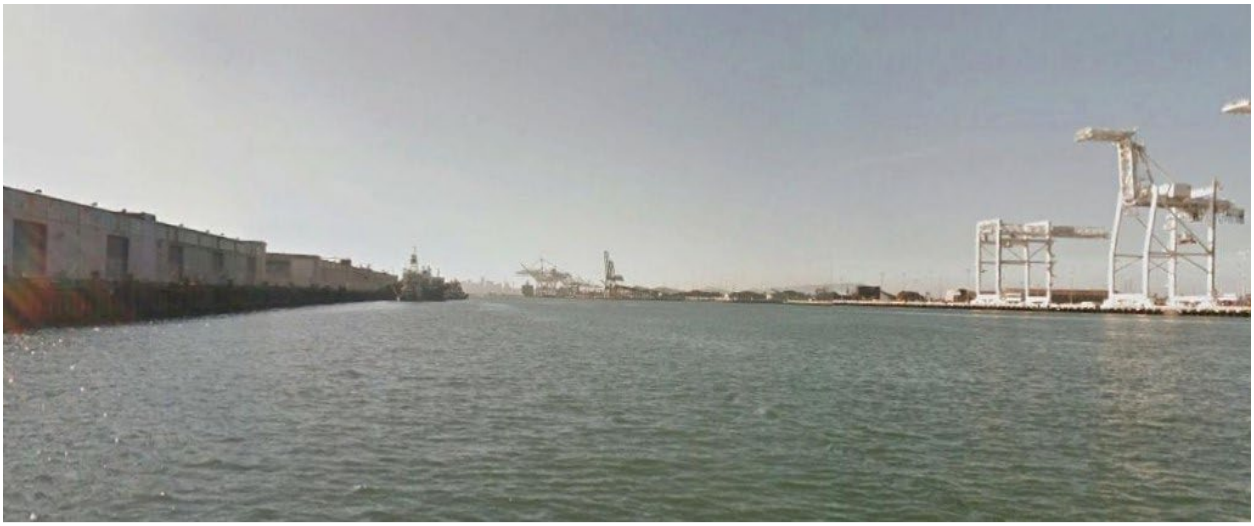
**Figure 3.2-16 Viewpoint 14**



View of playing fields and high-mast lighting at the City of Alameda's Estuary Park, cranes at the Bay Ship & Yacht Company, and warehouses, from Mosley Avenue, looking north. Source: Google Earth 2019

Land uses on the southeastern side of the Inner Harbor Channel consist of warehouses, the planned and approved Alameda Landing Waterfront Park, and the Landing at Bay 37 residential development (under construction at the time this document was prepared). This area displays a maritime industrial character, with the viewshed dominated by the tall, white mechanized cranes at Howard Terminal (**Figure 3.2-17**).

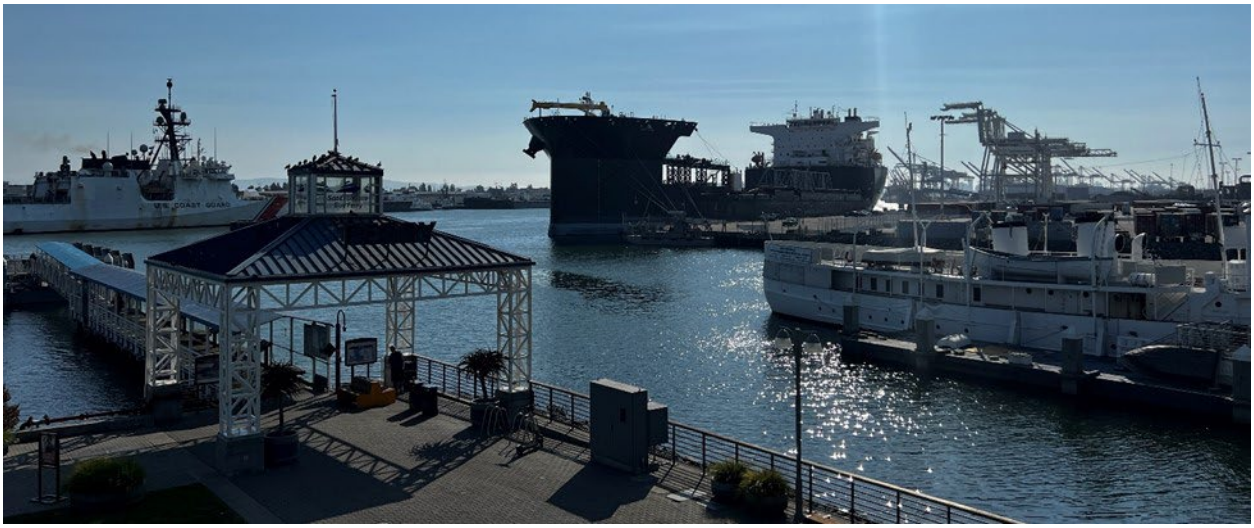
**Figure 3.2-17 Viewpoint 15**



View of the Inner Harbor Channel, cranes at Howard Terminal, northern portion of IHTB, and cranes at Matson Terminal, from the Inner Harbor near the planned Alameda Landing Waterfront Park, looking west. Source: Google Earth 2021

Immediately north and east of the IHTB, on the northern side of the Inner Harbor Channel, is Howard Terminal. To the east of the IHTB and Howard Terminal are the San Francisco Bay Ferry Oakland Terminal and Jack London Square (a pedestrian-oriented mixed-use office, retail, and entertainment area). Jack London Square receives extensive public use. Boardwalks along the shore, waterfront restaurants, and a hotel provide opportunities for panoramic views of the Inner Harbor Channel and the Alameda shoreline. From upper-story levels, the area provides westward views of the Inner Harbor Channel, IHTB, and the Seaport; ground-level views toward the IHTB are blocked or dominated by the Howard Terminal. Ship berths adjacent to the western side of the ferry terminal accommodate two historic ships that are docked and open for public viewing as museums: the USS Potomac and the Lightship Relief. The USS Potomac is occasionally open to the public for tours and cruises in the Bay. A small public plaza with benches and viewing areas connects the ferry terminal with the historic ship museum (**Figure 3.2-18**).

**Figure 3.2-18 Viewpoint 16**



View of the southern side of the IHTB from a public observation deck at 10 Clay Street, Oakland, looking southwest.

### *Scenic Resources*

As described in the preceding section, the viewsheds in the immediate area of the turning basins are characterized by an industrial waterfront. Although limited scenic features are observed from some viewpoints, such as views of the channel waterways and San Francisco Bay, City of Oakland and City of San Francisco skylines, and San Leandro Hills, the viewsheds at the turning basins are generally dominated by cranes, container storage, warehouses, and docked vessels. The white container cranes that line the Seaport shoreline are a notable scenic feature in the Oakland skyline; however, they can be viewed from various vantage points and are not unique to the viewsheds afforded from or specifically toward the Proposed Project sites. Nearby locations such as Middle Harbor Shoreline Park, Port View Park, the Bay Trail, and the northwestern Alameda shoreline provide expansive and unobstructed high-quality views of the scenic landscapes of the Bay, surrounding hills, and the Oakland and San Francisco skyline. Therefore, the views of the Proposed Project sites, which are dominated by maritime industrial facilities, are of relatively low scenic value compared to other viewsheds of scenic landscapes in the vicinity.

Interstate 80 from First Street in San Francisco to State Route 61 in Oakland (which includes the San Francisco-Oakland Bay Bridge) is eligible for designation[29] as a State Scenic Highway (Caltrans 2019). Interstate 580 (I-580, also referred to as the MacArthur Freeway) from the San Leandro city limit to State Route 24 (approximately 2 miles northeast of the IHTB) is an officially designated State Scenic Highway (Caltrans 2019). The OHTB is visible from I-80 across the Bay Bridge, while none of the Proposed Project sites are within the I-580 viewshed. There are no officially designated State Scenic Highways in the Proposed Project area (Caltrans 2019). Interstate 80 is recognized by the City of Oakland and Alameda County as a scenic highway/route (City of Oakland 1974, Alameda County 1994). There are no other locally designated scenic roads or highways in the Proposed Project vicinity.

### *Lighting and Glare*

Lighting and glare vary widely throughout the area; however, the area generally contains sources of light and glare that are typical of urban areas, including streetlights, security lights, high-mast yard lights, headlights, parking lot lights, and reflective surfaces such as windows. Floodlighting on high-mast structures and cranes is present in the Seaport for nighttime operations and security. Parks and natural areas in the project vicinity have lower levels of artificial light, primarily consisting of streetlights, minimal security lighting, and light spillover from nearby industrial uses.

## 3.2.2. Regulatory Setting

### *Federal*

#### Coastal Zone Management Act (16 United States Code § 1451 et seq.)

The Coastal Zone Management Act (CZMA) provides for management of the nation's coastal resources. The overall purpose of the act is to balance competing land and water issues in the coastal zone. For San Francisco Bay, the San Francisco Bay Conservation and Development Commission (BCDC) is the regional coastal zone management agency. The San Francisco Bay Plan (Bay Plan) is BCDC's policy document specifying goals, objectives, and policies for BCDC jurisdictional areas, and is the primary plan governing development in San Francisco Bay. The Bay Plan includes policies pertaining to appearance, design, and scenic views (BCDC 1969, as amended). Federal activities that affect the jurisdiction are subject to review by BCDC, pursuant to the CZMA, for their consistency with BCDC's federally approved coastal management program. USACE, as the federal sponsor for the Proposed Project, must demonstrate that the Proposed Project is consistent, to the maximum extent practicable, with the enforceable policies of the Bay Plan. The Bay Plan is further discussed under the regional regulatory setting below.

### *State*

#### California Scenic Highway Program

The intent of the California Scenic Highway Program (Streets and Highway Code Sections 260 et seq.) is to provide and enhance California's natural beauty and protect the social and economic

[29] An eligible state highway becomes officially designated through a process in which the local governing body applies to Caltrans for scenic highway approval, adopts a Corridor Protection Program, and receives notification that the highway has been officially designated a State Scenic Highway by the Caltrans Director.

values provided by the state's scenic resources from changes that would diminish the aesthetic value of lands adjacent to identified scenic highways. Caltrans manages the state Scenic Highway Program and provides guidance to local government agencies, community organizations, and citizens that are pursuing the official designation of a State Scenic Highway. Caltrans defines a scenic highway as any freeway, highway, road, or other public right-of-way that traverses an area of exceptional scenic quality. A highway may be designated as scenic depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes on the traveler's enjoyment of the view.

## *Regional*

### San Francisco Bay Plan

In addition to serving as the regional coastal zone management agency pursuant to the CZMA, BCDC is a state agency with permit authority over the Bay and its shoreline. BCDC issues permits for dredging and development activities in its jurisdiction if it finds the activities to be consistent with the Bay Plan. The Bay Plan includes policies for managing Bay resource appearance, design, and scenic views to avoid visual impacts and promote scenic views (BCDC 1969, as amended). The following Bay Plan policies are relevant to the Proposed Project and aesthetics:

- Appearance, Design, and Scenic Views Policy 1: To enhance the visual quality of development around the Bay and to take maximum advantage of the attractive setting it provides, the shores of the Bay should be developed in accordance with the Public Access Design Guidelines.
- Appearance, Design, and Scenic Views Policy 2: All bayfront development should be designed to enhance the pleasure of the user or viewer of the Bay. Maximum efforts should be made to provide, enhance, or preserve views of the Bay and shoreline, especially from public areas, from the Bay itself, and from the opposite shore. To this end, planning of waterfront development should include participation by professionals who are knowledgeable of the Commission's concerns, such as landscape architects, urban designers, or architects, working in conjunction with engineers and professionals in other fields.
- Appearance, Design, and Scenic Views Policy 3: In some areas, a small amount of fill may be allowed if the fill is necessary—and is the minimum absolutely required—to develop the project in accordance with the Commission's design recommendations.

## *Local*

### Port of Oakland Exterior Lighting Policy

The Port's Exterior Lighting Policy prescribes measures to prevent light pollution from development and operations in all areas under the jurisdiction of the Port. The General Mitigation Measures and Practices of the policy state that the "design of exterior lighting shall generally follow Illuminating Engineering Society of North America – *Recommended Levels for Exterior Lighting*. The *Dark-Sky Association* further recommends that lighting designers minimize illumination levels, pole height and spacing, glare, lighting system depreciation and life-cycle cost. Additionally, lighting pollution mitigation measures include specifying full cutoff light fixtures, horizontally oriented lamps (bulb), and low-reflectivity architectural surfaces."

## City of Oakland General Plan

The City of Oakland General Plan contains goals and policies in various elements that are intended to protect existing scenic views in Oakland, particularly views of the Oakland Hills from the flatlands; views of downtown and Lake Merritt; views of the shoreline; and panoramic views from hillside locations. In addition, the General Plan includes objectives to enhance underused visual resources, including the waterfront, creeks, San Leandro Bay, architecturally significant buildings or landmarks, and major thoroughfares (City of Oakland 1996). Policies relevant to the Proposed Project are listed below.

- General Policy 2: All or portions of visually significant trafficways are eligible for future designation as scenic routes and for the protective restrictions that may be appropriate thereto.
- General Policy 3: Urban development should be related sensitively to the natural setting.
- MacArthur Freeway[30] Policy 2: Visual intrusions within the scenic corridor should be removed, converted, buffered, or screened from the motorist's view.
- MacArthur Freeway Policy 3: Panoramic vistas and interesting views now available to the motorist should not be obliterated by new structures.
- MacArthur Freeway Policy 4: New construction within the scenic corridor should demonstrate architectural merit and a harmonious relationship with the surrounding landscape.
- Policy I/C4.1: Protecting Existing Activities. Existing industrial, residential, and commercial activities and areas that are consistent with long-term land use plans for the City should be protected from the intrusion of potentially incompatible land uses.
- Policy T6.5: Protecting Scenic Routes. The City should protect and encourage enhancement of the distinctive character of scenic routes within the City through prohibition of billboards, design review, and other means.
- Policy OS7.3: Waterfront Appreciation. Promote a greater appreciation of the Oakland waterfront by preserving and enhancing waterfront views, promoting its educational value, and, exploring new and creative ways to provide public access to the shoreline without interfering with transportation and shipping operations or endangering public safety.
- Policy OS-9.3: Gateway Improvements. Enhance neighborhood and City identity by maintaining or creating gateways. Maintain view corridors and enhance the sense of arrival at the major entrances to the City, including freeways, San Francisco Bay Area Rapid Transit (BART) lines, and the airport entry. Use public art, landscaping, and signage to create stronger City and neighborhood gateways.
- Policy OS10.1: View Protection. Protect the character of existing scenic views in Oakland, paying particular attention to (a) views of the Oakland hills from the flatlands, (b) views of downtown and Lake Merritt, (c) views of the shoreline, and (d) panoramic views from Skyline Boulevard, Grizzly Peak Road, and other hillside locations.

[30] Interstate 580 is also referred to as the MacArthur Freeway.

- Policy OS10.2: Minimizing Adverse Visual Impacts. Encourage site planning for new development that minimizes adverse visual impacts and takes advantage of opportunities for new vistas and scenic enhancement.

### City of Alameda General Plan

The City of Alameda General Plan contains goals and policies to preserve and enhance Alameda's waterfronts as important destinations by maximizing waterfront physical and visual access from adjoining neighborhoods and streets, considering land uses that complement the waterfront setting, and maintaining existing views (City of Alameda 2022). View corridors to the waterfront along public streets, pathways, and trails should be preserved. Policy LU-30 relevant to the Proposed Project is stated below.

- Policy LU30: Waterfront Design. Preserve and enhance Alameda's waterfronts as important destinations by maximizing waterfront physical and visual access from adjoining neighborhoods and streets and permitting land uses that complement the waterfront setting.

## 3.2.3. Significance Criteria

Based on Appendix G of the CEQA Guidelines, the below questions (criteria) were analyzed and evaluated to determine whether impacts related to aesthetics are significant. Would the Proposed Project:

A. have a substantial adverse effect on a scenic vista?

B. substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings, within a state scenic highway?

C. substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

D. create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

### *Methodology for Analysis*

The aesthetic value of an area is a measure of the variety and contrast of the area's visual features, the character and quality of those features, and the scope and scale of the scene, combined with the anticipated viewer response. This analysis uses a qualitative approach for characterizing and evaluating the potential impacts on visual resources that could result from implementation of the Proposed Project. In determining the extent and implications of the visual changes, consideration was given to specific changes in the visual composition, character, and valued qualities of the affected environment, and the extent to which these factors would be affected.

The above factors were considered in combination with the type and duration of anticipated construction activities and the improvements associated with the Proposed Project that would be visible following the completion of construction. Future maintenance dredging of the widened areas of the turning basins would appear as an extension of existing annual maintenance dredging activities of Oakland Harbor and would have negligible impacts related to aesthetics; therefore, impacts from future maintenance dredging are not addressed further in this section.

## 3.2.4. Impact Analysis and Mitigation Measures

### *Impact AES-1. Would the Proposed Project have a substantial adverse effect on a scenic vista? (Criterion A) (Less than Significant)*

#### Impact Analysis

Construction of the Proposed Project would occur in proximity to scenic vistas at various public use areas, including the Bay Bridge, Judge John Sutter Shoreline Park (Gateway Park), Bay Trail, Middle Harbor Shoreline Park, Port View Park, and the City of Alameda's Estuary Park and Main Street Dog Park. Construction activities would be concentrated at Howard Terminal, the Alameda Site, Berth 26, Berth 10, and the Inner and Outer Harbor Turning Basins (refer to Figures 2.5-1 through 2.5-3 in Chapter 2). Widening of the IHTB would involve use of cranes, bulldozers, and excavators for demolition; and use of cranes, excavators, and drill rigs for the installation of bulkheads; dredging via a barge-mounted crane with clamshell bucket; and use of scows to transport dredged material. Except for minor electrical infrastructure installation at Berth 26, widening of the OHTB expansion would not include any land-based activities; only dredging via a barge-mounted crane with clamshell bucket is planned. Construction equipment and materials would be staged at Howard Terminal, upland areas next to the Alameda Site, on work barges, and Berth 10. As described in Section 3.2.1, public views of these construction areas are available in specific locations. Construction activities and materials would be localized to the immediate area of the Proposed Project sites. Construction areas for the OHTB and IHTB expansions would not be visible together from any one location, and different scenic vistas would be affected relative to construction at each Proposed Project site.

Construction activities, materials, and equipment for the OHTB expansion would largely be visible to recreational and commercial boaters in the Outer Harbor, and users of Judge John Sutter Regional Shoreline Park (Gateway Park). Construction equipment and materials at Berth 10 would be visible from the Bay Trail to the northeast. Berth 10 and the OHTB are not visible from the Middle Harbor Shoreline Park, Port View Park, or the Chappell R. Hayes Observation Tower.

Existing land uses on the southern side of the OHTB are heavy industrial in nature and dominated by large, mechanized cranes, container vessels, and shipping containers. Because maintenance dredging in the Outer Harbor Channel is conducted annually, the presence of a barge-mounted dredge, and occasional scow trips would be visually consistent with existing activities that occur. The area around Berth 10 is also heavy industrial in nature, consisting of shipping containers, industrial buildings and warehouses, metal fencing, paved roadways, construction equipment, truck parking, and at times soil or other construction material stockpiles. Construction equipment and materials would be consistent in form, size, mass, and color with existing equipment and materials that are occasionally stored in the Berth 10 area. The area around the dredging and construction equipment associated with the proposed OHTB expansion would appear as an extension of existing surrounding maritime industrial activities when viewed from nearby scenic vistas. Therefore, construction equipment and materials, although visible, would not block or substantially disrupt scenic vistas of the Outer Harbor Channel or the San Leandro Hills.

Views of construction activities, materials, and equipment for the IHTB expansion would largely be visible to private recreational boaters and San Francisco Bay Ferry passengers in the Inner Harbor Channel, recreationalists along the waterfront area and the adjacent Bay Trail, and users of nearby fields and parks (e.g., the City of Alameda's Estuary Park). Views of construction on the Oakland side of the IHTB from the Oakland Ferry terminal, ship museums, and the ground floors of hotels and restaurants in the Jack London Square area would be blocked by intervening facilities (including vessels at berth, buildings, trucks, and shipping containers) at Howard Terminal directly to the west. However, construction work and staging on the Alameda side would be visible from these locations. From the Middle Harbor Shoreline Park, Port View Park, and the Chappell R. Hayes Observation Tower, views of construction in the IHTB would be blocked by intervening Seaport facilities.

Although construction equipment would be visible throughout the duration of construction, the Seaport and other maritime facilities along the Oakland and Alameda shorelines already sustain considerable maritime industrial activity, which includes the use of tugboats, barges, large vessels, cranes, and trucks. In addition, maintenance dredging and sediment transport in the Inner Harbor Channel is also a routine occurrence. As with the OHTB expansion, the dredging and construction equipment associated with the IHTB expansion would therefore appear as an extension of existing surrounding maritime industrial activities and would be considered visually compatible with existing uses. Their temporary visual presence during construction would not substantially degrade existing scenic views from public viewpoints, and would not block or substantially disrupt scenic vistas of the Inner Harbor Channel, the City of Oakland skyline, or the San Leandro Hills.

At the completion of construction, the expanded OHTB and IHTB would appear visually similar to existing conditions (as described under Environmental Setting), except for the portions of Howard Terminal and the two existing warehouse buildings and underlying wharf on the Alameda Site removed for the IHTB expansion, and the new bulkhead sections on both sides of the Inner Harbor Channel at Howard Terminal and the Alameda Site. Removal of portions of the warehouse buildings would increase the existing viewshed to the Inner Harbor Channel from public vantage points, including the City of Alameda's Estuary Park. The new bulkhead sections along the waterfront on both sides of the IHTB would be of a size, scale, mass, and color similar to the existing adjacent bulkhead along the Alameda shoreline. The proposed electrical infrastructure at Howard Terminal and Berth 26 would be co-located and visually consistent with existing adjacent electrical infrastructure. These changes would not reduce the existing scenic quality from public viewpoints.

Based on the above analysis, implementation of the Proposed Project would not result in a substantial adverse effect on scenic vistas, and impacts would be **less than significant.**

### *Impact AES-2. Would the Proposed Project substantially damage scenic resources, including but not limited to trees, rocks, outcroppings, and historic buildings, within a state scenic highway? (Criterion B) (Less than Significant)*

#### Impact Analysis

The OHTB and Berth 10 are visible from I-80, including the San Francisco-Oakland Bay Bridge, which is eligible for scenic highway designation. However, a barge-mounted clamshell dredge would be visible from the bridge and the adjacent Bay Bridge Trail, at approximately 0.4 mile away. Use of Berth 10 for construction staging and dredged material rehandling would be visually similar to existing uses of Berth 10. Electrical infrastructure installed at Berth 26 would not be visible due to intervening buildings and stacked shipping containers. Scows loaded with dredged sediments traveling underneath the bridge would be consistent with existing shipping and routine maintenance dredging activities that occur. Therefore, expansion of the OHTB would have negligible impacts on views from designated or eligible scenic roadways. The IHTB and construction staging areas are not visible from any designated or eligible scenic roadways. Following construction, the Proposed Project would result in minimal visual change because the proposed electrical switchgear at Berth 26 would be co-located and visually consistent with existing adjacent electrical infrastructure and would not be noticeable at a distance. The OHTB and Outer Harbor Terminal would appear visually unchanged from existing conditions as viewed from I-80, and the IHTB would remain out of the I-80 viewshed. Therefore, implementation of the Proposed Project would not substantially damage scenic resources in a state scenic highway, and impacts would be **less than significant.**

### *Impact AES-3. Would the Proposed Project substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage point)? If in an urbanized area, would the Proposed Project conflict with applicable zoning and other regulations governing scenic quality? (Criterion C) (Less than Significant)*

#### Impact Analysis

As described above under Impact AES-1, although public views of the Proposed Project sites are afforded from various locations, construction activities and materials would be localized to the immediate area of the Proposed Project sites, temporary, and visually consistent with existing heavy maritime industrial uses in the area. Given these factors, construction of the Proposed Project would not substantially degrade the existing visual character or quality of public views in the area.

As also described above under Impact AES-1, the Proposed Project would result in minimal visual change following construction, with the primary change resulting from the removal of two warehouse buildings at the Alameda Site. Removal of the warehouse buildings would increase the existing viewshed to the waterfront along the Inner Harbor Channel from public vantage

points, including the City of Alameda's Estuary Park. The new bulkheads at the IHTB and electrical infrastructure at Howard Terminal and Berth 26 would be visually consistent with existing facilities and would not degrade existing visual character or quality. The Proposed Project is in an urbanized area. Because the Proposed Project would not introduce new structures that would interfere with public views and scenic vistas and would increase available public views of the waterfront from Alameda shoreline, it would be consistent—and not conflict with—Bay Plan, Port of Oakland, City of Oakland, and City of Alameda policies and regulations governing scenic quality and promoting enhancement of public views from waterfront areas. Therefore, the Proposed Project's impact on visual character and quality would be **less than significant.**

### *Impact AES-4. Would the Proposed Project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area? (Criterion D) (Less than Significant)*

#### Impact Analysis

Aside from dredging, all other construction activities would be conducted during daytime hours on weekdays (Monday through Friday) and would not involve nighttime work. Daytime construction activities would involve use of standard construction equipment and materials and would not add any substantial sources of light or glare that would affect views in the area. Dredging associated with the OHTB and IHTB expansions would be conducted 24 hours per day, seven days per week. This would require the use of minor nighttime lighting on the barge (i.e., sufficient safety lighting for other vessels to determine the location of the barges) as well as limited lighting necessary to safely perform dredging operations at night. This minor nighttime lighting would be similar to that used during annual maintenance dredging in Oakland Harbor, which includes nighttime dredging. Minor nighttime lighting is required on all boats in the Outer and Inner Harbor Channels. In addition, high-mast lighting is present at all landside facilities for facility security and nighttime cargo operations in the Seaport, as well as at the City of Alameda's Estuary Park for use during nighttime outdoor sporting events. The minor nighttime lighting associated with dredging in the OHTB and IHTB would be inconsequential in relation to the existing nighttime lighting sources and would be temporary in nature. Following construction, the Proposed Project would result in levels of lighting similar to existing conditions.

Therefore, the Proposed Project would not create a new source of substantial light or glare that would adversely affect day or nighttime views, and impacts would be **less than significant.**

# 3.3. AIR QUALITY

This section provides information about applicable regulations related to air quality and the local air quality setting, and evaluates air quality impacts of the Proposed Project, including pollutant emissions, health risks, and odors. Where feasible, mitigation measures are identified to reduce the level of expected impacts. Appendix B, *Air Quality and GHG Analysis Technical Report,* provides additional detail on the air quality environmental setting, methodology, and assumptions. Appendix C, Health Risk Assessment, provides the results of the air pollutant emission modeling and health risk assessment described in this section. Greenhouse gas emissions from the Proposed Project are discussed in Section 3.8, *Greenhouse Gas Emissions.*

## 3.3.1. Environmental Setting

### *San Francisco Bay Area Air Basin*

Air quality is determined by natural factors such as climate, topography, and meteorology, in addition to the presence of air pollution sources and ambient conditions. The California Air Resources Board (CARB) has divided California into regional air basins according to topographic air flow features. The San Francisco Bay Area Air Basin (SFBAAB), managed by Bay Area Air Quality Management District (BAAQMD), is approximately 5,600 square miles and includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and portions of southwestern Solano County and southern Sonoma County.

The San Francisco Bay Area is characterized by a large, shallow basin surrounded by coastal mountain ranges tapering into sheltered inland valleys. The SFBAAB is bounded by the Pacific Ocean to the west, and includes complex terrain consisting of coastal mountain ranges, inland valleys, and bays, which affect wind flow patterns. The coastal mountain ranges have a gap on the western side, the Golden Gate, and another gap on the eastern side, the Carquinez Strait; these gaps allow air to flow in and out of the SFBAAB and the Central Valley (BAAQMD 2017c). The combined climatic and topographic factors result in increased potential for air pollution to accumulates in the inland valleys and reduced potential for buildup of air pollutants along the shoreline areas of the Bay.

BAAQMD divides the SFBAAB into subregions with distinct climate and topographic features. The Proposed Project is located in the Northern Alameda and Western Contra Costa Counties subregion of the SFBAAB.

#### Northern Alameda and Western Contra Costa Counties Subregion

This climatological subregion stretches from Richmond to San Leandro. Its western boundary is defined by San Francisco Bay (the Bay) and its eastern boundary by the Oakland-Berkeley Hills. The Oakland-Berkeley Hills have a ridgeline height of approximately 1,500 feet—a substantial barrier to air flow. The prevailing winds for most of this subregion are from the west. The most densely populated area of the subregion lies in a strip of land between the Bay and the lower hills. In this area, marine air traveling through the Golden Gate, as well as across San Francisco and through the San Bruno Gap (situated between San Bruno Mountain and the coastal ranges further south), is a dominant weather factor. The Oakland-Berkeley Hills cause the westerly flow of air to split off to the north and south of Oakland, which slows wind speeds.

Temperatures in this subregion have a narrow range due to the proximity of the moderating marine air. Maximum temperatures during summer average in the mid-70s, with minimums in the mid-50s. Winter highs are in the mid- to high-50s, with lows in the low to mid-40s (all temperatures expressed in degrees Fahrenheit [°F]).

The air pollution potential is lowest for the parts of the subregion that are closest to the Bay, due largely to good ventilation and less influx of pollutants from upwind sources. The occurrence of light (versus stronger) winds in the evenings and early mornings occasionally causes elevated pollutant levels due to less dispersion of pollutants. The air pollution potential at the northern (Richmond) and southern (Oakland, San Leandro) parts of this subregion is marginally higher than at communities directly east of the Golden Gate because of the lower frequency of strong winds.

This subregion contains a variety of industrial air pollution sources, with some industrial facilities close to residential areas. The subregion is also traversed by major freeways that are frequently congested. Traffic and congestion, along with the motor vehicle exhaust emissions and brake and tire wear they generate, are increasing (BAAQMD 2017c).

## *Air Pollutants*

Several air pollutants of concern would be associated with Proposed Project activities. These air pollutants are discussed briefly below. Two main categories of air pollutants are described: criteria air pollutants and toxic air contaminants (TACs). Criteria air pollutants are air pollutants with national and/or state air quality standards that define allowable concentrations of these substances in the ambient (or background) air. TACs are air pollutants that may lead to serious illness or increased mortality, even when present in relatively low concentrations.

### Carbon Monoxide

Carbon monoxide (CO) is an odorless, colorless gas that is highly toxic. CO is formed by the incomplete combustion of fuels and is emitted directly into the air. Ambient CO concentrations normally are considered a local effect and typically correspond closely to the spatial and temporal distribution of vehicular traffic. CO concentrations are also influenced by wind speed and atmospheric mixing. Under inversion conditions (when a low layer of warm air, along with its pollutants, is held in place by a higher layer of cool air), CO concentrations may be distributed more uniformly over an area to some distance from vehicular sources. CO binds with hemoglobin, the oxygen-carrying protein in blood, and thereby reduces the blood's capacity to carry oxygen to the heart, brain, and other parts of the body. At high concentrations, CO can cause heart difficulties in people with chronic diseases, impair mental abilities, and cause death.

### Ozone

Ozone ($O_3$) is a reactive gas that, in the troposphere (the lowest region of the atmosphere), is a product of the photochemical process involving the sun's energy. It is a secondary pollutant that is formed when nitrogen oxides and reactive organic gases react in the presence of sunlight. Ozone at the Earth's surface causes numerous adverse health effects and is a criteria pollutant. It is a major component of smog. In the stratosphere, ozone exists naturally and shields the Earth from harmful incoming ultraviolet radiation. High concentrations of ground-level ozone can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments. Ozone also damages natural ecosystems such as forests and foothill natural

communities, agricultural crops, and some human-made materials (e.g., rubber, paint, and plastics).

### Nitrogen Oxides

Nitrogen oxides ($NO_X$) are a family of gaseous nitrogen compounds that are precursors to the formation of ozone and particulate matter. The major component of $NO_X$, nitrogen dioxide ($NO_2$), is a reddish-brown gas that is toxic at high concentrations. $NO_X$ results primarily from the combustion of fossil fuels under high temperature and pressure. On-road and off-road motor vehicles and fuel combustion (use of natural gas for heating, cooking, and industrial use) are the major sources of this air pollutant.

### Reactive Organic Gases

Reactive organic gases (ROG) consist of hydrocarbon compounds that exist in the ambient air. ROG contributes to the formation of smog and/or may itself be toxic. ROG emissions are a primary precursor to the formation of ozone. Sources of ROG include consumer products, paints, trees that emit ROGs, and the combustion of fossil fuels.

### Particulate Matter

Particulate matter (PM) is a complex mixture of extremely small particles and liquid droplets. PM is made up of various components, including acids, organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to the potential for causing health problems. PM particles that are smaller than 10 micrometers in diameter, called $PM_{10}$, are of most concern because these particles pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. $PM_{10}$ particles are typically found near roadways and industrial operations that generate dust. $PM_{10}$ particles are deposited in the thoracic region of the lungs. Fine particles, called $PM_{2.5}$, are particles less than 2.5 micrometers in diameter and are found in smoke and haze. $PM_{2.5}$ particles penetrate deeply into the thoracic and alveolar regions of the lungs.

### Sulfur Dioxide

Sulfur dioxide ($SO_2$) is a colorless, irritating gas with a “rotten egg” smell formed primarily by the combustion of sulfur-containing fossil fuels. Suspended $SO_2$ particles contribute to poor visibility in the SFBAAB and are a component of $PM_{10}$.

### Lead

Lead is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. There is no known safe exposure level to lead. The health effects of lead poisoning include loss of appetite, weakness, apathy, and miscarriage. Lead poisoning can also cause lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract and can reduce mental capacity.

Gasoline-powered automobile engines were a major source of airborne lead due to the use of leaded fuels. The use of leaded fuel has been mostly phased out since 1996, which has resulted in dramatic reductions in ambient concentrations of lead. Because lead persists in the environment forever, however, areas near busy highways continue to have high levels of lead in dust and soil.

### Hydrogen Sulfide

Hydrogen sulfide ($H_2S$) is associated with geothermal activity, oil and gas production, refining, sewage treatment plant operations, and confined animal feeding operations. $H_2S$ is extremely hazardous in high concentrations and can cause death.

### Sulfates

Sulfates are the fully oxidized, ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds result primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to $SO_2$ during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of $SO_2$ to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

CARB's sulfate standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardiopulmonary disease. Sulfates are particularly effective in degrading visibility, and because they are usually acidic, can harm ecosystems and damage materials and property.

### Vinyl Chloride

Vinyl chloride is a colorless gas that does not occur naturally. It is formed when other substances, such as trichloroethane, trichloroethylene, and tetrachloroethylene, are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC) for a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

### Toxic Air Contaminants

Hundreds of different types of toxic air contaminants exist, with varying degrees of toxicity. Many TACs are confirmed or suspected carcinogens, or are known or suspected to cause birth defects or neurological damage. For some chemicals, such as carcinogens, no thresholds exist below which exposure can be considered risk-free. Examples of TAC sources in the Proposed Project area include fossil fuel combustion sources, industrial processes, and gas stations.

Sources of TACs include stationary sources, area-wide sources, and mobile sources. The United States Environmental Protection Agency (USEPA) maintains a list of 187 TACs, also known as hazardous air pollutants. These hazardous air pollutants are also included on CARB's list of TACs. According to the *California Almanac of Emissions and Air Quality* (CARB 2013), many researchers consider diesel particulate matter (DPM) to be a primary contributor to health risk from TACs because particles in diesel exhaust carry a mixture of many harmful organic compounds and metals, rather than being a single substance as are other TACs. Unlike many TACs, outdoor DPM is not monitored by CARB because no routine measurement method has been identified.[31] However, using the CARB emission inventory's $PM_{10}$ database, ambient $PM_{10}$ monitoring data, and results from several studies, CARB has made preliminary estimates of DPM concentrations throughout the state (California Office of Environmental Health Hazard Assessment [OEHHA] 2001).

[31] Soot and black carbon can be measured in the field, but cannot be identified as being definitively from diesel emissions because other sources of soot and black carbon are possible.

## Odors

Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, headache). The ability to detect odors varies considerably among the population, and overall is subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be acceptable to another (e.g., roasting coffee). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is known as odor fatigue; a person can become desensitized to almost any odor, after which recognition occurs only with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the concentration in the air. When an odor sample is progressively diluted, the odor concentration decreases. As this occurs, the odor intensity weakens, and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odor reaches a level that is no longer detectable.

## *Local Air Quality*

BAAQMD, CARB, and USEPA operate an extensive air monitoring network to measure progress toward attainment of the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The closest air quality monitoring station to the Seaport is the Oakland West station, approximately 1.5 miles north and 2.25 miles west of the IHTB Proposed Project sites and 2.1 miles east of the OHTB. The Oakland West station monitors $O_3$, $NO_2$, $SO_2$, CO, and $PM_{2.5}$. $PM_{10}$ is monitored at stations in San Pablo and Concord.[32] Most changes to ambient air quality standards have focused on $PM_{2.5}$, which is a sub-component of $PM_{10}$, and for combustion sources is almost equivalent, while fugitive sources have about 80 percent of the $PM_{10}$ emissions as $PM_{2.5}$. Pollutants of concern in the Bay Area include $O_3$, $PM_{10,}$ and $PM_{2.5}$; the SFBAAB is in non-attainment with respect to the federal and state standards for $O_3$ and $PM_{2.5}$, and in non-attainment of the state standard for $PM_{10}$.[33] **Table 3.3-1** shows a three-year summary of monitoring data (2019 through 2021) for these pollutants from the Oakland West station.

[32] BAAQMD notes in its 2023 Annual Air Monitoring Network Plan (BAAQMD 2023b) the potential need for additional $PM_{10}$ monitors in the San Francisco-Oakland-Berkeley MSA in the future due to increasing $PM_{10}$ emissions specifically from wildfires that increased the maximum $PM_{10}$ concentration above the threshold for low concentration ranges, triggering a change in requirements under 40 CFR Part 58, Appendix D, Section 4.6. BAAQMD is currently performing an evaluation of the entire PM monitoring network and will determine the number and location of additional monitors in the future.

[33] On January 9, 2013, USEPA issued a final rule, determining that SFBAAB has attained the 24-hour $PM_{2.5}$ national standard. This rule suspends key SIP requirements as long as monitoring data continue to show that SFBAAB attains the standard. Despite this USEPA action, SFBAAB will continue to be designated as "nonattainment" for the national 24-hour $PM_{2.5}$ standard until BAAQMD submits a "redesignation request" and a "maintenance plan" to USEPA, and USEPA approves the proposed redesignation.

**Table 3.3-1 Air Quality Data Summary (2019-2021) for Oakland West Monitoring Station**

| Pollutant | State/Federal Standard[1] | 2019 No. Exceed | 2019 Maximum Concentration | 2020 No. Exceed | 2020 Maximum Concentration | 2021 No. Exceed | 2021 Maximum Concentration |
|---|---|---|---|---|---|---|---|
| Ozone 1-Hour Average | 0.09 ppm/ NA | 1/NA | 0.101 | 0/NA | 0.084 | 0/NA | 0.067 |
| Ozone 8-Hour Average | 0.070 ppm/ 0.070 ppm | 1/1 | 0.072 | 0/0 | 0.056 | 0/0 | 0.046 |
| Nitrogen Dioxide 24-Hour Average | 0.18 ppm/ 0.1 ppm | 0/0 | 50 | 0/0 | 48 | 0/0 | 49.5 |
| $PM_{2.5}$ 24-Hour Average | NA/ 35 µg/$m^3$ | NA/0 | 29.3 | NA/8.5 | 159.7 | NA/0 | 25.4 |
| $PM_{2.5}$ Annual Average | 12 µg/$m^3$/ 12.0 µg/m3 | 0/0 | 7.7 | 0/0 | 10.2 | 0/0 | 7.4 |

Notes:

[1] Generally, State Standards and National Standards are not to be exceeded more than once per year.

µg/$m^3$ = micrograms per cubic meter
NA = not applicable; this standard does not exist
No.= number
ppm = parts per million

Source: CARB 2023

Due to the proximity of the Proposed Project sites to the Oakland West station, air quality measurements collected at this station are understood to be generally representative of conditions in the vicinity of the Proposed Project sites. **Table 3.3-1** also compares measured pollutant concentrations with the CAAQS and the NAAQS. With regard to human exposure to air pollution, the community of West Oakland is identified as a community with disproportionate impacts from air quality under the Community Air Protection Program (Assembly Bill [AB] 617), as discussed in the Regulatory Setting section below. Prior to AB 617, West Oakland was recognized as a community with a high cumulative exposure burden to air pollution due to numerous existing sources of air pollution in and adjacent to West Oakland and was one of the first communities to move straight to emission reduction plans without additional monitoring under AB 617. Emission sources include heavy-duty trucks, diesel locomotives, off-road equipment, stationary sources, vessels associated with the Seaport, major highways that generate tire and brake wear in addition to exhaust emissions (including Interstates 80, 580, 880, and 980, which bound West Oakland), Schnitzer/Radius Recycling, freight and passenger rail, and numerous industrial and commercial stationary sources. Although many of the stationary sources of air pollution are regulated by BAAQMD's permitting program, they all contribute to the exposure of residents to harmful pollutants and may lead to health effects.

### *Port of Oakland Seaport Emissions*

The Port of Oakland develops a detailed emission inventory of Seaport operations every few years. The results of the latest emissions inventory from 2020 (Port of Oakland 2021) are summarized in **Table 3.3-2**.

Seaport emissions have gone down significantly with CARB regulations, including implementation of the cargo-handling regulation, drayage truck regulation, at-berth regulation, and harbor craft regulation. Other changes helping to reduce emissions include improvements in engines for ocean-going vessels (OGVs) and implementation of the Port's Maritime Air Quality Improvement Plan along with numerous grants to improve infrastructure for shore power and rubber-tired gantry cranes. These reductions are expected to continue with implementation of the Seaport Air Quality 2020 and Beyond Plan, as well as updated CARB regulations for trucks, harbor craft, and at-berth. Emissions of oxides of nitrogen ($NO_X$) show substantial reductions for cargo-handling equipment and trucks due to implementation of newer engines with lower $NO_X$ emissions; and to a lesser extent, harbor craft reflecting the portion of harbor craft fleets that have implemented newer engines. The use of diesel particulate filters and other diesel emission reductions such as using shore power at berth have decreased DPM emissions of cargo-handling equipment, trucks, locomotives, and OGVs. The Port exceeded its goal of reducing DPM emissions by 85 percent from 2005 to 2020 with a reduction of 86 percent, and for $NO_X$ emissions on and near shore of 34 percent with a reduction of 54 percent.

**Figure 3.3-1** and **Figure 3.3-2** show the changes in emissions from the 2005 to 2020 emissions inventory for $NO_X$ and DPM. These graphs show substantial reductions in emissions since 2005.

**Table 3.3-2 Port of Oakland 2020 Seaport Emissions Summary: Criteria Pollutants (tons)**

| Source Category | ROG | CO | $NO_X$ | $PM_{10}$ | $PM_{2.5}$ | DPM | $SO_X$ |
|---|---|---|---|---|---|---|---|
| Ocean Going Vessels | 63.5 | 119.3 | 1,461.9 | 18.8 | 17.3 | 12.6 | 56.1 |
| Harbor Craft[2]: Dredge and OGV Assist | 3.33 | 14.93 | 100.10 | 1.84 | 1.79 | 1.84 | 0.11 |
| Harbor Craft[2]: Bunkering | 0.31 | 1.39 | 11.25 | 0.25 | 0.24 | 0.25 | 0.01 |
| Cargo Handling Equipment | 39.7 | 116.2 | 195.9 | 2.8 | 2.5 | 2.5 | 0.4 |
| Trucks | 4.7 | 30.0 | 89.3 | 1.7 | 0.7 | 0.2 | 0.2 |
| Locomotives | 0.6 | 1.2 | 6.5 | 0.1 | 0.1 | 0.1 | <0.1 |
| Other | 1.4 | 40.1 | 3.0 | 0.1 | 0.1 | <0.1 | <0.1 |
| **Subtotal** | **113.5** | **323.1** | **1,868** | **25.6** | **22.7** | **17.49** | **56.8** |
| Cruise Ship Lay Berth[1] | 9.5 | 19.8 | 223.5 | 3.7 | 3.4 | 3.2 | 9.1 |
| **Total** | **123** | **342.9** | **2,091** | **29.3** | **26.1** | **20.7** | **65.9** |

Notes:

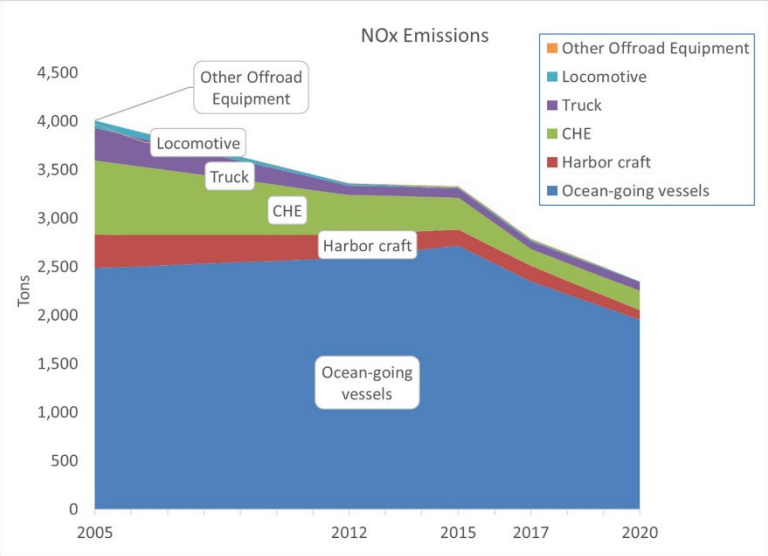
[1] As a result of disruptions to cruise ship operations caused by the world-wide COVID-19 pandemic, the Port allowed several cruise ships to lay over at the Port for extended periods of time during the year. Emissions from these unprecedented cruise ship visits, which are not representative of normal Port operations, are included as a separate line.

[2] Harbor Craft emissions have been updated to reflect changes in methods by CARB for harbor craft as used in their Harbor Craft Regulation update (CARB 2021).

CO = carbon monoxide
DPM = diesel particulate matter
$NO_X$ = oxides of nitrogen
OGV = ocean going vessels
$PM_{10}$ = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
ROG = reactive organic gases
$SO_X$ = sulfur oxide

Source: Port of Oakland 2021, 2023

**Figure 3.3-1 $NO_X$ Emissions from 2005 and 2020**

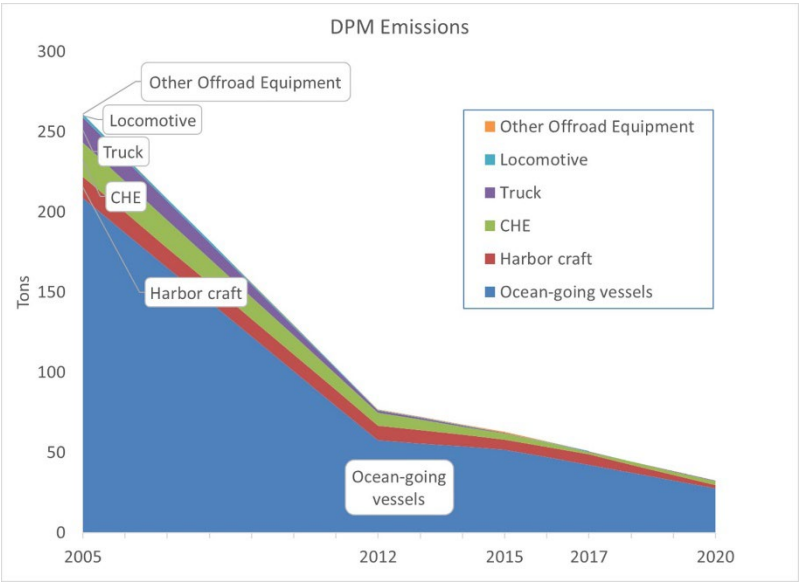



Notes:

CHE = Cargo Handling Equipment such as rubber-tired gantry cranes, yard tractors, and top picks.
Other Off-road Equipment = non-CHE equipment operation at terminals and Oakland International Gateway (BNSF) railyard
$NO_X$ = nitrogen oxides

Source: Port of Oakland 2021; Ramboll 2023

**Figure 3.3-2 DPM Emissions from 2005 to 2020**




Notes:

CHE = Cargo Handling Equipment such as rubber-tired gantry cranes, yard tractors, and top picks.
Other Offroad Equipment = non-CHE equipment operation at terminals and Oakland International Gateway(BNSF) railyard
DPM = diesel particulate matter

Source: Port of Oakland 2021

## *West Oakland Health Risk Assessments*

### 2008 HRA

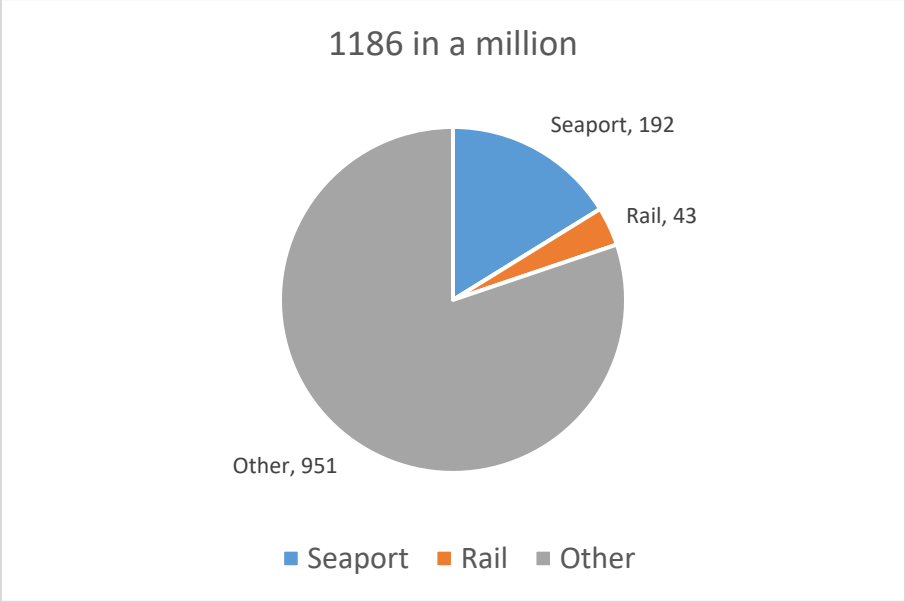
Studies have been conducted previously near the Seaport to quantify the health effects of air pollution from various sources in and around the West Oakland community (CARB 2008; BAAQMD 2019). In 2008, CARB, BAAQMD, the Port, and Union Pacific Railroad published an extensive HRA for the West Oakland community characterizing the public health impacts from DPM emissions in the base year of 2005. The emission sources considered and quantified in that study included both land- and water-based sources, as well as activity associated with the Seaport, non-Port locomotives, non-Port marine vessels (such as bulk vessels that call Schnitzer/Radius Recycling Terminal, passenger ferries, and tugboats), non-Port trucks, and other significant sources of DPM in and around the West Oakland community. The study area included the Seaport, the ocean west of the Golden Gate Bridge 17 nautical miles out to the outer buoys in the precautionary zone, the inner Bay waterway between the Golden Gate Bridge and the Seaport, and the nearby communities; in all, the study covered a 100-kilometer (km) by 100-km area (about 2,800 square miles). Results were only reported in the West Oakland area and did not include Alameda, downtown Oakland, or Emeryville.

This 2008 HRA was comprehensive in capturing the vessels operating within the Seaport and throughout the entire San Francisco Bay. Sources in West Oakland that were specifically modeled include truck emissions operating on major Interstates 80, 880, 980, and 580, as well as the major and minor arterials bounded by these expressways. Truck-based business activity and facilities with diesel-powered cargo-handling equipment were included. Locomotive-related emissions included locomotives that traveled from the boundaries of the Joint Intermodal Terminal (operated by the Burlington Northern and Santa Fe) and Union Pacific Railroad (UPRR) rail yards to the edge of the West Oakland community, as well as Amtrak trains traveling through the West Oakland community. Major construction projects that occurred in 2005 (base year for emissions) in the West Oakland area were included in the emissions inventory. Finally, stationary point sources in West Oakland were also included.

The 2008 HRA did not identify the maximum exposed residential receptor but indicated that some areas had excess cancer risk from all DPM sources over 1,500 in 1 million (or 15 in 10,000). The population-weighted cancer[34] risk from all sources was 1,186 in 1 million (or 11.86 in 10,000) excess cancer risk. **Figure 3.3-3** shows the contribution of Seaport and non-Seaport sources to this population-weighted cancer risk. Port-related sources contributed about 16 percent of the population-weighted cancer risk. **Figure 3.3-4** shows the contribution sources to this population-weighted cancer risk by source category.

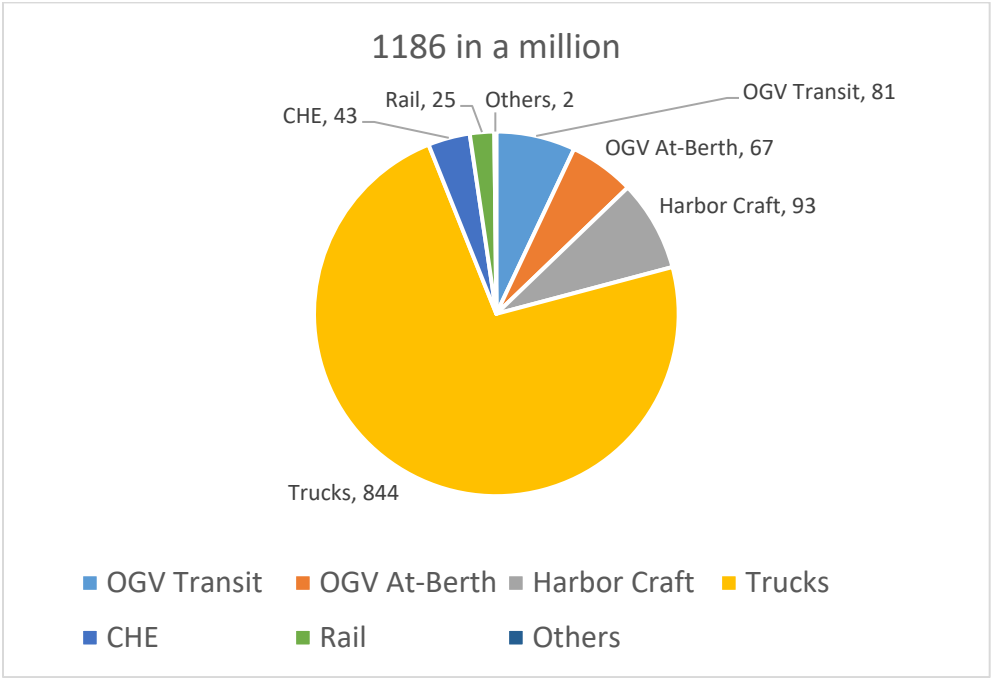
[34] Average risk weight by population from census tracts, which emphasizes how air pollution affects areas where residents live versus averaging risk over the modeled domain area, which includes industrial areas, roadways, and water. An area-weighted average may skew the results high if the high concentrations occur in land uses where people are not anticipated to linger, such as on roadways, industrial areas, and water.

**Figure 3.3-3 Population-Weighted Excess Cancer Risk from 2008 HRA from Port, Rail, and Other Sources**




Note: Rail is the Union Pacific Railroad. Others sources include non-Port and non-Union Pacific railyard areas in and adjacent to West Oakland such as on-road trucks on nearby freeways, OGVs, harbor craft, cargo-handling equipment, locomotives, passenger rail, Amtrak maintenance facility, major construction projects, stationary point sources, truck-based businesses, and distribution centers. 2005 Base Year.

**Figure 3.3-4 Population-Weighted Excess Cancer Risk from 2008 HRA from All Sources**




Note: All sources include sources in or near the West Oakland community (non-Port and non-rail), Port, and Rail. Trucks include both Port and non-Port trucks. Cargo-handling equipment includes both Port and rail cargo-handling equipment. 2005 Base Year.

The 2008 HRA included estimates of emissions in the future assuming growth and implementation of many of the CARB strategies that were implemented to reach the goals outlined in CARB's *Diesel Risk Reduction Plan* (CARB 2000) and CARB's *Emission Reduction Plan for Ports and Goods Movement in California* (CARB 2006); these strategies yielded an 85 percent reduction in DPM by 2020. **Figure 3.3-5** shows the emissions used in the 2008 analysis for the projected 2020 year, and the Seaport's actual 2020 emissions. The 2020 Seaport Emissions Inventory was about 40 percent lower than this "future 2020" projection.

**Figure 3.3-5 Projected and Actual Seaport DPM Emissions Projected from 2008 HRA**

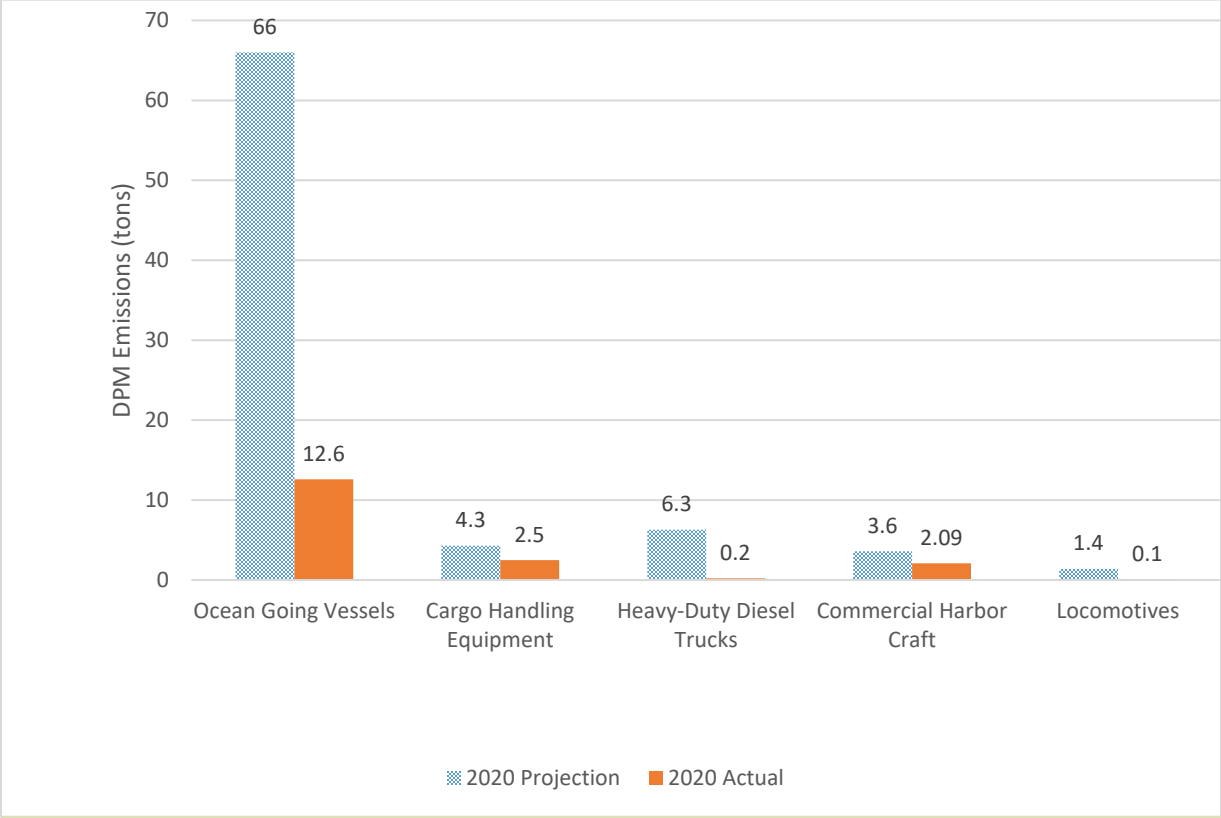
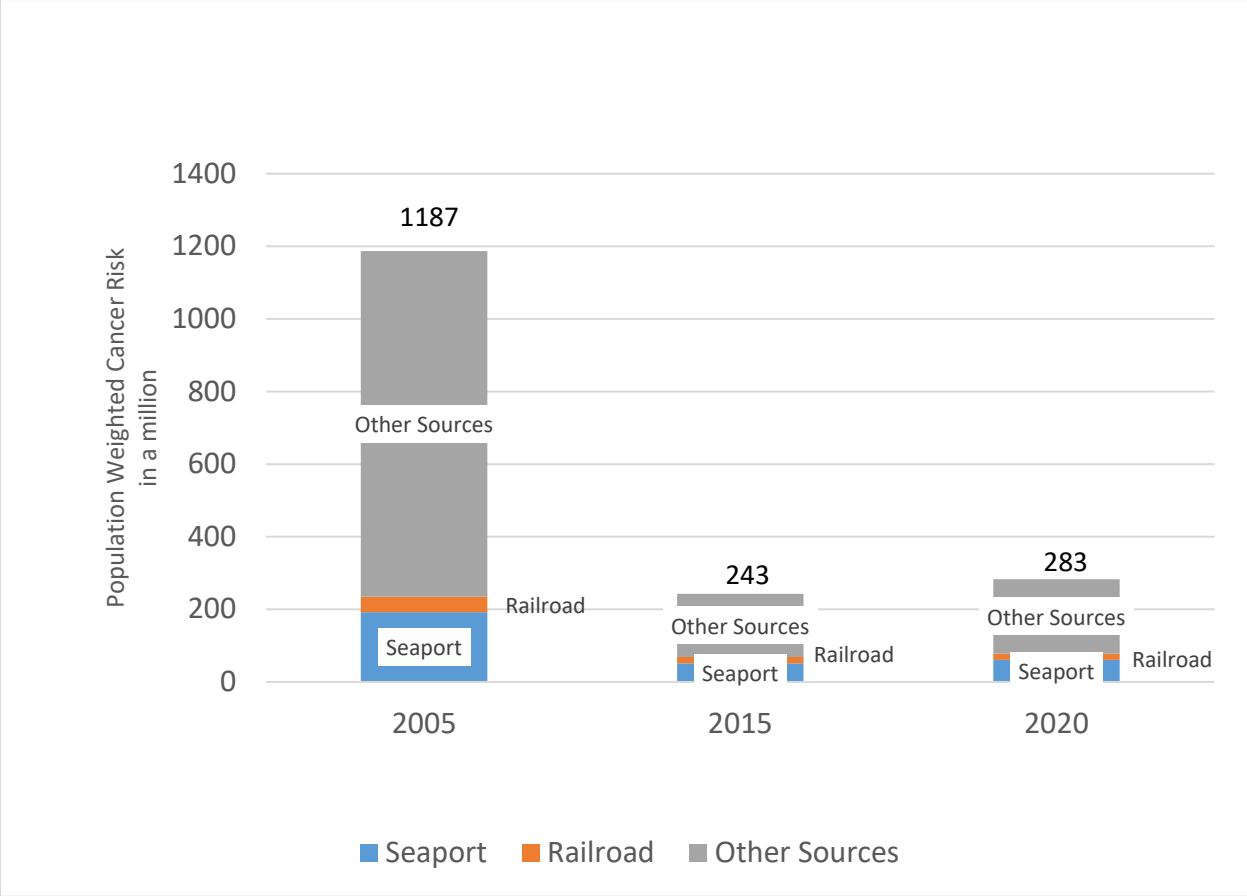



**Figure 3.3-6** shows the "anticipated" change in excess cancer risk in 2020 based on these "future 2020" projections. Other sources includes non-port and non-Union Pacific railyard areas in and adjacent to West Oakland such as on-road trucks on nearby freeways, OGVs, harbor craft, cargo-handling equipment, locomotives, passenger rail, Amtrak maintenance facility, major construction projects, stationary point sources, truck-based businesses, and distribution centers. These reductions are a result of implementation of air quality regulations requiring the use of diesel particulate filters and other diesel emission reductions, such as using shore power at-berth, and have decreased DPM emissions of cargo-handling equipment, trucks, locomotives, and OGVs.

**Figure 3.3-6 2005, 2015, and 2020 Population-Weighted Cancer Risk in West Oakland from 2008 HRA**




## 2019 HRA

BAAQMD conducted an HRA for the West Oakland community during development of the West Oakland Community Action Plan (WOCAP). The study estimated emissions for three scenarios: a "current base year" 2017, near-term future year 2024, and far-term future year 2029. The future year inventories included anticipated reductions attributable to existing regulations and known changes in source activity. In addition, future year inventories assumed implementation of additional mitigation measures identified in the WOCAP in areas where high levels of air pollution may persist, and further actions may be warranted. The WOCAP study focused on emissions of DPM and other TACs with cancer toxicities, and on $PM_{2.5}$ concentrations.

Although a direct comparison between the CARB 2008 HRA and the BAAQMD WOCAP HRA is not possible due to the vastly different methodologies used for emission estimates, air dispersion, and cancer risk exposure factors (use of age-specific factors and revised breathing rates) and assessments, it is still useful to see the values of the BAAQMD WOCAP HRA in comparison to the values reported in the CARB study to illustrate the progress in reducing emissions and health impacts to the West Oakland Community.

**Table 3.3-3** and **Table 3.3-4** and **Figure 3.3-7** show the results of BAAQMD's WOCAP HRA for the 2017 and 2024 scenarios, including the West Oakland source contribution and the "other" background source contributions.[35] The background cancer risk was only provided on an area-weighted basis, which is averaging risk over the modeled domain (or area) rather than weighting the risk by population (or where people live). Therefore, the areas identified as having the highest concentrations of TACs (including DPM) are not necessarily in highly populated residential areas. For example, the 2017 base year HRA for West Oakland has an area-weighted risk of 302.5 in one million (or 3.025 in 10,000), and when weighted for population, has a cancer risk of 199.3 in one million (or 1.993 in 10,000). The background cancer risk was reported as 421 in one million (or 4.21 in 10,000) on an area-wide basis. The 2024 near-term results include an area-weighted risk of 235 in one million (or 2.35 in 10,000) and show a population-weighted cancer risk of 119.9 in one million (or 1.199 in 10,000). Port-related sources are 67.5 in one million (6.75 in 100,000) on a population-weighted basis in 2017, and 64.9 in one million (6.49 in 100,000) on a population-weighted basis in 2024. **Figure 3.3-7** shows the population-weighted cancer risk for the West Oakland sources, excluding background for 2017 and 2024. The recent WOCAP HRA by BAAQMD demonstrates that there have been substantial reductions in cancer risk attributed to the Seaport and other sources in West Oakland compared to the 2005 baseline HRA conducted by CARB.

**Table 3.3-3 WOCAP 2019 HRA Results for 2017 Scenario**

| Sources | Average Annual $PM_{2.5}$ Concentration ($\mu g/m^3$) | Average Annual DPM Concentration ($\mu g/m^3$) | Area Weighted Average Excess Cancer Risk | Population Weighted Average Excess Cancer Risk |
|---|---|---|---|---|
| West Oakland | 1.71 | 0.39 | 303 in one million | 199 in one million |
| "Other" Background | 6.9 | 0.46 | 421 in one million | NA |
| **Total** | **8.61** | **0.85** | **724 in one million** | **NA** |

Notes:

1 The population-weighted cancer risk is 199 in one million for West Oakland. Populated weighted cancer risk from other "background" sources were not included.
2 Cells marked NA means that this information was not provided in BAAQMD's reports or data that have been made public.
3 "Other" Background sources include various stationary sources, area sources, on-road vehicles, offroad equipment, vessels and tugs not associated with the Port of Oakland or West Oakland

DPM = diesel particulate matter
HRA = Health Risk Assessment
$\mu g/m^3$ = micrograms per cubic meter
NA = not available; not addressed in WOCAP 2019 HRA
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
WOCAP = West Oakland Community Action Plan

Source: BAAQMD 2019. Final Environmental Impact Report Owning our Air: The West Oakland Community Action Plan, Appendix C

[35] This includes various stationary sources, area sources, on-road vehicles, offroad equipment, vessels and tugs not associated with the Port of Oakland or West Oakland as well as biogenic emissions based on information from BAAQMD's emission inventories, CARB emissions inventories, and EPA Biogenic Emission Inventory System.

**Table 3.3-4 WOCAP 2019 HRA Results for 2024 Scenario**

| Sources or Location of Sources? | Average Annual $PM_{2.5}$ Concentration ($\mu g/m^3$) | Average Annual DPM Concentration ($\mu g/m^3$) | Area Weighted Average Excess Cancer Risk | Population Weighted Average Excess Cancer Risk |
|---|---|---|---|---|
| West Oakland | 1.71 | 0.30 | 235 in one million | 119.9 in one million |
| "Other" Background | NA | NA | NA | NA |
| **Total** | **NA** | **NA** | **NA** | **NA** |

Notes:

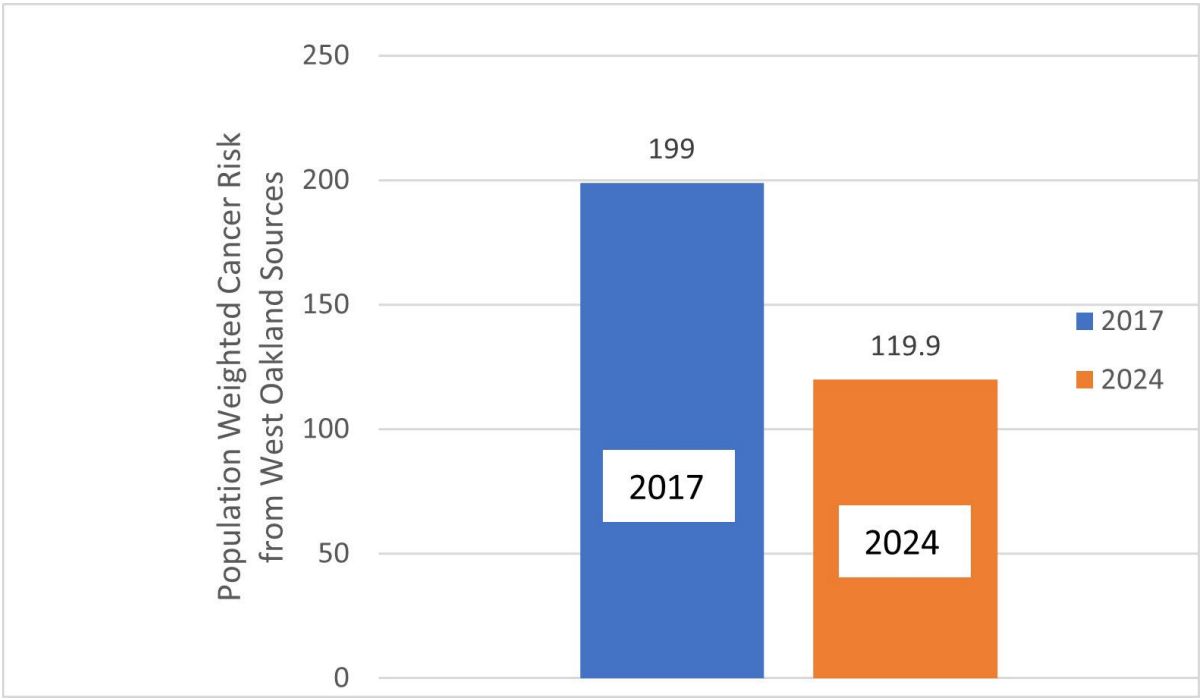
Community Action Plan, Appendix C

1 The population weighted cancer risk is 199 in a million for West Oakland. Populated weighted cancer risk from other "background" sources were not included.
2 Cells marked NA means that this information was not provided in BAAQMD's reports nor data that have been made public.

DPM = diesel particulate matter
HRA = Health Risk Assessment
$\mu g/m^3$ = micrograms per cubic meter
NA = not available; not addressed in WOCAP 2019 HRA
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
WOCAP = West Oakland Community Action Plan

Source: BAAQMD 2019. Final Environmental Impact Report Owning our Air: The West Oakland

**Figure 3.3-7 Population-Weighted Cancer Risk from West Oakland Sources, WOCAP 2019 HRA**



### *Sensitive Receptors*

Air quality does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. The term "sensitive individuals" or "sensitive receptors" refers to those segments of the population most susceptible to poor air quality: children, the elderly, and individuals with pre-existing, serious health problems affected by air quality (CARB 2005). Examples of sensitive receptor locations are residences, schools and school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities. Residences can include houses, apartments, and senior living complexes. Medical facilities can include hospitals, convalescent homes, and health clinics. Playgrounds include play areas associated with parks and community centers.

The Proposed Project would impact sensitive receptors near three general work areas: the Outer Harbor near Berths 26 and 10; Howard Terminal at the northern portion of the IHTB; and Alameda near the southern portion of the IHTB. Staging areas near these primary work areas would impact similar sensitive receptors such as the primary work areas, although there would not be significant amounts of emissions at the staging areas because these are primarily for placing equipment and supplies when not in use in the primary work areas, and would only have occasional equipment use when loading or unloading supplies. Trucks would travel along roads and pass by sensitive receptors situated along these truck routes. The Outer Harbor construction areas are surrounded by various Seaport operations, East Bay Municipal Utility District (EBMUD) wastewater treatment plant, Interstate 80 (I-80), Interstate 880 (I-880), and rail yards. The nearest residences are those in West Oakland on the opposite side of I-880, including housing along Frontage Road and Wood Street, with the nearest residences about 0.5 mile from Berth 10. The Prescott School and Ralph J Bunche Academy in West Oakland are about 1 mile from the Outer Harbor construction activities. Raimondi Park is about 0.75 mile from Berth 10. The IHTB work on the Oakland side would occur at Howard Terminal and near the shoreline of Schnitzer/Radius Recycling. Currently, there are Seaport-related activities, industrial operations, a PG&E electrical substation, and office and commercial buildings near these work areas. The closest residences are the Phoenix Lofts on 2nd Street near Brush Street, which are approximately 1,000 feet from the proposed construction and staging at Howard Terminal. The proposed Oakland Waterfront Ballpark District at Howard Terminal has residences planned immediately adjacent to the Proposed Project. Hively, a center for social services for children and families, is along Myrtle Street about 1,000 feet from the Proposed Project Howard Terminal site and is a family resource center. Oakland Achieves is a high school about 1,000 feet from the Proposed Project Howard Terminal site. The Alameda side of the IHTB is surrounded by a shipyard (Bay Ship and Yacht) to the west, and warehouses on and adjacent to the work area. Estuary Park is across the street from the Alameda Site. The nearest school is Ruby Bridges Elementary school, approximately 0.5 mile south. The closest existing residences are along Mosley and Mitchell Avenues. Planned residences for Bay 37 would be adjacent to the Proposed Project work areas, as well as the planned North Housing off Mosley Avenue.

## 3.3.2. Regulatory Setting

### *Federal Laws*

The Clean Air Act is implemented by the USEPA and sets ambient emission limits, NAAQS, for six criteria air pollutants: $PM_{10}$, $PM_{2.5}$, CO, nitrogen dioxide ($NO_2$), $O_3$, and lead.

**Table 3.3-5** shows the current attainment status for NAAQS and CAAQS in the Proposed Project area's air basin—the SFBAAB.

**Table 3.3-5 State and Federal Ambient Air Quality Standards and Bay Area Air Basin Attainment Status**

| Pollutant | Averaging Time | CAAQS Concentration | CAAQS Attainment Status | NAAQS Concentration | NAAQS Attainment Status |
|---|---|---|---|---|---|
| Ozone | 8-Hour | 0.070 ppm | N | 0.070 ppm | N |
| | 1-Hour | 0.09 ppm | N | N/A | N/A |
| CO | 8-Hour | 9.0 ppm | A | 9 ppm | A |
| | 1-Hour | 20 ppm | A | 35 ppm | A |
| $NO_2$ | 1-Hour | 0.18 ppm | A | 0.100 ppm | N/A |
| | Annual Arithmetic Mean | 0.030 ppm | U | 0.053 ppm | A |
| $SO_2$ | 24-Hour | 0.04 ppm | A | 0.14 ppm | N/A |
| | 1-Hour | 0.25 ppm | A | 0.075 ppm | N/A |
| | Annual Arithmetic Mean | N/A | N/A | 0.030 ppm | N/A |
| $PM_{10}$ | Annual Arithmetic Mean | 20 µg/m$^3$ | N | N/A | N/A |
| | 24-Hour | 50 µg/m$^3$ | N | 150 µg/m$^3$ | U |
| $PM_{2.5}$ | Annual Arithmetic Mean | 12 µg/m$^3$ | N | 12 µg/m$^3$ | U/A |
| | 24-Hour | N/A | N/A | 35 µg/m$^3$ | N |
| Sulfates | 24-Hour | 25 µg/m$^3$ | A | N/A | N/A |
| Lead | 30-Day Average | 1.5 µg/m$^3$ | A | N/A | N/A |
| | Calendar Quarter | N/A | N/A | 1.5 µg/m$^3$ | A |
| | Rolling 3-Month Average | N/A | N/A | 0.15 µg/m$^3$ | N/A |
| Hydrogen Sulfide | 1-Hour | 0.03 ppm | U | N/A | N/A |
| Vinyl Chloride | 24-Hour | 0.010 ppm | No Information Available | N/A | N/A |
| Visibility Reducing Particles | 8-Hour | Extinction Coefficient of 0.23 kilometer with relative humidity less than 70% | U | N/A | N/A |

Notes:

A = Attainment; CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards; N = Non-attainment; U = Unclassified; N/A = Not Applicable, no applicable standard; ppm = parts per million; µg/m$^3$ = micrograms per cubic meter.

A. CAAQS = California ambient air quality standards. CAAQS for ozone, CO (except Lake Tahoe), $SO_2$ (1-hour and 24-hour), $NO_2$, PM, and visibility reducing particles are values that are not to be exceeded. All other state standards shown are values not to be equaled or exceeded.

B. NAAQS = national ambient air quality standards. NAAQS, other than ozone and particulates, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the fourth highest daily concentration is 0.070 ppm or less. The 24-hour $PM_{10}$ standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than the standard. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of the 98th percentile is less than the standard.

C. The USEPA revoked the national 1-hour ozone standard on June 15, 2005.

D. This federal 8-hour ozone standard was approved by USEPA in October 2015, and became effective on December 28, 2015.

E. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. USEPA made recommendations on attainment designations for California by October 1, 2016, and issued final designations on June 4, 2018, classifying the San Francisco Bay Area Air Basin as being in Nonattainment (Federal Register Vol. 83, No. 107, pp. 25776-25848). Nonattainment areas will have until 2020 to 2037 to meet the health standard, with attainment dates varying based on ozone level in the area.

F. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).

G. On June 2, 2010, the USEPA established a new 1-hour $SO_2$ standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour $SO_2$ NAAQS must, however, continue to be used until one year following USEPA initial designations of the new 1-hour $SO_2$ NAAQS. USEPA classified the San Francisco Bay Area Air Basin as being in Attainment/Unclassifiable in January 2018 (Federal Register Vol. 83, No. 6, pp. 1098-1172).

H. State standard = annual geometric mean

I. In June 2002, CARB established new annual standards for $PM_{2.5}$ and $PM_{10}$.

J. National lead standard, rolling three-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.

K. CARB has identified lead and vinyl chloride as toxic air contaminants, with no threshold level of exposure below which there are no adverse health effects determined.

L. Statewide visibility reducing particle standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

M. On January 9, 2013, USEPA issued a final rule, determining that SFBAAB has attained the 24-hour $PM_{2.5}$ national standard. This rule suspends key SIP requirements as long as monitoring data continue to show that SFBAAB attains the standard. Despite this USEPA action, SFBAAB will continue to be designated as “nonattainment” for the national 24-hour $PM_{2.5}$ standard until BAAQMD submits a “redesignation request” and a “maintenance plan” to USEPA, and USEPA approves the proposed redesignation.

Sources: BAAQMD 2017a; USEPA 2023

The SFBAAB is currently classified as non-attainment for the one-hour state ozone standard as well as for the federal and state eight-hour standards. Additionally, the SFBAAB is classified as non-attainment for the state 24-hour and annual arithmetic mean $PM_{10}$ standards, as well as the state annual arithmetic mean and the national 24-hour $PM_{2.5}$ standards. The SFBAAB is unclassified, or classified as attainment for all other pollutant standards.

USEPA, and in California, CARB regulate various stationary sources, area sources (e.g., gas stations, dry-cleaners, print shops, cleaners and other solvent use, storage piles), and mobile sources of air pollutant emissions. USEPA has regulations involving performance standards for specific sources that may release TACs, known at the federal level as hazardous air pollutants (HAPs). In addition, USEPA has regulations involving emission standards for off-road sources such as emergency generators, construction equipment, and vehicles, as well as other releases of toxic chemicals.

### Non-road Emission Regulations

USEPA has adopted emission standards for different types of non-road engines, equipment, and vehicles. For non-road diesel engines, USEPA has adopted multiple tiers of emission standards.

USEPA signed a final rule on May 11, 2004, introducing the Tier 4 emission standards, to be phased in between 2008 and 2015 (69 CFR 38957–39273, June 29, 2004). The Tier 4 standards require that emissions of PM and $NO_X$ be further reduced by about 90 percent. Such emission reductions can be achieved by using control technologies, including advanced exhaust gas after-treatment. To enable sulfur-sensitive control technologies in Tier 4 engines, USEPA also mandated reductions in sulfur content in non-road diesel fuels. In most cases, federal non-road regulations also apply in California; states have limited authority to set emission standards for new non-road engines.

### On-Road Vehicle Emission Regulations and Corporate Average Fuel Economy Standards

The USEPA and National Highway Transportation Safety Administration (NHTSA) have issued rules regarding the national program of fuel economy standards for passenger vehicles and light-duty trucks of model years 2017 through 2025, culminating in fuel economy of 54.5 miles per gallon (mpg) by model year 2025 (USEPA 2012). Similarly, fuel economy standards have been issued for medium- and heavy-duty vehicles of model years 2014-2018, including large pickup trucks and vans, semi-trucks, and all types and sizes of work trucks and buses (USEPA and USDOT 2011).

The NHTSA and the USEPA updated the Corporate Average Fuel Economy (CAFE) and GHG emissions standards for passenger cars and light trucks and established new standards covering model years 2021 through 2026, under the Safer Affordable Fuel Efficient (SAFE) vehicles final rule (SAFE Rule Part Two). This rule, which went into effect on June 29, 2020, rolled back some of the fuel efficiency mandates that had been in effect. In March 2022, CAFE standards were finalized for model years 2024 through 2026. The final rule establishes standards that require an industry-wide fleet average of approximately 49 mpg for passenger cars and light trucks. Current rule-making is under way to establish standards for model years 2027 and beyond for passenger cars and light trucks, standards for model years 2029 and beyond for heavy-duty pickup trucks and vans, and standards for model years 2030 and beyond for medium- and heavy-duty on-highway vehicles and work trucks.

In 2019, the NHTSA and the USEPA also issued a regulation revoking California's Clean Air Act waiver, which had allowed California to set its own emissions standards, asserting that the waiver was preempted by federal law. On December 21, 2021, the NHTSA published its CAFE Preemption rule, which finalizes its repeal of the SAFE Rule Part One. The USEPA rescinded SAFE Rule Part One on March 9, 2022, and reinstated California's authority under the Clean Air Act to implement its own GHG emission standards and zero-emission vehicle (ZEV) sales mandate. Notably, California harmonized its vehicle efficiency standards through 2025 with the federal standards through the Advanced Clean Cars Program.

## *State*

### Ambient Air Quality Standards

CARB sets standards for criteria pollutants in California that are more stringent than the NAAQS and include the following additional contaminants: visibility-reducing particles, hydrogen sulfide, sulfates, and vinyl chloride. Table 3.3-5 provides the CAAQS and their corresponding attainment status for the Proposed Project's air basin. The Proposed Project area is in Alameda County within the SFBAAB. BAAQMD has the responsibility to monitor ambient air pollutant levels throughout the basin, and to develop and implement strategies to attain the applicable federal and state standards.

As shown in Table 3.3-5, the SFBAAB is currently classified as non-attainment for the one-hour state ozone standard as well as for the federal and state eight-hour standards. Additionally, the SFBAAB is classified as non-attainment for the state 24-hour and annual arithmetic mean $PM_{10}$ standards, as well as the state annual arithmetic mean and the national 24-hour $PM_{2.5}$ standards. The SFBAAB is unclassified or classified as attainment for all other pollutant standards.

CARB is responsible for setting emission standards for vehicles (on-road and off-road) sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB also establishes passenger vehicle fuel specifications.

### In-Use Off-Road Diesel Vehicle Regulation

In 2007, CARB adopted a regulation to reduce DPM and $NO_X$ emissions from in-use, off-road, heavy-duty diesel vehicles in California. The regulation imposes limits on vehicle idling and requires fleets to reduce emissions by retiring, replacing, repowering, or installing exhaust retrofits to older engines. In December 2011, the regulation was amended to modify the compliance dates for performance standards and establish requirements for compliance with verified diesel emission control strategy technologies that reduce PM and/or $NO_X$ emissions. The regulation is in the process of finalizing additional amendments, which would require phase-out of the oldest and highest emitting off-road engines and restrict the addition of vehicles with Tier 3 and Tier 4 interim engines. The rulemaking starting in 2024 would also require contracting entities to obtain and retain a fleet's valid Certificate of Reported Compliance prior to awarding a contract or hiring a fleet; mandate the use of R99 or R100 Renewable Diesel for all fleets, with some limited exceptions; and provide additional requirements to increase enforceability and provide flexibility for permanent low-use vehicles.

### AB 1346: Air Pollution: small off-road engines

Assembly Bill 1346 (AB 1346) required CARB to adopt cost-effective and technologically feasible regulations to prohibit engine exhaust and evaporative emissions from new Small Off-Road Engines (SORE) by July 1, 2022 for engines produced on or after January 1, 2024, or as

soon as CARB determines is feasible. SORE are spark-ignition engines rated at or below 19 kilowatts, and are typically used in lawn and gardening equipment, outdoor power equipment, and specialty vehicles. In determining technological feasibility, CARB is to consider emissions from SOREs in the state; timeline for zero-emission SORE development; increased electricity demand from charging zero-emission SORE; cases for both commercial and residential users of SOREs; and expected availability of zero-emission generators and emergency response equipment. In addition, CARB is to identify and make funds available for rebates or incentive funding. CARB adopted engine exhaust emission regulations for small off-road engines in compliance with AB 1346, requiring most new small off-road engines to be zero emissions by 2024. The Proposed Project may use SORE engines during construction.

### Portable Equipment Registration Program

The statewide Portable Equipment Registration Program (PERP) establishes a system to uniformly regulate portable engines and portable engine–driven equipment units such as generators. After being registered in this program, engines and equipment units may operate throughout the state without the need to obtain permits from individual air districts. Owners or operators of portable engines and certain types of equipment can voluntarily register their units under this program. Operation of registered portable engines may still be subject to certain district requirements for reporting and notification. Engines with less than 50 brake horsepower (hp) are exempt from this program. Some of the engines used for the Proposed Project may operate under PERP.

### California Standards for Diesel Fuel Regulations

These regulations require diesel fuel with sulfur content of 15 parts per million (ppm) or less (by weight) to be used for all diesel-fueled vehicles that are operated in California. The standard also applies to non-vehicular diesel fuel, other than diesel fuel used solely in locomotives or marine vessels, which are regulated under federal and international regulations. The regulations also contain standards for the aromatic hydrocarbon content and lubricity of diesel fuels.

### Truck and Bus Regulation

In 2008, CARB approved a regulation to substantially reduce emissions of DPM, $NO_X$, and other pollutants from existing on-road diesel vehicles operating in California. The regulation requires affected trucks and buses to meet performance standards and requirements by 2023. Affected vehicles included on-road, heavy-duty, diesel-fueled vehicles with a gross vehicle weight rating greater than 14,000 pounds. The regulation was updated in 2011 and 2014 to provide more compliance flexibility and reflect the impact of the 2008 economic recession on vehicle activity and emissions. Heavy-duty trucks used for the Proposed Project construction or operations would be required to comply with this regulation. With the sunsetting of the drayage truck rule, drayage trucks currently fall into this regulation, which bans pre-2010 model year engines.

### Drayage Truck Rule

CARB implemented the Drayage Truck Rule in 2011; this rule was in effect through December 31, 2022, after which all trucks with Gross Vehicle Weight Rating (GVWR) over 14,000 pounds, including drayage trucks, became subject to the Truck and Bus Regulation. As a result, emissions from trucks visiting the Port have been declining as trucks have complied with each new phase of the Drayage Truck Rule and the Truck and Bus Regulation. Between 2005 and 2017, DPM emissions from Port drayage trucks were reduced by 98 percent; and by 2020, DPM emissions were 99 percent below 2005 levels (Port of Oakland 2019a, 2021). This

regulation sunsetted at the end of 2022. During this gap, calendar year 2023, drayage trucks temporarily default to the Truck and Bus Regulation.

### Advanced Clean Truck Regulation

On June 25, 2020, CARB adopted the Advanced Clean Trucks Regulation, which requires truck manufacturers to have a certain percentage of their new truck sales in California be zero-emission trucks beginning in 2024, with the percentage growing over time. Under this rule, every new truck sold in California must be zero emission by 2045.

### Heavy-Duty On-Board Diagnostic System Regulations

In 2004, CARB adopted regulations requiring on-board diagnostic (OBD) systems on all 2007 and later model year heavy-duty engines and vehicles (i.e., vehicles with a gross vehicle weight rating greater than 14,000 pounds) in California. CARB subsequently adopted a comprehensive OBD regulation for heavy-duty vehicles model years 2010 and beyond. The heavy-duty OBD regulations were updated in 2010, 2013, and 2016, with revisions to enforcement requirements, testing requirements, and implementation schedules. Heavy-duty trucks used during the Proposed Project construction would be required to comply with the heavy-duty OBD regulatory requirements.

### Heavy-duty Vehicle Inspection Program

The heavy-duty vehicle inspection program requires heavy-duty trucks and buses to be inspected for excessive smoke and tampering, and for compliance with engine certification labels. Any heavy-duty vehicle (i.e., a vehicle with a gross vehicle weight rating greater than 14,000 pounds) traveling in California, including vehicles registered in other states and foreign countries, may be tested. Tests are performed by CARB inspection teams at border crossings, California Highway Patrol weigh stations, fleet facilities, and randomly selected roadside locations. Owners of trucks and buses found to be in violation are subject to penalties starting at $300 per violation. Heavy-duty trucks used during project construction would be subject to the inspection program.

### Advanced Clean Cars Program

The Advanced Clean Cars emissions-control program was approved by CARB in 2012, and is closely associated with the Pavley regulations, which were the first set of regulations for vehicles that addressed GHG emissions. The program requires a greater number of ZEV models for the years 2015 through 2025 to control smog, soot, and GHG emissions. This program includes the Low-Emissions Vehicle (LEV) regulations to reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, as well as the ZEV regulations requiring manufacturers to produce an increasing number of pure ZEVs (i.e., battery and fuel cell electric vehicles) with the provision to produce plug-in hybrid electric vehicles (PHEV) between 2018 and 2025.

Due to the federal adoption of the Final SAFE Rule, new cars of model years 2021 through 2026 are not currently required to achieve the fuel economy targets set by the Advanced Clean Cars program. The rule was judicially challenged, but the litigation has been placed in abeyance while undergoing review by the Biden administration.

### Ocean-going Vessel Clean Fuel Regulation

Under the OGV Clean Fuel Regulation, as of January 1, 2012, vessels operating within 24 nautical miles of the California coast must use approved fuels with a sulfur content that does not exceed 0.1 percent. This is allowed based on an international treaty that designated Emission

Control Areas covering US waters, and extends 200 nautical miles from the shores of North America.

### At-Berth Regulation

The original At-Berth regulation for OGVs was approved in December 2007, with compliance requirements that began in 2014. It required container vessels, cruise ships, and refrigerated cargo vessels at California's largest ports to meet emission or power reduction requirements for vessel visits while at berth, ramping up to 80 percent reduction requirement for 80 percent of calls based on fleet-wide averaging at each port. In 2020, CARB updated the regulation to expand to new vessel categories (auto carriers and tankers), which will be required to control emissions while docked. The updated regulation took effect in 2023, with implementation ramping up for the various vessel classes through 2027. The regulation requires 100 percent of container vessels to control emissions (primarily via shore power), with limited exceptions (down to 10 percent starting in 2025) for vessel and terminal incident events that prevent using shore power or other emission reduction control technology. Vessels are required to use either shore power or a CARB-approved capture and control technology to reduce emissions, unless they have been granted a waiver under their Innovative Concepts provision. A remediation fund will be available for shipping lines or terminal operators who are unable to use their primary compliance strategy to remain compliant for any given vessel visit.

### Commercial Harbor Craft Regulation

Since the original adoption of the Commercial Harbor Craft regulation in 2008, and its amendments in 2010, owners of commercial harbor craft vessels have replaced older engines with newer and cleaner engines. In 2022, additional amendments were adopted to expand the applicability of the regulation to more vessel types and require cleaner upgrades and new technology. Compliance dates for engine upgrades depend on the vessel category and the model year of the engine. All types of tugs, including tow boats used in the Proposed Project, have phase-in requirements starting in 2024 through 2029, depending on current engine model year, to upgrade to Tier 4 engines with diesel particulate filters. Dredges, barges, and workboats have phase-in requirements for any pre-Tier 1 and Tier 1 engines, starting with the first group to be complete by the end of 2023. Tier 2 and higher engines would be subject to phase-in requirements in 2028 through 2031 to upgrade to Tier 4 engines with diesel particulate filters. Newly acquired vessels have requirements for zero-emission hybrid or ZEV. Starting in 2023, all commercial harbor craft are required to use renewable diesel. In 2024, 15-minute idling limits for all commercial harbor craft will take effect and all commercial harbor craft will be required to use shore power at most facilities.

### Toxic Air Contaminants

CARB regulates TACs to reduce emissions under the Airborne Toxic Control Measures (ATCMs); the following relevant measures to address sources of TACs:

- ATCM for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater
- ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- ATCM to Reduce Particulate Emissions from Diesel-Fueled Engines Standards for Non-vehicular Diesel Fuel
- ATCM for Stationary Compression Ignition Engines

- Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations
- Asbestos ATCM for Surfacing Applications

In addition to ATCMs, TACs are controlled under several regulations in California, including the Tanner Air Toxics Act, Air Toxics Hot Spots Information Act, and Assembly Bill (AB) 2588: Air Toxics "Hot Spots" Information and Assessment Act. In addition, Proposition 65 (the Safe Water and Toxic Enforcement Act of 1996) requires the state to publish a list of chemicals known to cause cancer or birth defects or other reproductive harm. Proposition 65 requires businesses to notify Californians about substantial amounts of chemicals in the products they purchase or that are released into the environment.

### Odors

Odors are commonly regarded as a form of public nuisance, and in the United States, many states have adopted regulations to limit odors generated by odorous operations. In California, odors are regulated through California Health and Safety Code (HSC) Section 41700, which states: "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, determent, nuisance, or annoyance to any considerable number of people." The regulation does not contain guidance on how to define or determine a violation. As a result, local agencies are typically responsible for establishing enforcement criteria. Many agencies have developed their own criteria based on the acceptable number of complaints reported for a particular incident or facility, and a violation is issued if the criteria are not satisfied. In most cases, each odor complaint is investigated by authorized personnel from the responsible agency to determine the source and cause, as well as to determine the validity of the complaint. If the complaint is verified, then it would be classified as a confirmed complaint; otherwise, the complaint would be classified as unconfirmed.

### AB 617 and CARB Community Air Protection Program

AB 617 requires CARB to develop a uniform statewide system for annual reporting of emissions of criteria air pollutants and TACs for use by certain categories of stationary sources and requires the stationary sources to report their annual emissions as specified. The law requires air districts in nonattainment for one or more air pollutants to adopt an expedited schedule for the implementation of best available retrofit control technology. It also requires CARB to establish and maintain a statewide clearing house that identifies the best available control technology or best available retrofit control technology. The law also requires CARB to prepare a statewide strategy to reduce emissions of TACs and criteria pollutants in communities affected by a high cumulative exposure burden.

CARB established the Community Air Protection Program (CAPP) to implement the requirements of AB 617. The CAPP's focus is to reduce exposure in the communities most affected by air pollution. Communities around the state are working together to develop and implement new strategies to measure air pollution and reduce health impacts.

This first-of-its-kind statewide effort includes community air monitoring and community emissions reduction programs. In addition, the California State Legislature appropriated funding to support early actions to address localized air pollution through targeted incentive funding that will deploy cleaner technologies in these communities, as well as grants to support community participation in the AB 617 process. AB 617 also includes new requirements for accelerated retrofit of pollution controls on industrial sources, increased penalty fees, and greater

transparency and availability of air quality and emissions data, which will help advance air pollution control efforts throughout the state. West Oakland was one of the initial communities selected to participate in the CAPP, and to develop a Community Action Plan.

## *Regional*

### Bay Area Air Quality Management District

The BAAQMD regulates stationary sources of air pollution in the nine San Francisco Bay Area (Bay Area) counties to achieve and maintain air quality standards. The BAAQMD adopts and enforces rules and regulations, issues air quality permits for equipment that emits air pollutants, and monitors air quality and meteorological conditions. BAAQMD has local air quality jurisdiction over the Proposed Project area.

### California Environmental Quality Act (CEQA) Guidelines

In December 1999, the BAAQMD adopted its initial CEQA Guidelines – Assessing the Air Quality Impacts of Projects and Plans, as a guidance document to provide lead government agencies, consultants, and project proponents with uniform procedures for assessing air quality impacts and preparing the air quality sections of environmental documents for projects subject to CEQA. The BAAQMD CEQA Guidelines is an advisory document, and local jurisdictions are not required to use the methodology outlined therein. The document describes the criteria that the BAAQMD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for use in determining whether projects would have significant adverse environmental impacts, identifies methodologies for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts.

BAAQMD updated quantitative thresholds of significance for its CEQA Air Quality Guidelines in 2010 and published its latest (as of April 2023) version of its CEQA Guidelines (BAAQMD CEQA Guidelines) in April 2023 (BAAQMD 2023a). The 2023 BAAQMD CEQA Guidelines provide BAAQMD-recommended procedures for evaluating potential air quality impacts during the environmental review process consistent with CEQA requirements.

The guidelines specify recommended thresholds of significance for construction and operational criteria air pollutants (CAPs) and precursor emissions, greenhouse gas (GHG) emissions, and risks and hazards associated with TACs from an individual project and cumulative impacts. These thresholds are outlined below in **Table 3.3-6**.

BAAQMD's CEQA Guidelines state that CO emissions would not be expected to exceed the concentration thresholds of 9.0 ppm over an eight-hour average and 20.0 ppm over a one-hour average threshold of significance if the project is consistent with congestion management programs, and that project-generated traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour, or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway). Therefore, this vehicles per hour is used as a screening threshold to determine if more detailed CO concentration modeling is required. As discussed in Section 3.14, Transportation, the maximum trips at intersections only approach these values on a daily basis, and do not come close to these levels on an hourly basis. Therefore, CO emissions are screened out from further CO concentration modeling because they would be less than significant and are not discussed further.

**Table 3.3-6 BAAQMD CEQA Thresholds of Significance**

| Pollutant/Impact Area | Construction Related Average Daily Emissions (lb/day) | Operational Related Average Daily Emissions (lb/day) | Operational Related Maximum Annual Emissions (tpy) |
|---|---|---|---|
| ROG | 54 | 54 | 10 |
| $NO_X$ | 54 | 54 | 10 |
| $PM_{10}$ | 82 (exhaust) | 82 | 15 |
| $PM_{2.5}$ | 54 (exhaust) | 54 | 10 |
| $PM_{10}/PM_{2.5}$ (fugitive dust) | Best Management Practices | None | |
| Local CO | None | 9.0 ppm as an 8-hour average concentration and 20.0 ppm as a 1-hour average concentration | |
| Accidental Release of Acutely Hazardous Air Pollutants | None | Storage or use of acutely hazardous materials located near receptors, or new receptors located near stored or used acutely hazardous materials considered significant | |
| Odors | None | Five confirmed complaints per year averaged over three years | |
| Risk and Hazards (Project Impact) | • An excess lifetime cancer risk level of more than 10 in one million;<br>• A non-cancer chronic HI greater than 1.0; and<br>• An incremental increase in the annual average $PM_{2.5}$ concentration of greater than 0.3 µg/$m^3$. | | |
| Risk and Hazards (Cumulative Impact) | • An excess lifetime cancer risk level of more than 100 in one million;<br>• A non-cancer chronic HI greater than 10.0; and<br>• An annual average $PM_{2.5}$ concentration of greater than 0.8 µg/$m^3$. | | |

Notes:

BAAQMD = Bay Area Air Quality Management District
CEQA = California Environmental Quality Act
CO = carbon monoxide
DPM = diesel particulate matter
HI = Hazard Index
lb/day = pounds per day
µg/$m^3$ = micrograms per cubic meter
$NO_X$ = oxides of nitrogen
$PM_{10}$ = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
ppm = parts per million
ROG = reactive organic gases
$SO_X$ = sulfur oxide
tpy = tons per year

Source: BAAQMD 2023a.

### BAAQMD 2017 Clean Air Plan

The BAAQMD has developed the *Spare the Air-Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area Final 2017 Clean Air Plan* (2017 Clean Air Plan), which details planned efforts to improve Bay Area air quality, including reducing PM and TAC emissions, and protect public health. In addition, the 2017 Clean Air Plan simultaneously updates the 2010 Clean Air Plan, which is the most recent ozone plan for the Bay Area, to comply with state air quality planning requirements and reduce ozone precursors (BAAQMD 2017b). The 2017 Clean Air Plan contains a control strategy that includes 85 individual control measures to reduce emissions of CAPs and GHGs from the full range of emission sources. The measures include stationary (industrial) sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, and water (BAAQMD 2017b).

### BAAQMD Rules

The BAAQMD supports incentive programs to reduce criteria air pollutant emissions in the district and has established rules and permitting requirements. The Proposed Project would be subject to the following BAAQMD rules, as applicable:

- **Regulation 6, Rule 6:** Prohibition of Trackout[36] limits the quantity of PM in the atmosphere through control of trackout of solid materials onto paved public roads outside the boundaries of large construction sites.
- **Regulation 7:** Odorous Substances places general limitations on odorous substances and specific emission limitations on certain odorous compounds.
- **Regulation 8, Rule 15:** Emulsified and Liquid Asphalts limits emissions of volatile organic compounds (VOCs) caused by paving materials.
- **Regulation 11, Rule 14:** Asbestos-Containing Serpentine limits the use of serpentine material with >5 percent asbestos content for covering roads or paths.

## *Local*

### City of Oakland General Plan

The City of Oakland General Plan contains the following goals, policies, and actions relevant to air quality and the Proposed Project (City of Oakland 1998):

Objective CO-12: Air Resources. To improve air quality in Oakland and the surrounding Bay Region.

Policy CO-12.1: Land Use Patterns Which Promote Air Quality. Promote land use patterns and densities which help improve regional air quality conditions by: (a) minimizing dependence on single passenger autos; (b) promoting projects which minimize quick auto starts and stops, such as live-work development, mixed use development, and office development with ground floor retail space; (c) separating land uses which are sensitive to pollution from the sources of air pollution; and (d) supporting telecommuting, flexible work hours, and behavioral changes which reduce the percentage of people in Oakland who must drive to work on a daily basis.

[36] Trackout means soil, mud, or dirt on paved surfaces, including curbs, gutters, and sidewalks, that have come from a construction site or an unpaved access route onto the paved surface.

Policy CO-12.2: Coordinated Transportation Systems. Maintain a coordinated bus, rail, and ferry transit system which provides efficient service to major destinations and promotes alternatives to the single passenger auto.

Policy CO.12.3: Transportation Systems Management. Expand existing transportation systems management and transportation demand management strategies which reduce congestion, vehicle idling, and travel in single passenger autos.

Policy CO-12.4: Design of Development to Minimize Air Quality Impacts. Require that development projects be designed in a manner which reduces potential adverse air quality impacts. This may include: (a) the use of vegetation and landscaping to absorb carbon monoxide and to buffer sensitive receptors; (b) the use of low-polluting energy sources and energy conservation measures; and (c) designs which encourage transit use and facilitate bicycle and pedestrian travel.

Policy CO-12.5: Use of Best Available Control Technology. Require new industry to use best available control technology to remove pollutants, including filtering, washing, or electrostatic treatment of emissions.

Policy CO-12.6: Control of Dust Emissions. Require construction, demolition and grading practices which minimize dust emissions. These practices are currently required by the City and include the following:

- Avoiding earth moving and other major dust generating activities on windy days.
- Sprinkling unpaved construction areas with water during excavation, using reclaimed water where feasible (watering can reduce construction-related dust by 50 percent).
- Covering stockpiled sand, soil, and other particulates with a tarp to avoid blowing dust.
- Covering trucks hauling dirt and debris to reduce spills. If spills do occur, they should be swept up promptly before materials become airborne.
- Preparing a comprehensive dust control program for major construction in populated areas or adjacent to sensitive uses like hospitals and schools.
- Operating construction and earth-moving equipment, including trucks, to minimize exhaust emissions.

Policy CO-12.7: Regional Air Quality Planning. Coordinate local air quality planning efforts with other agencies, including adjoining cities and counties and the public agencies responsible for monitoring and improving air quality. Cooperate with regional agencies such as the BAAQMD, the MTC, the ABAG, and the Alameda County Congestion Management Agency in developing and implementing regional air quality strategies. Continue to work with BAAQMD and the California Air Resources Board in enforcing the provisions of the California and Federal Clean Acts including the monitoring of air pollutants on a regular and ongoing basis.

### City of Alameda General Plan

The City of Alameda General Plan contains the following goals, policies, and actions relevant to air quality and the Proposed Project (City of Alameda 2022):

HS-63 Diesel Emissions. Continue to work with BAAQMD to reduce diesel related air quality impacts throughout the region and in Alameda. Ban Diesel Vehicles by 2033. Set a date prior to 2033 to ban diesel vehicles from entering Alameda altogether, only allowing exceptions where no reasonable substitute exists.

HS-65 Construction Air Pollution. Protect public health by requiring best management practices at construction sites and carefully evaluating the potential health risks of projects that generate substantial toxic air contaminants or projects that propose to place a sensitive user in proximity to an existing source of contaminants. Actions:

a. Construction Dust. Reduce dust and harmful air pollutants resulting from construction activities by requiring compliance with best management practices (BMPs) as recommended by the Bay Area Air Quality Management District (BAAQMD).

b. Health Risk Assessment. Require preparation of a Health Risk Assessment in accordance with policies and procedures of the State Office of Environmental Health Hazard Assessment and the BAAQMD. Adopt recommended health risk mitigations for projects that generate substantial toxic air contaminant (TAC) emissions within 1,000 feet of sensitive receptors or for sensitive receptor uses proposed to be located within 1,000 feet of an existing major source of toxic air contaminants.

HS-66 Air Quality Alerts. Continue to partner with BAAQMD to enhance awareness of air quality index alerts and related outreach and education to protect the health of residents.

HS-68 Toxic Air Contaminants. Minimize and avoid exposure to toxic air contaminants. Actions:

a. New Sources. As a condition of approval, future discretionary projects that generate substantial toxic air contaminant (TAC) emissions (that are not regulated by the Bay Area Air Quality Management District (BAAQMD), such as construction activities lasting greater than two months or facilities that include more than 100 truck trips per day, 40 trucks with transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week) that are located within 1,000 feet of sensitive receptors shall submit a Health Risk Assessment (HRA) prepared in accordance with policies and procedures of the State Office of Environmental Health Hazard Assessment and the BAAQMD prior to discretionary project approval. If the HRA shows that the incremental cancer risk, $PM_{2.5}$ concentrations, or the appropriate non-cancer hazard index exceeds BAAQMD's project-level thresholds, then the applicant shall be required to identify and demonstrate that mitigation measures are capable of reducing potential $PM_{2.5}$ concentrations, cancer risks, and non-cancer risks to below BAAQMD's project-level significance thresholds.

b. New Sensitive Receptors. As a condition of approval, proposed new sensitive receptor uses proposed within 1,000 feet of existing major sources of toxic air contaminants (TACs) (e.g., permitted stationary sources, highways, freeways and roadways with over 10,000 annual average daily traffic) shall submit a Health Risk Assessment (HRA) to the City prior to future discretionary project approval. If the HRA shows that the incremental cancer risk, $PM_{2.5}$ concentrations, or the appropriate non-cancer hazard index exceeds BAAQMD's cumulative-level thresholds, then the applicant shall be required to identify and demonstrate that mitigation measures (e.g., electrostatic filtering systems) are capable of reducing potential cancer and noncancer risks to below BAAQMD's significance thresholds.

HS-69 Construction Period Air Quality Impacts. Minimize air quality impacts as the result of construction activities. Action:

a. Construction Mitigations. As a condition of approval, future discretionary projects shall implement the following measures or equivalent, expanded, or modified measures based on project- and site-specific conditions: all exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered at least two times per day; all haul trucks transporting soil, sand, or other loose material off-site shall be covered; all visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping shall be prohibited; all vehicle speeds on unpaved roads shall be limited to 15 mph; all roadways, driveways, and sidewalks to be paved shall be completed as soon as possible; idling times shall be minimized either by shutting equipment off when not in use or reducing maximum idling time to 5 minutes; clear signage shall be provided for construction workers at all access points; all construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation; a publicly visible sign shall be posted with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours; and the Air District's phone number shall also be visible to ensure compliance with applicable regulations.

### West Oakland Community Action Plan

BAAQMD identified the West Oakland community for participation in the AB 617 CAPP. This community-lead process resulted in the development of the WOCAP (BAAQMD 2019), which focuses on reducing exposure in West Oakland to fine PM ($PM_{2.5}$), DPM, and TACs, and sets emission reduction targets. The overarching goal of the WOCAP is "[t]o protect and improve community health by eliminating disparities in exposure to local air pollution."

AB 617 requires that communities and air districts collaborate to reduce air pollution and associated health effects in certain affected communities such as West Oakland. Pursuant to AB 617, the BAAQMD and the West Oakland Environmental Indicators Project together developed a community emissions reduction plan for West Oakland, referred to as the WOCAP. The plan, adopted by the BAAQMD on October 2, 2019, and by CARB on December 5, 2019, identifies 89 community-level strategies and control measures that may reduce criteria air pollutant, toxic air contaminant, and GHG emissions. The WOCAP Final Environmental Impact Report was certified on October 2, 2019.

The WOCAP developed the specific targets for DPM, $PM_{2.5}$, and Cancer Risk:

Diesel Particulate Matter (diesel PM) Target

- By 2025, local emission sources will contribute to the average West Oakland residential neighborhood a concentration of diesel PM of no more than 0.25 $\mu g/m^3$ (micrograms per cubic meter).
- By 2030, local emission sources will contribute to the average West Oakland residential neighborhood a concentration of diesel PM of no more than 0.13 $\mu g/m^3$.

Fine Particulate Matter ($PM_{2.5}$) Target

- By 2025, local emission sources will contribute to the average West Oakland residential neighborhood a concentration of $PM_{2.5}$ of no more than 1.7 $\mu g/m^3$.
- By 2030, local emission sources will contribute to the average West Oakland residential neighborhood a concentration of $PM_{2.5}$ of no more than 1.2 $\mu g/m^3$.

Cancer Risk Target

- By 2025, local emission sources will contribute to the average West Oakland residential neighborhood a cancer risk of no more than 200 in one million.
- By 2030, local emission sources will contribute to the average West Oakland residential neighborhood a cancer risk of no more than 110 in one million.

The 2022 update on progress of the WOCAP indicated that continued progress was being made regarding WOCAP strategies. Based on various measures, including the BAAQMD-incentive grant program awards from the Carl Moyer Program, the West Oakland Zero Emissions Grant Program, Community Air Protection Grant, Transportation Fund for Clean Air Fund, and Vehicle Buyback Program, estimated annual tons of emissions have been reduced by 12.5 tons $PM_{2.5}$, 14 tons of DPM, and 9,821 tons cancer-risk weighted toxics from October 2018 through June 2021[37] Total incentive funding awarded was $34.4 million.

Specific strategies and emissions reduction measures are organized under the following categories: Health Programs, Land Use, Trucks, Other Mobile Sources, and Stationary Sources. The Port examined the WOCAP-recommended strategies and distinct actions suggested for Port-related hazardous air pollutant emissions. The Port evaluated the feasibility of the distinct actions using the feasibility criteria outlined in the 2020 and Beyond Plan. Two of these actions were determined to be feasible for the Seaport as a whole: 1) WOCAP Strategy #50 (also identified as 2020 and Beyond Strategy #198) regarding using BAAQMD funding to upgrade tugs and barges; and 2) WOCAP Strategy #26 (also identified as 2020 and Beyond Strategy #188) regarding establishing dedicated truck parking and container staging in logistic areas. The below table outlines the Proposed Project mitigation and features that align with WOCAP strategies as indicated and described in **Table 3.3-7**.

WOCAP holds public meetings regularly, generally on a monthly basis. The WOCAP steering committee is composed of members of the public, independent technical advisors, city and county officials, and agency representatives including the Port. Meetings consist of discussions of WOCAP strategies and focus on topics of recent WOCAP events, project updates, civic engagement, environmental regulations, regulation enforcement, and environmental health impacts. The August 2023 meeting was the annual update of the 89 community-level strategies and control measures.

[37] Cancer risk–weighted toxics is a metric that combines the emissions with their toxicity to indicate the impact the emissions would have on cancer risk. This is done because a small reduction in emissions a highly toxic pollutant can have more impact that a larger reduction in emissions of a less toxic pollutant.

**Table 3.3-7 Proposed Project-Related WOCAP Strategies**

| WOCAP Strategy # | Description | Proposed Project Implementation |
|---|---|---|
| 19 | The Port of Oakland adopts an Electrical Infrastructure Plan for the maritime waterfront areas of Oakland. This Plan seeks to remove barriers to adoption of zero-emission trucks, such as cost, land, and ownership of charging equipment. | The Proposed Project would install electrical infrastructure at Berth 26 and Howard Terminal that allows for electric dredging during the Proposed Project construction. |
| 26 | The City and Port of Oakland will work to establish permanent locations for parking and staging of Port related trucks and cargo equipment, i.e., tractors, chassis, and containers. Such facilities will provide long-term leases to parking operators and truck owner-operators at competitive rates. Such facilities will be at the City or Port logistics center or otherwise not adjacent to West Oakland residents. | The Port will ensure that adequate truck parking is designated during construction of the Proposed Project, should truck parking be affected by the Proposed Project. |
| 27 | The City of Oakland and other appropriate local agencies limit fugitive dust from construction activity through better enforcement of existing regulations and permit requirements. | The Proposed Project would implement Mitigation Measure AIR-1, Construction Air Quality Mitigation during construction which includes measures aimed at reducing fugitive dust from construction activity. |
| 39 | The City of Oakland, consistent with the West Oakland Truck Management Plan: 1) improves signage regarding existing truck routes; 2) works with businesses on preferred routes to use when destinations are not located on truck routes; and 3) adds to, or changes, truck routes and prohibited streets. | Designated truck routes for haul trucks have been outlined to avoid traveling through neighborhoods. See Chapter 2 for more details on truck routes. |
| 43 | The Port of Oakland studies the effects on truck flow and congestion due to increasing visits from larger container vessels, the feasibility of an off-terminal container yard that utilizes zero-emission trucks to move containers to and from the marine terminals, and the potential efficiency gains from increasing the number of trucks hauling loaded containers on each leg of a roundtrip to the Port. | The Proposed Project is expected to improve navigational efficiencies for larger vessels expected to call the Port in the future. The Port has undertaken a Long-Term Traffic and Circulation Study and a Truck Parking Study. Both will be part of the Port's Master Plan, anticipated in 2024 |
| 50 | The Air District plans to offer financial incentives to upgrade tugs and barges operating at the Port of Oakland with cleaner engines every year. | The Proposed Project will benefit from upgraded tugs and barges used during construction. |

| WOCAP Strategy # | Description | Proposed Project Implementation |
|---|---|---|
| 59 | The City of Oakland increases the frequency of street sweeping to decrease road dust, particularly on streets adjacent to schools, on designated truck routes, and on streets near freeways. The California Department of Transportation increases the frequency of street sweeping along the I-880, I-980, and I-580 freeways. Consideration is given to technology and techniques that avoid resuspending road dust. | During construction, on-site roads shall be swept a minimum of twice daily during all days of construction. |
| 63 | The Port of Oakland implements a Clean Ship Program to increase the frequency of visits by vessels with International Maritime Organization Tier 2 and Tier 3 engines. | The Proposed Project is expected to improve navigational efficiencies for larger vessels expected to call the Port in the future. With wider turning basins, shippers are expected to be encouraged to replace smaller, less efficient vessels with larger, more efficient vessels. Larger vessels are expected to be newer and have higher engine tiers. |

### West Oakland Truck Management Plan

The West Oakland Truck Management Plan (TMP), approved in 2019, is an action-based plan designed to reduce the effects of transport trucks on local streets in West Oakland. With the TMP implemented, the West Oakland community should experience fewer trucks driving or parking in residential areas. The TMP improves safety for people walking, biking, and driving in West Oakland. It reduces the nuisance of trucks driving or parking where they should not and improves the quality of life for people living and working in West Oakland, including a reduction in localized diesel emissions. The strategies outlined in the TMP include the following:

- Improve Safety at Street Intersections near the Port
- Improve Truck Touring
- Update the Network of Truck Routes and Truck Prohibited Streets
- Improve Truck Route Signage
- Conduct Traffic Enforcement Spot-Checks
- Use Urban Design to Promote Use of Truck Routes
- Improve Training for Issuing Parking Tickets
- Change Parking Regulations
- Consider Increasing Truck Parking Fines
- Conduct Targeted Parking Enforcement

On April 19, 2022, Oakland City Council adopted updates to the truck parking regulations in West Oakland, in accordance with Strategy 8, prohibiting truck parking in West Oakland except on a limited number of blocks in industrial areas away from residences and parks. Although updates to the truck route network (Strategy 3) were proposed at the same time, Oakland City Council did not pass the updates to the truck route network, and instead asked for more community process before returning the updates to City Council. The City and Port are currently working on an approach to fulfill this request.

### Port of Oakland Seaport Air Quality 2020 and Beyond Plan

In June 2019, the Port of Oakland approved its Seaport Air Quality 2020 and Beyond Plan (Port of Oakland 2019b), a master plan that addresses emissions arising from equipment and operations at the Seaport, with a pathway toward zero emissions. The 2020 and Beyond Plan seeks to minimize emissions of criteria air pollutants and TACs, including DPM, as well as GHG emissions. The 2020 and Beyond Plan goals and strategies are designed to complement current and future plans and studies by federal, state, regional, and local regulatory agencies and organizations to address air quality, community health risk, and climate change. The plan builds on the Port's previous Maritime Air Quality Improvement Plan (MAQIP), which was approved by the Board of Port Commissioners in 2009. The MAQIP set a 12-year time frame—from 2009 to 2020—for implementation. As a result of actions under the MAQIP, DPM emissions at the Port have decreased 80 percent since 2005, according to the Port's 2020 Seaport Emissions Inventory; Port truck diesel emissions were reduced by 99 percent between 2005 and 2020 (Port of Oakland 2021).

The Year 3 progress report on the 2020 and Beyond Plan (Port of Oakland 2022) updated progress. The following actions have been completed:

- All 13 Rubber-Tired Gantry cranes at Oakland International Container Terminal converted to hybrid electric engines. Other tenants are in the process of evaluating grant applications to assist with upgrades to their Rubber-Tired Gantry cranes.

- The Port completed construction of 10 truck chargers at the Shipper's Transport Express facility. Battery Electric trucks are in active operation moving containers within the Seaport between STE and the terminals.
- Charging infrastructure has been installed at several locations.
- GSC Logistics operates three BYD electric drayage trucks and one electric yard tractor.
- Sea Logix operates four BYD electric road trucks.
- The Port completed the maritime Power Capacity Study for Terminal Electrification.
- The Port completed a guide for port tenants for EV Charging Station Permit Applications.
- The Port completed several feasibility studies regarding zero emission trucks and cargo-handling equipment.
- The Port completed a report on seaport electrical system capacity, incentive programs for vessels and locomotives, and financing and costs of the 2020 and Beyond Plan.

The Port has made progress toward its goal of zero-emissions operations. This includes several projects in coordination with Port tenants to install chargers and infrastructure to add battery-electric top picks and electric yard tractors, begin design or obtain funding for updates to substations, replacement circuits, and upgrades to power generation resiliency components. The Port has switched to renewable diesel for its fleet, and regulations already require harbor craft to use renewable diesel. The Port has registered its shore power equipment and electric car charging stations in the LCFS program and purchased renewable energy certificates to cover the electricity demand in the LCFS program. Upgrades to tugs are ongoing, with 78 to 85 percent of tug assist work in Oakland anticipated to be performed by clean tugs in 2023. The Port is coordinating with a hydrogen supplier on a hydrogen fuel cell demonstration project to bring approximately 30 hydrogen fuel cell trucks to the Port. The Port is also purchasing hybrid-electric equipment and trucks that are at the end of their life.

The Port adopted an amendment to its environmental ordinance in March 2023, requiring Port tenants that operate cargo-handling equipment to create a plan for converting cargo-handling equipment to zero emissions (Port of Oakland Administrative Code Chapter 9.01). Port tenants are required to submit their conversion plan by December 31, 2023.

## 3.3.3. Significance Criteria

Based on Appendix G of the CEQA Guidelines, the below questions (criteria) were analyzed and evaluated to determine whether the Proposed Project's impacts related to air quality are significant. Would the Proposed Project:

A. Conflict with or obstruct implementation of an applicable air quality plan?

B. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?

C. Expose sensitive receptors to substantial pollutant concentrations?

D. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

## *Methodology for Analysis*

### Construction

The analysis estimates the criteria pollutant emissions associated with the construction of the Proposed Project from the combustion of fossil fuel from off-road construction equipment such as loaders, dozers, excavators, drill rigs, generators, pile drivers, cranes, compressors, and concrete saws and in-water vessels, including dive boats, towboats, and scows; and from the combustion of fossil fuels from material hauling trips and worker commute trips. Below is a summary of the methods used. Further details can be found in Appendix B: *Air Quality, Greenhouse Gas, and Energy Technical Report*.

#### *On-Road Vehicles*

Based on the number of worker vehicle trips, which assumes each worker makes one trip to and from the site each working day, and the CalEEMod default one-way trip length of 10.8 miles, an estimate of total worker VMT is determined. This VMT is multiplied by the emission factor for each criteria pollutant, or its precursor emissions of the vehicles based on standard values presented in EMFAC 2021 for light-duty automobiles and light-duty trucks (LDT1), with all vehicles used by workers conservatively assumed to be gasoline-fueled, even though other options such as diesel, hybrid, electric, and other alternative fuels are possible. Similarly, calculations for the hauling trips for the Class I, Class II landfills, Recycler, and other hauling vendor trips use the number of trips multiplied by their trip lengths to yield the total VMT by these heavy, heavy-duty trucks (HHDT), which conservatively are all assumed to be diesel-fueled. **Table 3.3-8** shows the one-way trip lengths for the Class I, Class II Landfills, Recycler, and other hauling vendor trips, which are conservatively based on the typical travel path from the construction area with the longest distance. Each truck is assumed to travel from the construction site to its destination for each load it carries, and then back to the construction site. The truck VMT is multiplied by the emission factor for the criteria air pollutant emissions of the vehicles based on standard values presented in EMFAC 2021 for HHDTs.

**Table 3.3-8 On-Road Vehicle Trip Lengths**

| Trip Type | One Way Trip Length (miles) |
|---|---|
| Class I (Hazardous) Landfill)[1] | 201 |
| Class II (non-hazardous) Landfill[2] | 32 |
| Recycler[3] | 10 |
| Other Hauling Vendor Trips[4] | 20 |
| Workers[4] | 10.8 |

Notes:

1 The Class I landfill location is assumed to be Kettleman Hills Landfill in Kettleman City, California.
2 The Class II landfill location is assumed to be Keller Canyon Landfill near Pittsburg, California
3 Material acceptable for recycling or reuse would be hauled to Argent Materials in Oakland, California or another local recycler.
4 The default CalEEMod trip lengths were used for vendor trips and workers.

### *Off-Road Equipment*

For off-road equipment, which consists of landside and in-water equipment and vessels, the emission factors (or the emissions per horsepower-hour) were based on values used by CARB in its current OFFROAD model and in the latest harbor craft emission inventory and the Port's 2020 Seaport Emission Inventory. The beneficial reuse assumed placement to Montezuma Bay wetland at 50 miles away to conservatively estimate the tow boat travel emissions. These emission factors are multiplied by the horsepower, load factor, and hours of activity to determine the criteria pollutant emissions.

The Proposed Project would use electric dredging equipment that would plug into shore power, which does not directly generate local criteria pollutants. Full details of assumptions used to estimate criteria pollutant emissions from construction are in Appendix B. The criteria pollutant mass emissions are compared to BAAQMD's CEQA significance thresholds.

### *Fugitive Dust*

Fugitive dust is generated by the various source activities occurring at a construction site, contributing to $PM_{10}$ and $PM_{2.5}$ emissions. Fugitive dust emissions are distinguished from exhaust particulate matter emissions. The types of fugitive dust emissions that can occur at the construction site include fugitive dust from grading equipment passing over the ground, dozers and excavators pushing dirt into piles, loading dirt and other material from piles into trucks, and dust from windblown soil erosion of storage piles. Road dust from vehicles traveling on roads is another form of fugitive dust that occurs, in addition to the generation of fugitive dust from tire and brake wear. Fugitive dust was estimated consistent with methods used in CalEEMod and USEPA's AP-42 emission factors, as fully detailed in Appendix B. Windblown dust used an emission factor of 1.7 pounds $PM_{10}$ per acre-day as described in the BAAQMD permitting handbook. It was assumed that control of material piles with watering would result in a 70 percent control efficiency, which corresponds to the maximum allowed by BAAQMD in its permitting guidance, even though many other air districts allow up to 90 percent control efficiencies.

### *Health Risk Assessment*

A health risk assessment (HRA) for the Proposed Project construction was conducted to evaluate the potential human health effects of construction activities. The HRA does not contain an assessment of asbestos exposure from demolition of building materials, because this is controlled by law to protect human health with implementation of the ATCM and the measures required under the ATCM; therefore, no further analysis is typically required beyond discussing compliance with the regulations with CARB and BAAQMD. It was assumed that TACs in construction debris and dredged material are adequately controlled with fugitive dust measures.

TAC emissions used $PM_{10}$ as a surrogate for DPM emissions for all diesel exhaust emissions. Diesel exhaust, a complex mixture that includes hundreds of individual constituents, is identified by the State of California as a known carcinogen (CARB 1998). Under California regulatory guidelines, DPM is used as a surrogate measure of exposure for the mixture of chemicals that make up diesel exhaust. The California Environmental Protection Agency (Cal/EPA) and other proponents of using the surrogate approach to quantifying cancer risks and non-cancer chronic hazard index (HI) associated with the diesel mixture indicate that this method is preferable to use of a component-based approach. A component-based approach involves estimating risks for each of the individual components of a mixture. Critics of the component-based approach believe it

would underestimate the risks and HI associated with diesel as a whole mixture because the identity of all chemicals in the mixture may not be known, and/or exposure and health effects information for all chemicals identified in the mixture may not be available. Furthermore, Cal/EPA has concluded that "potential cancer risk from inhalation exposure to whole diesel exhaust would outweigh the multi-pathway cancer risk from the speciated components" (OEHHA 2015). In contrast, BAAQMD states "diesel exhaust particulate matter should be used as a surrogate for all TAC emissions from diesel-fueled compression-ignition internal combustion engines" (BAAQMD 2023a). DPM emissions are assumed in this analysis to be equal to exhaust $PM_{10}$ from on- and off-road construction equipment consistent with BAAQMD recommendations to use DPM rather than speciating individual TACs.

Estimates for gasoline-fueled vehicle emissions used speciation profiles to convert the total organic gases to individual TACs. Similarly, to get an estimate of acute health impacts from diesel exhaust, the total organic gases from diesel equipment were multiplied by a speciation profile to estimate individual TACs that have acute toxicity factors.

The dispersion of emissions in ambient air was simulated using the USEPA's approved model, AERMOD version 22112, which is an air dispersion model approved by the BAAQMD for air dispersion assessments. AERMOD was used to estimate concentrations of TACs, which includes DPM as well as $PM_{2.5}$ concentrations at sensitive receptors generated by construction of the Proposed Project. Surface meteorological data used a station at Berth 34 for sources operating in the Outer Harbor area, and a station at Berth 67 for sources operating in the Inner Harbor area. Upper air meteorological data were obtained from NOAA/ESRL Radiosonde Database for the Oakland International Airport meteorological station. The project conservatively used four years of meteorological data from 2017 through 2020,[38] even though these would be considered on-site meteorology stations. Five years of meteorological data are desired for non-site-specific meteorological data and one year of site-specific data. Variable emission rates were used to represent sources that operated 12 hours per day, 5 days per week.

The HRA evaluates two types of health risks from poor air quality: cancer and non-cancer. To evaluate cancer risks, the HRA included exposure factors and age-specific factors recommended by BAAQMD (BAAQMD 2023a) and OEHHA (OEHHA 2015). To determine an overall impact for all construction activities, age-specific factors were used and assumed that exposure started in Year 1 (2027) of construction and continued with aging for all subsequent years through the final Year 3 (2029). A worker adjustment factor was included for sources not operating 24 hours per day, seven days per week. The emissions, air dispersion factors, and exposure factors were combined with toxicity factors for cancer, chromic, and acute health effects to provide the estimated excess lifetime cancer risk, chronic hazard index, and acute hazard index. The HRA provides a characterization of the excess lifetime cancer risks that could occur due to exposure to DPM and TACs associated with the construction activities. The excess cancer risk is generally multiplied by 1 million to report the excess cancer risk that would be expected to occur based on the exposure to DPM and TACs in a population of 1 million people, and then compared against the BAAQMD CEQA threshold for cancer risks from exposure to DPM and TACs. The BAAQMD CEQA threshold of 10 in 1 million (or 1 in 100,000) excess cancers due to a project's release of TACs has been used.

[38] Five years of recent meteorological data that met the completeness requirements were not available.

Besides cancer risk, DPM and TACs associated with the Proposed Project can also have acute and chronic non-cancer health effects. To determine the significance of the acute and chronic non-cancer health impact, the ambient air concentration is divided by the Reference Exposure Level (REL) to provide the hazard quotient. The RELs are airborne concentrations of a chemical that are not anticipated to result in adverse non–cancer health effects for specified exposure durations in the general population, including sensitive subpopulations. A hazard quotient is the ratio of the potential exposure to a substance and the level at which no adverse effects are expected. If several TACs are present, the individual hazard quotients are summed to reach an overall HI, and then compared against the BAAQMD CEQA threshold. BAAQMD has set an HI threshold of 1.0 for both acute and chronic non-cancer health impacts. The concentration of $PM_{2.5}$ at locations near the Proposed Project sites was evaluated to determine whether $PM_{2.5}$ emissions would contribute to an incremental increase in $PM_{2.5}$ emissions greater than the BAAQMD CEQA threshold of 0.3 microgram per cubic meter. Further details of the HRA are described in Appendix C.

#### *Odors*

Odors are addressed in a qualitative manner because there would not be generation of permanent or long-term objectionable odors. Temporary odors are described further in a qualitative matter in the impact discussions below. The Proposed Project is not a land-use type that is known to generate substantial odors, and therefore would not generate permanent or long-term objectionable odors.

### Operation

For operation criteria pollutant emissions as discussed in Chapter 2, the Proposed Project is not expected to increase cargo throughput or change landside operations at the Seaport, and there would be negligible changes in criteria pollutant emissions associated with landside operations as a result of the Proposed Project. The existing activities at the impacted land and waterside areas would be relocated or consolidated, and there would be negligible changes in air quality emissions associated with the relocation or consolidation of existing activities outside of the physical change in location where they are released, if relocated. The specific locations and extent of consolidation that would occur are unknown, which prevents a detailed analysis from occurring; but in general, any change due to differences in minor trip lengths and activity would be minimal overall, assuming no other changes to demand and growth.

The Proposed Project operation would have some changes associated with in-water operations compared to the future No Project baseline scenario. The use of the future operational baseline rather than the existing baseline is appropriate for this situation, and allowed under CEQA because the vessel fleet will likely change in the future as a result of other economic and global influences to the shipping industry, including growth, efficiency improvements, and vessel emission improvements as well as the physical change to the turning basins. The difference between the Proposed Project and No Project future information is the physical changes to the size of the turning basins. With or without the Proposed Project, the Port will experience a 2.1 percent growth in cargo annually. This also includes planned harbor improvements, such as the future upgrades and improvements that would be anticipated to occur under both the Proposed Project and No Project future scenarios. Most importantly for air quality emissions, the mix of OGVs and number of vessel calls are expected to change when compared to the future No Project baseline scenario, and will be substantially different from the current mix of OGVs and number of vessel calls. To evaluate the change in criteria pollutant emissions for the in-water operation, the vessel fleet mix and vessel calls as reported in **Table 3.1-1** were used. In addition to the vessel fleet mix and number of vessels calls per year, additional assumptions are required to estimate criteria pollutant

emissions associated with vessels calling the Seaport. Information from the 2020 Seaport Emission Inventory was used as a basis for establishing several key assumptions. The average vessel transit and maneuvering time per call were averaged over all vessel size classes consistent with the assumption used in the 2020 Seaport Emission Inventory. The future fleet engine tier levels were determined based on carrying forward the 2020 vessel age distribution. The load factors for the vessels and tugs were updated to reflect current CARB emission inventory methods (CARB 2021). Vessel engine sizes were determined for each vessel class using representative main and auxiliary engine sizes by vessel TEU capacity. Vessels were assumed to have 95 percent shore power use with 3 hours of auxiliary engine use allocated to account for connect and disconnect time consistent with the CARB At-Berth regulations. The remaining 5 percent of vessels were assumed to not use shore power.[39] Time at anchorage was not included in this analysis because anchorage events exhibited significant temporal variability that was impossible to determine if vessel size was a causative factor in making the decision to go to anchor, or in deciding how long to anchor. With these assumptions and criteria pollutant emission factors for the representative vessels based on the 2020 Seaport Emission Inventory, criteria pollutant emissions were developed for the Proposed Project and No-Project future baseline scenarios for the in-water operations.

All vessels require tugs to assist them when transiting and maneuvering; however, the number of tugs required for a vessel is related to the size of the vessel and varies based on the power of tugs available, as well as if the vessel is traveling in-bound or out-bound and if the vessel requires a turnaround. The average number of tugs for each vessel type was determined consistent with assumptions in the 2020 Seaport Emissions Inventory and ranged from an average of 3.5 tugs per call (e.g., 1 to 2 tugs for vessels inbound and 1 to 2 tugs for vessels outbound) to 7.5 tugs per call (e.g., 3 to 4 tugs inbound and 3 to 4 tugs outbound). The number of tugs needed depends on the power rating of the tugs, if the vessel is turning, and if the vessel is inbound or outbound, among other factors. All tugs were assumed to have 6,772 hp main engine power.

The engine and load factor in units of horsepower or kilowatts, the hours of transiting and maneuvering, and the emission factor used by CARB in its latest Harbor Craft and OGV emissions inventories were multiplied together to calculate the criteria pollutant emissions from in-water activities.

Maintenance dredging is anticipated to require an annual increase of up to 93,000 cubic yards of additional dredging of the turning basins. Emissions for this additional maintenance dredging were estimated assuming that 6,000 cubic yards of material are dredged a day using a diesel dredger with an offroad engine. Maintenance dredging of Oakland Harbor by USACE has historically been completed with a diesel clamshell dredger. Electric dredging is not practicable due to the continued movement of the dredge and associated electrical cable during maintenance dredging throughout the active waterway, as opposed to the Proposed Project construction which would only occur outside of the existing federal navigation channel. Both a barge and a tow boat are assumed to be used to move the dredgers and barge. A second tow boat would be used to transport the filled barge to a disposal site similar to prior disposal, located approximately 50 miles away by barge. Twenty-six workers are assumed to be needed during dredging and emission estimates include these worker trips using the same CalEEMod default trip length. The offroad and on-road emissions were estimated in a manner similar to the methods used for these categories described under construction. Full details of assumptions used to estimate criteria

[39] These 5 percent of vessels may not be able to use shore power due to being unequipped, the unavailability of equipment or staff, or other reasons.

pollutant emissions from maintenance are provided in Appendix B. The criteria pollutant mass emissions are compared to BAAQMD's CEQA significance thresholds.

## 3.3.4. Impact Analysis and Mitigation Measures

### *Impact AIR-1. Would the Proposed Project conflict with or obstruct implementation of an applicable air quality plan? (Criterion A) (Significant and Unavoidable)*

#### Impact Analysis

The applicable air quality plan is BAAQMD's 2017 Bay Area Clean Air Plan (2017 CAP). If the Proposed Project supports the goals of the plan, includes applicable control measures from the plan, and would not disrupt or hinder implementation of any control measures from the plan, then the Proposed Project is consistent with the 2017 Bay Area Clean Air Plan.

The goals of the 2017 CAP are to protect air quality and health at the regional and local scale and protect the climate. To meet these goals, the 2017 Bay Area Clean Air Plan recommends specific control measures and actions to reduce emissions and decrease concentrations of harmful air pollutants. To this end, the 2017 CAP includes 85 control measures aimed at reducing air pollutants in the air basin (BAAQMD 2017b). These control measures are grouped into various categories: stationary source sector, transportation sector, buildings sector, energy sector, agriculture sector, natural and working lands sector, waste sector, and water sector. Only those sectors relevant to the Proposed Project are discussed in this section. The control measures identified in the 2017 CAP that are applicable to the Proposed Project are associated with the energy and transportation sectors. Transportation sector control measures that would be incorporated into the Proposed Project include using Tier 4 construction equipment. The Proposed Project would comply with BAAQMD's trackout regulation and control of fugitive dust. Other measures identified in the 2017 CAP have been incorporated into the 2020 and Beyond Plan. Therefore, the Proposed Project would include applicable control measures identified in the 2017 CAP, and would support the primary goals of the 2017 CAP. However, the Proposed Project would be inconsistent with the overall goal of the 2017 CAP in protecting the health at the local scale because the construction health impacts, and $NO_X$ emissions would exceed BAAQMD's thresholds of significance. BAAQMD has stated in its CEQA Guidance that any significant impact of its thresholds would also be a significant impact and inconsistent with the goals of their plan.

The Proposed Project would not conflict with the City of Oakland General Plan because it is consistent with all of the City of Oakland General Plan policies and goals and would not impede the implementation of any of the goals. However, the Proposed Project would conflict with the City of Alameda's General Plan related to the health risks assessment criteria outlined in HS-68 because the HRA results from Proposed Project construction would exceed the thresholds outlined in this goal, which are the same as BAAQMD's CEQA significance thresholds. The Proposed Project would be consistent with other construction-related goals such as reduction of fugitive dust and to use Tier 4 equipment in the City of Alameda's General Plan.

The Proposed Project would be consistent with the Port of Oakland's 2020 and Beyond Plan. The Proposed Project would construct the necessary electrical infrastructure needed to use electrical dredging equipment during widening of the turning basins. The widened turning basins

would allow for larger vessels that call on the Seaport to orient themselves to properly turn in the direction that may be necessary to use shore power, which is also in alignment with the goal toward a zero-emissions Seaport. The Proposed Project would not impede the implementation of any of the other 2020 and Beyond Plan strategies because the other strategies outlined in the 2020 and Beyond Plan can still be implemented if the Proposed Project is constructed, including projects that have received funding to provide infrastructure for electrical charging and building out renewable power and electricity storage as well as acquiring ZEV and equipment. Many of these measures are to investigate the feasibility of various improvements and implementation of zero-emissions equipment and infrastructure.

West Oakland Community Action Plan focuses on reducing exposures in West Oakland to $PM_{2.5}$, DPM, and TACs, and sets emission reduction targets. The overarching goal of the WOCAP is to protect and improve community health by eliminating social disparities in exposure to local air pollution. The WOCAP identifies several specific strategies, with some directly related to actions by the Port. The Proposed Project does not conflict with the Port-identified strategies as outlined in **Table 3.3-7**. Implementation of the Proposed Project would have a beneficial impact to the Clean Ship Program to increase the frequency of visits by vessels with higher tier engines, because many of the higher tier engine vessels are newer and longer, and therefore unable to use the existing narrow turning basins with optimized safety and efficiency. As the WOCAP is currently understood, any contribution would be inconsistent with WOCAP's goals.

Therefore, the Proposed Project may be inconsistent with the DPM, $PM_{2.5}$, and cancer risk targets outlined in WOCAP. The WOCAP did not include construction projects in the baseline or future emission scenarios. Therefore, the Proposed Project construction emissions were not compared to DPM, $PM_{2.5}$, and cancer risk targets for comparison because there is no comparison to make.

The Proposed Project would conflict with some of the applicable plans and policies, specifically BAAQMD's 2017 CAP, the City of Alameda General Plan, and WOCAP. This is due to the estimated health impacts from construction activities exceeding applicable thresholds and targets for cancer risk and $PM_{2.5}$ emissions. Therefore, this impact is **potentially significant**.

## Level of Significance Before Mitigation

*Potentially Significant Impact.*

## Mitigation Measure

### MM AIR-1: Construction Air Quality Mitigation

The Port shall require the contractor to implement construction-related air quality emission reduction measures. All requirements will be included in applicable bid documents, purchase orders, and contracts, with the contractors demonstrating the ability to supply the compliant on- or off-road construction equipment for use prior to any ground-disturbing and construction activities. The measures are as follows:

t. Require all diesel-fueled off-road construction equipment used on land to be equipped with USEPA Tier 4 final compliant engines or better as a condition of contract unless a unique piece of equipment is not available as a Tier 4 engine.

u. Use zero-emission and hybrid-powered equipment, to the greatest extent possible. The performance criterion for meeting this standard assumes availability by at least

two commercial rental facilities in the San Francisco Bay Area Air Basin, to the greatest extent possible.

v. Require all on-road heavy-duty trucks to conform to the most stringent emissions standard as a condition of their contract. This currently means a 2015 model year or newer truck.

w. Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than two minutes. Provide clear signage that posts this requirement for workers at the entrances to the site. The Port will conduct random monthly surveys to check for compliance with idling times to ensure compliance with this measure.

x. Require all construction equipment to be maintained and properly tuned in accordance with manufacturer's specifications. Equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

y. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

z. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

aa. All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day, or other suitable practices to remove dirt from tire mechanisms shall be employed to minimize occurrences of trackout. The use of dry power sweeping is prohibited.

bb. All vehicle speeds on unpaved roads shall be limited to 15 mph.

cc. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

dd. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph in a given hour.

ee. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.

ff. Unpaved roads providing access to sites 100 feet or further from a paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.

gg. Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's General Air Pollution Complaints number shall also be posted on a publicly visible sign to ensure compliance with applicable regulations.

hh. Limit the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities.

ii. Install wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.

jj. Plant vegetative ground cover (e.g., fast-germinating native grass seed) in disturbed areas as soon as possible and water the ground cover appropriately until vegetation is established.

kk. Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.

ll. Minimize the amount of excavated material or waste materials stored at the site.

mm. Hydroseed or apply non-toxic soil stabilizers to construction areas, including previously graded areas, that are expected to be inactive for at least 10 calendar days.

### Level of Significance After Mitigation

*Significant and Unavoidable.*

Mitigation Measure AIR-1 requires the use of Tier 4 final engines for landside equipment, which are some of the least polluting construction equipment engines available. Other alternative fuels and hybrid and electric construction equipment will be considered if feasible at the time of the Proposed Project. The specific availability of this equipment to be available for construction is unknown and the specific emission reductions from its use is unknown. Tier 4 final engines or better will be used for all equipment unless there is a unique and specific piece of equipment required for the Proposed Project construction that is not available as a Tier 4 engine. The feasibility of using alternatively fueled or electric equipment is also unknown because it is unknown whether the infrastructure to refuel or recharge this equipment at the construction site would be available. This similarly applies to on-road trucks, which would need similar infrastructure and availability of such trucks. It is also unknown at this time whether an investment in such vehicles would be feasible during the short-term project construction period. Even with implementation of Mitigation Measure AIR-1, the health impacts would remain above applicable thresholds, and therefore conflict with applicable plans. This impact would be **significant and unavoidable.**

## *Impact AIR-2. Would the Proposed Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard? (Criterion B) (Significant and Unavoidable)*

### Impact Analysis

#### *Construction*

The Proposed Project construction would generate criteria air pollutant and/or precursors of criteria air pollutant emissions. As described above, criteria pollutant emissions were estimated for off-road equipment, in-water vessels, hauling trucks, and worker vehicles during construction phases. $PM_{2.5}$ emissions from fugitive dust related to the construction activities were also estimated.

A summary of the average daily construction criteria air pollutant emissions unmitigated is provided in **Table 3.3-9**. The criteria air pollutant emissions are reported in units of annual average daily emissions for each year of construction. For construction that would occur throughout the full year, annual emissions were averaged over 365 days. For the first year of construction, which is not a full year, annual emissions were averaged over 175 days, because this is the number of days of construction during the first year consistent with BAAQMD CEQA

guidelines. Emissions for the Proposed Project construction would exceed the mass emissions thresholds for $NO_X$ emissions without mitigation.

**Table 3.3-9 Unmitigated Construction Emissions Summary – Average Pounds per Day by Year**

| Project Construction Year | ROG | $NO_X$ | $PM_{10}$ (exhaust) | $PM_{2.5}$ (exhaust) |
|---|---|---|---|---|
| Year 1 (2027) | 3 | 34 | 3 | 3 |
| Year 2 (2028) | 7 | 82 | 6 | 5 |
| Year 3 (2029) | 6 | 77 | 7 | 7 |
| BAAQMD Significance Threshold | *54* | *54* | *82* | *54* |
| Does Any Year's Average Daily Emissions Exceed Significance Threshold? | No | **YES** | No | No |

Notes:

BAAQMD = Bay Area Air Quality Management District
µg/$m^3$ = micrograms per cubic meter
$NO_X$ = oxides of nitrogen
$PM_{10}$ = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
ROG = reactive organic gases

Source: BAAQMD 2023a

Fugitive dust emissions from construction activities are considered less than significant with implementation of best dust control practices, as implemented for the Proposed Project and incorporated into Mitigation Measure AIR-1, which includes adequate watering of piles, compliance with trackout regulation, street sweeping, and installation of fugitive dust barriers.

***Operation and Maintenance***

For operation criteria pollutant emissions as discussed in Chapter 2, the Proposed Project is not expected to increase cargo throughput or change landside operations at the Seaport, and there would be negligible changes in criteria pollutant emissions associated with landside operations as a result of the Proposed Project. There may only be potential changes in localized emissions if there are any changes to peak activity but would not change the annual values used to determine significance of the Proposed Project compared to the No-Project future baseline scenario.

The existing activities at the impacted land areas would be relocated or consolidated, and there would be negligible changes in air quality emissions associated with the relocation or consolidation of existing activities outside of the physical change in location where they are released if relocated The specific locations and extent of consolidation that would occur are unknown, which prevents a detailed analysis from occurring; but in general, any change due to differences in minor trip lengths and activity would be minimal overall, assuming no other changes to demand and growth.

The Proposed Project operation would have some changes associated with in-water operations compared to the future No Project baseline scenario. The use of the future operational baseline rather than the existing baseline is appropriate for this situation, and allowed under CEQA because the vessel fleet will likely change in the future as a result of other economic and global

influences to the shipping industry, including growth, efficiency improvements, and vessel emission improvements as well as the physical change to the turning basins. The difference between the Proposed Project and No Project future information is the physical changes to the size of the turning basins. With or without the Proposed Project, the Port will experience a 2.1 percent growth in cargo annually. This also includes planned harbor improvements, terminal upgrades, and wharf improvements that would be anticipated to occur under both the Proposed Project and No Project future scenarios. Most importantly for air quality emissions, the mix of OGVs and number of vessel calls are expected to change when compared to the future No Project baseline scenario and will be substantially different from the current mix of OGVs and number of vessel calls.

Criteria air pollutant emissions were estimated using the number of vessel calls for each vessel class in the future for 2030, 2040, and 2050 for the Proposed Project and No-Project future baseline scenarios, as described in Section 3.3.3 above. **Table 3.3-10** shows that in all cases, the criteria air pollutant emissions from in-water vessel calls with the Proposed Project compared to the No-Project future baseline scenario will result in a decrease in emissions. **Figure 3.3-8** shows the percentage reduction in criteria pollutant emissions for the Proposed Project compared to the No-Project future baseline scenario. In 2030, the criteria pollutant emissions from the Proposed Project in-water vessel fleet mix and calls are 2 to 3 percent less than the No-Project scenario. In 2040 and 2050, the Proposed Project is estimated to be 6 to 9 percent and 9 to 13 percent less than the No-Project scenario, respectively. Because substantial changes in land-side operations are not anticipated, the operation of the Proposed Project would likely result in a reduction of criteria pollutant emissions.

**Table 3.3-10 In-Water Operation Emissions Summary – Tons per Year**

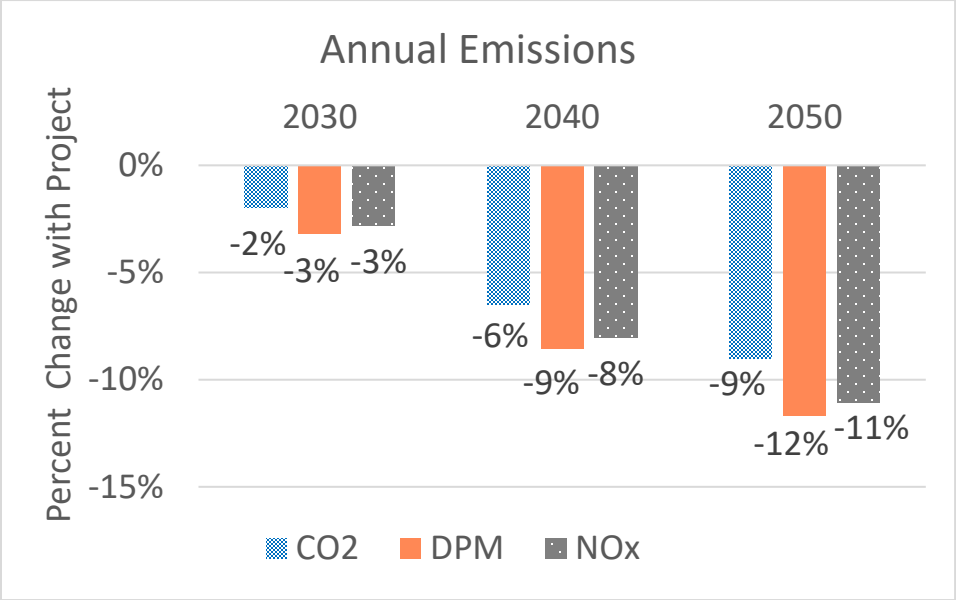
| Year | Scenario | ROG | CO | $NO_X$ | $SO_X$ | DPM | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|---|---|
| 2030 | No Project | 78 | 150 | 1,262 | 65.6 | 13 | 21 | 19.5 |
| 2030 | Proposed Project | 75 | 147 | 1,226 | 64.3 | 13 | 21 | 19.1 |
| 2040 | No Project | 96 | 185 | 1,486 | 81.3 | 17 | 26 | 24.1 |
| 2040 | Proposed Project | 87 | 172 | 1,367 | 75.8 | 15 | 24 | 22.5 |
| 2050 | No Project | 111 | 218 | 1,721 | 95.9 | 19 | 31 | 28.5 |
| 2050 | Proposed Project | 96 | 196 | 1,531 | 87.0 | 17 | 28 | 25.9 |

Notes:

CO = carbon monoxide
DPM = diesel particulate matter
$NO_X$ = oxides of nitrogen
$PM_{10}$ = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
ROG = reactive organic gases
$SO_X$ = sulfur oxide

Source: Appendix B

**Figure 3.3-8 In-Water Operational Emissions Percent Reduction**




Maintenance dredging is anticipated to require an annual increase of up to 93,000 cubic yards of additional dredging of the turning basins. The increase in emissions from this additional maintenance dredging using diesel dredgers, barges, towboats and is shown in **Table 3.3-11**.

**Table 3.3-11 Maintenance Dredging Annual Increase in Emissions Average Daily and Tons per Year**

| Project Maintenance Dredging | ROG | $NO_X$ | $PM_{10}$ (exhaust) | $PM_{2.5}$ (exhaust) |
|---|---|---|---|---|
| Total Tons | 0.16 | 0.65 | 0.67 | 0.33 |
| Average Daily Pounds | 1.12 | 6.27 | 3.67 | 1.83 |

Notes:

$NO_X$ = oxides of nitrogen
$PM_{10}$ = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
ROG = reactive organic gases
Source: Appendix B

***Summary***

The Proposed Project construction emissions would be below the BAAQMD mass emission significance threshold for all pollutants during each year of construction, except for $NO_X$ emissions. Implementation of fugitive dust emission best control practices is required to be less than significant. Operation emissions would not differ substantially from existing emissions and would be lower for in-water activities associated with vessel calls. There would be an increase in criteria pollutant emissions from maintenance dredging, but when combined with the in-water operation criteria pollutant emissions savings compared to the No-Project Future baseline scenario, would still result in a net decrease in criteria pollutant emissions when in-water

operation and maintenance dredging are considered. The Proposed Project would exceed the threshold for $NO_X$, and best fugitive dust control practices for fugitive dust are required; therefore, the Project would result in a **potentially significant impact**.

### Level of Significance Before Mitigation

*Potentially Significant Impact.*

### Mitigation Measure

#### MM AIR-1: Construction Air Quality Mitigation

### Level of Significance After Mitigation

*Significant and Unavoidable.*

Mitigation Measure AIR-1 as described above would be implemented, and further decrease the unmitigated emissions with use of Tier 4 engines for landside equipment and implement fugitive dust control measures.

Implementation of Mitigation Measure AIR-1 would reduce the Proposed Project construction emissions, primarily with use of Tier 4 final for landside diesel equipment. **Table 3.3-12** shows the mitigated emissions, which incorporate emission factors for Tier 4 final engines.

**Table 3.3-12 Mitigated Construction Emissions Summary – Average Pounds per Day by Year**

| Project Construction Year | ROG | $NO_X$ | $PM_{10}$ (exhaust) | $PM_{2.5}$ (exhaust) |
|---|---|---|---|---|
| Year 1 (2027) | 1 | 12 | 2 | 2 |
| Year 2 (2028) | 6 | 70 | 5 | 5 |
| Year 3 (2029) | 4 | 66 | 7 | 6 |
| BAAQMD Significance Threshold | *54* | *54* | *82* | *54* |
| Does Any Year's Average Daily Emissions Exceed Significance Threshold? | No | **YES** | No | No |

Notes:

BAAQMD = Bay Area Air Quality Management District
$NO_X$ = oxides of nitrogen
$PM_{10}$ = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
ROG = reactive organic gases

Source: BAAQMD 2023a.

With implementation of Tier 4 final engines for the land-side construction equipment, the mitigated construction emissions would still exceed BAAQMD mass emission thresholds for $NO_X$. Implementation of BAAQMD's fugitive dust best control practices included in Mitigation Measure AIR-1 would result in fugitive emissions not being significant. Operation and maintenance activities for the widened turning basins when compared to the No-Project future baseline scenario would not be substantially different from existing operations and would be lower for in-water activities associated with vessel calls. Therefore, because the mass emissions

are still above BAAQMD thresholds for $NO_X$ emissions and fugitive dust best management practices would be implemented with Mitigation Measure AIR-1, the Proposed Project impact would significant and unavoidable.

Mitigation Measure ENE-1 may require the occasional use of diesel dredging during project construction in the event of a call for electricity reductions to prevent potential brownouts. It was estimated that this could occur up to 10 days a year or 240 hours a year.[40] The additional criteria pollutant emissions associated with the use of these diesel dredgers is provided in **Table 3.3-13**. The $NO_X$ emissions increase less than 4 pounds per day on average and would remain above the BAAQMD significance thresholds. No other criteria pollutants would be above the BAAQMD significance threshold. Therefore, even with implementation of Mitigation Measure ENE-1, the Proposed Project construction would be **significant and unavoidable**.

**Table 3.3-13 Mitigated Construction Emissions Summary with Energy Mitigation – Average Pounds per Day by Year**

| Project Construction Year | ROG | $NO_X$ | $PM_{10}$ (exhaust) | $PM_{2.5}$ (exhaust) |
|---|---|---|---|---|
| Year 1 (2027) | 1 | 12 | 2 | 2 |
| Year 2 (2028) | 6 | 73 | 6 | 6 |
| Year 3 (2029) | 5 | 69 | 8 | 7 |
| BAAQMD Significance Threshold | *54* | *54* | *82* | *54* |
| Does Any Year's Average Daily Emissions Exceed Significance Threshold? | No | **YES** | No | No |

Notes:

Source: BAAQMD 2023a.

BAAQMD = Bay Area Air Quality Management District
$NO_X$ = oxides of nitrogen
$PM_{10}$ = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
ROG = reactive organic gases

Project operation, as discussed above, would not result in a significant change in criteria pollutant emissions, and would reduce criteria pollutant emissions for in-water operation due to changes in the fleet mix and number of annual calls when compared to the No-Project Future baseline scenario. There would be an increase in criteria pollutant emissions from maintenance dredging, but when combined with the in-water operation criteria pollutant emissions savings compared to the No-Project Future baseline scenario, would still result in a net decrease in criteria pollutant emissions when in-water operation and maintenance dredging are considered. In addition, improved efficiencies and general fleet improvements for both in-water and land-based operation in the future would decrease air quality emissions with implementation of existing regulations and policies. The impact to operation would remain **less than significant**.

[40] The number of hours and days assumed are conservative and are based on information on frequency of events called in the recent past.

## *Impact AIR-3. Would the Proposed Project expose sensitive receptors to substantial pollutant concentrations? (Criterion C) (Significant and Unavoidable)*

### Impact Analysis

The Proposed Project construction emissions would generate TAC emissions, including DPM, as well as release $PM_{2.5}$ into the atmosphere. To determine the impacts of the TAC and $PM_{2.5}$ emissions exposure to sensitive receptors, an HRA was conducted following OEHHA and BAAQMD guidelines for comparison to BAAQMD's risk thresholds for projects. As noted above, this HRA does not evaluate the concentrations and health effects of criteria pollutants outside of primary $PM_{2.5}$, because this is the only criteria pollutant for which BAAQMD has additional health-related thresholds, and other pollutants such as the ozone precursors of ROG and $NO_X$ require substantially more information to account for background concentrations and conversion effects, as discussed in the follow paragraph. This evaluation also did not include exposure to asbestos that may be contained in building materials, because compliance with regulations is deemed to be adequately health-protective.

The significant criteria air pollutant emissions described in Impact AIR-1 and Impact AIR-2 could lead to increased concentrations of pollutants in the atmosphere and could result in health effects due to the increased emissions. The ambient concentration of criteria pollutants is a result of complex atmospheric chemistry. Photochemical grid-based models simulate the chemical interactions and three-dimensional dispersion patterns on a regional, statewide, and national scale. These models are complex and require significant expertise, knowledge, and resources as they build on other third-party models and processing tools that characterize meteorology, emissions, and other environmental conditions, such as land cover, radiative properties, and boundary conditions. Use of these models is typically speculative because the data are not readily available at the level of refinement needed for air quality analysis prepared pursuant to CEQA; and even if such an analysis was to be completed, consideration would need be given to ensure the results would be meaningful based on modeling and data limitations. This information is not widely available; and where it is available, its use would be speculative.

$NO_X$ and ROG are precursors to ozone, and $NO_X$, ROG, and $SO_X$ are precursors to secondarily formed $PM_{2.5}$. Chemical and physical processes transform some of these precursors to the criteria pollutant concentrations in the atmosphere. Multiple variables determine whether emissions of air pollutants from a project would move and disperse in the atmosphere in a manner in which concentrations of criteria pollutants would become elevated and result in health impacts. A specific concentration of precursor emissions does not equate to an equivalent concentration of the resultant ozone or secondary particulate matter in that area. The resulting health effects of ambient air concentrations are further based on a complex relationship of multiple variables and factors. The calculated health effects depend on the concentrations of pollutants to which the receptors are exposed; the number and type of exposure pathways for a receptor; and the intake parameters from a receptor, which vary based on age and sensitivity (e.g., presence of pre-existing conditions). Health effects would be more likely for individuals with greater susceptibility to exposure, and the location of receptors relative to the project impacts would affect where the receptors are exposed to project-related pollutants.

The following is a summary of the health effects from ozone, $PM_{2.5}$, and $PM_{10}$. Meteorology and terrain play major roles in ozone formation, and conditions for maximum ozone generation occur on days with low wind speeds or stagnant air, warm temperature, and cloudless skies. Short-term exposure (lasting a few hours) to ozone at levels typically observed in the SFBAAB can result in health effects. For ozone, the endpoints are mortality, emergency room visits (respiratory), and hospital admissions (respiratory). When inhaled, $PM_{2.5}$ and $PM_{10}$ can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and $PM_{10}$ can increase the number and severity of asthma attacks and cause or aggravate bronchitis and other lung diseases. Whereas $PM_{10}$ tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper in the lungs and damage lung tissues. Health effects of $PM_{2.5}$ include mortality (all causes), hospital admissions (respiratory, asthma, cardiovascular), emergency room visits (asthma), and acute myocardial infarction (non-fatal).

The HRA evaluated excess lifetime cancer risk, non-cancer chronic HI for TACs, and primary $PM_{2.5}$ concentration for off-site sensitive receptors exposure to emissions from the Proposed Project's construction. Acute HI was evaluated for any off-site receptor that is accessible to the public. For further details on the HRA, see Appendix C. The BAAQMD CEQA significant threshold for excess lifetime cancer risk threshold is 10 in 1 million. For both the chronic hazards index and acute hazard index, BAAQMD's significance threshold is 1. The BAAQMD CEQA significance threshold for $PM_{2.5}$ is 0.3 microgram per cubic meter.

The results of the Health Risk Assessment from Proposed Project construction are shown in **Table 3.3-14** and **Figure 3.3-9** for cancer risk. This shows that the excess lifetime cancer risk is above the BAAQMD CEQA threshold, with the nearest potential resident cancer risk of 123.82 in 1 million. The maximum exposed location for residential exposure was identified; however, this location is at Howard Terminal near the proposed area planned for excavation. **Table 3.3-15** shows that the non-cancer chronic HI and acute HI are below the BAAQMD CEQA threshold of 1 in all locations. **Table 3.3-16** shows the $PM_{2.5}$ concentration, which exceeds the BAAQMD CEQA significance threshold of 0.3 microgram per cubic meter. shows the cancer risk results across the modeled area assuming all exposures would be residential.

The HRA indicates that construction of the Proposed Project would result in cancer risks and $PM_{2.5}$ concentrations that exceed the BAAQMD thresholds of significance. The risk drivers for the exceedances of the significance threshold are primarily related to the close proximity of proposed and existing residences to the construction equipment being used for landside work. The majority of the modeling domain shows that excess lifetime cancer risk is substantially below 10 in one million, which is the BAAQMD CEQA significance threshold for excess lifetime cancer risks. The health impacts rapidly decrease across increased distance as residences are situated further from the construction areas.

**Table 3.3-14 Unmitigated Construction HRA Cancer Risk Results**

| Receptor | NAD 83 Zone 10 UTM X Coordinate (meter) | NAD 83 Zone 10 UTM Y Coordinate (meter) | Excess Lifetime Cancer Risk (in one million) |
|---|---|---|---|
| Maximum Exposed Existing Resident in Alameda at Mosley Avenue and Monterey Circle | 562810 | 4182665 | 12.53 |
| Maximum Exposed Existing Resident near Howard Terminal at Phoenix Lofts | 563114 | 4183647 | 6.43 |
| Maximum Exposed Planned Resident at Bay 37 | 563142 | 4182944 | 23.8 |
| Maximum Exposed Proposed Resident at Waterfront Ballpark (same location as maximum exposed resident) | 562794 | 4183407 | 123.82 |
| Maximum Exposed Resident | 562794 | 4183407 | 123.82 |
| Maximum Exposed Worker | 562940 | 4182920 | 12.79 |
| Maximum Exposed Location | 562834 | 4183367 | 251[1] |
| BAAQMD Cancer Risk Significance Threshold | | | 10 |
| Does the Cancer Risk Exceed BAAQMD's Cancer Risk Threshold? | | | **YES** |

Notes:

[1] Maximum exposed location for cancer risk assumes residential exposure assumptions. This location is at Howard Terminal near the proposed area planned for excavation.

BAAQMD = Bay Area Air Quality Management District
HI = Health Index
HRA = Health Risk Assessment
µg/m$^3$ = micrograms per cubic meter
NA = not applicable
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less

Source: Appendix C

**Table 3.3-15 Unmitigated Non-Cancer HRA Results**

| Receptor | NAD 83 Zone 10 UTM X Coordinate (meter) | NAD 83 Zone 10 UTM Y Coordinate (meter) | Hazard Index |
|---|---|---|---|
| Maximum Chronic HI (Alameda Warehouse) | 562880 | 4182900 | 0.44 |
| Maximum Acute HI (Alameda Warehouse) | 562940 | 4182900 | 0.11 |
| BAAQMD Hazard Index Significance Threshold | | | 1 |
| Does the Hazard Index Exceed BAAQMD's Cancer Risk Threshold? | | | No |

Notes:

BAAQMD = Bay Area Air Quality Management District
HI = Health Index
NAD 83 = North American Datum of 1983
UTM = Universal Transverse Mercator

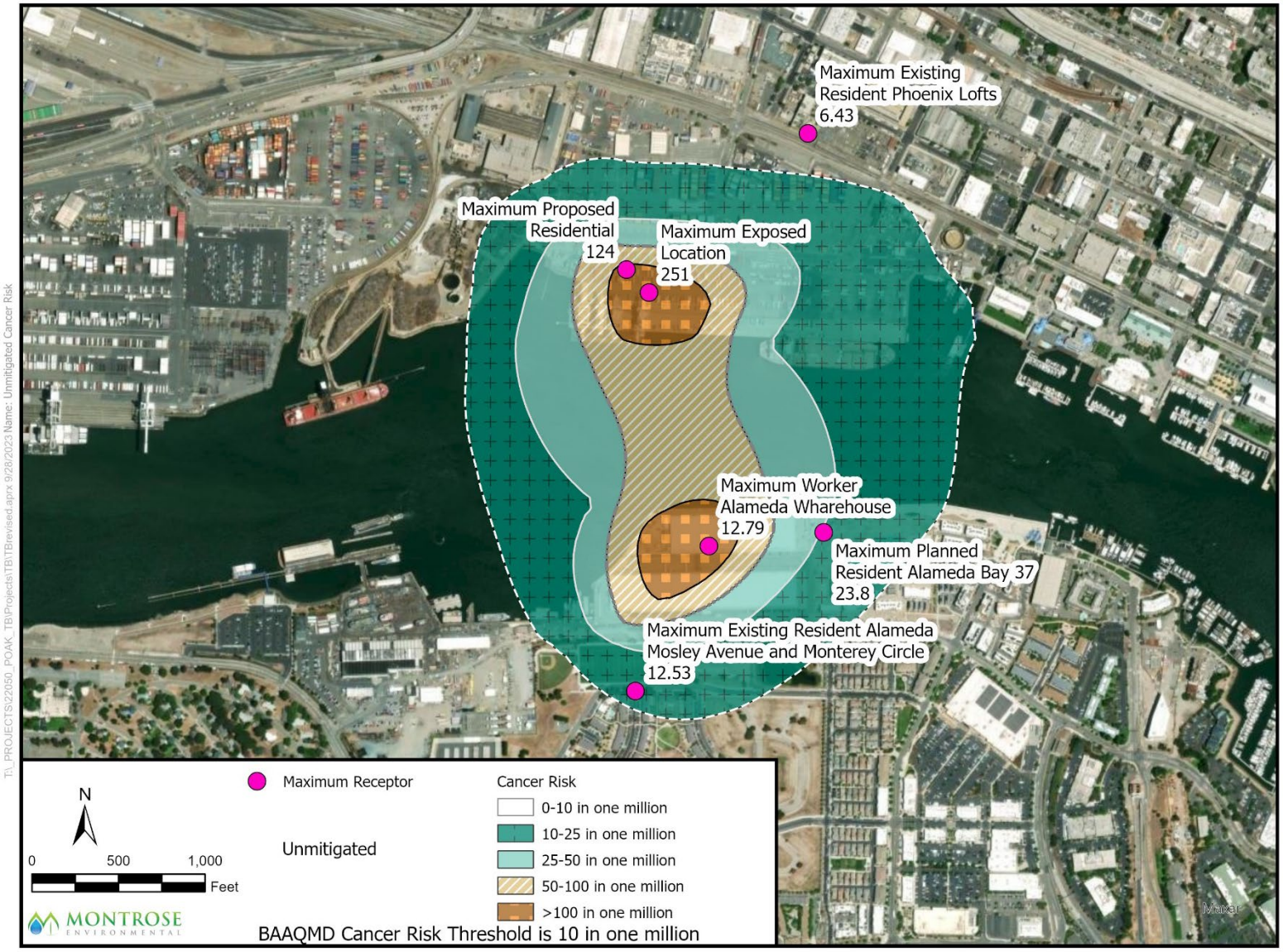
**Table 3.3-16 Unmitigated $PM_{2.5}$ Concentration**

| Receptor | NAD 83 Zone 10 UTM X Coordinate (meter) | NAD 83 Zone 10 UTM Y Coordinate (meter) | $PM_{2.5}$ Concentration ($ug/m^3$) |
|---|---|---|---|
| Maximum $PM_{2.5}$ Concentration (Berth 10) | 560950 | 4186000 | 19.92 |
| BAAQMD Hazard Index Significance Threshold | | | 0.3 |
| Does the Hazard Index Exceed BAAQMD's Cancer Risk Threshold? | | | **YES** |

Notes:

BAAQMD = Bay Area Air Quality Management District
$\mu g/m^3$ = micrograms per cubic meter
NAD 83 = North American Datum of 1983
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
UTM = Universal Transverse Mercator

**Figure 3.3-9 Unmitigated Cancer Risk: Residential**



Operation and maintenance of the Proposed Project would not substantially change from existing conditions and based on the comparison to the future baseline the Proposed Project, may result in decreased emissions from in-water activities as discussed in impact AQ-2. There would be no new sources of emissions with the Proposed Project, and the only changes would be to a projected change in vessel fleet mix and number of calls in the future, compared to the future No-Project baseline scenario. With widening of the turning basins, turning basins' centers would shift in spatial position, which is minimal and unlikely to substantially change the emissions that would reach potential sensitive receptors. There may be some potential changes in localized emissions due to changes in peak activity that may influence the acute HI; however, it is unlikely that these peak activity changes would be substantially different when compared to the No-Project future baseline scenario, given the Port landside operation scheduling mechanisms to control and minimize peak activity concerns. Therefore, the Proposed Project would not be anticipated to substantially increase the health impacts compared to the No-Project future baseline scenario for operations.

Because the results of the HRA indicate that cancer risk and $PM_{2.5}$ concentrations would exceed the BAAQMD significance threshold, the impact would be **potentially significant.**

### Level of Significance Before Mitigation

*Potentially Significant Impact.*

### Mitigation Measure

#### Measure AIR-1: Construction Air Quality Mitigation

### Level of Significance After Mitigation

*Significant and Unavoidable.*

Mitigation Measure AIR-1 requires the use of Tier 4 final engines, which are some of the least polluting construction equipment engines available. Other alternative fuels and hybrid and electric construction equipment will be considered if feasible at the time of the Proposed Project. The specific availability of this equipment to be available for construction is unknown, and the specific emission reductions from its use are unknown. Tier 4 final engines or better will be used for all equipment unless there is a unique and specific piece of equipment required for the Proposed Project construction that is not available as a Tier 4 engine. The feasibility of using alternatively fueled or electric equipment is also unknown as it is unknown whether the infrastructure to refuel or recharge this equipment at the construction site would be available. This similarly applies to on-road trucks, which would need similar infrastructure and availability of such trucks. It is also unknown at this time whether an investment in such vehicles would be feasible during the short-term project construction period. Because the degree to which use of alternative fueled, hybrid, and electric equipment and trucks is not known at this time, these have not been included in the mitigated results; however, if implemented, they would decrease the impacts, but not necessarily to a level below the thresholds of significance.

The results of the Health Risk Assessment from the mitigated Proposed Project construction are shown in **Table 3.3-17** for cancer risk. This shows that the excess lifetime cancer risk is above the BAAQMD CEQA threshold, with the nearest potential resident cancer risk of 102.8 in one million. **Table 3.3-18** shows that non-cancer chronic HI and acute HI are below the BAAQMD significance threshold of 1. This shows that the excess lifetime cancer risk is above the BAAQMD CEQA threshold. **Table 3.3-19** and **Figure 3.3-10** show the $PM_{2.5}$ concentrations with mitigation would still exceed the BAAQMD CEQA significance threshold of 0.3 microgram per meter cubed. **Figure 3.3-10** shows the cancer risk results across the modeled area, assuming all exposures would be residential.

The HRA indicates that, even with mitigation, construction of the Proposed Project would result in cancer risks and $PM_{2.5}$ concentrations that exceed the BAAQMD thresholds of significance. The HRA indicates that, even with mitigation, construction of the Proposed Project would result in cancer risks and $PM_{2.5}$ concentrations that exceed the BAAQMD thresholds of significance. The risk drivers for the exceedances of the significance threshold are primarily related to the close proximity of proposed and existing residences to the construction equipment being used for land-side work. The majority of the modeling domain has excess lifetime cancer risk substantially below 10 in one million, which is the BAAQMD CEQA significance threshold for excess lifetime cancer risks. The health impacts rapidly decrease across increased distance as residences are situated further from the construction areas, as shown in **Figure 3.3-11**.

**Table 3.3-17 Mitigated Construction HRA Cancer Risk Results**

| Receptor | NAD 83 Zone 10 UTM X Coordinate (meter) | NAD 83 Zone 10 UTM Y Coordinate (meter) | Excess Lifetime Cancer Risk (in one million) |
|---|---|---|---|
| Maximum Exposed Existing Resident in Alameda at Mosley Avenue and Monterey Circle | 562810 | 4182665 | 9.37 |
| Maximum Exposed Existing Resident near Howard Terminal at Phoenix Lofts | 563114 | 4183647 | 5.24 |
| Maximum Exposed Planned Resident at Bay 37 | 563142 | 4182944 | 17.33 |
| Maximum Exposed Proposed Resident at Waterfront Ballpark (same location as maximum exposed resident) | 562794 | 4183407 | 102.8 |
| Maximum Exposed Resident | 562794 | 4183407 | 102.8 |
| Maximum Exposed Worker | 562940 | 4182920 | 9.77 |
| Maximum Exposed Location | 562834 | 4183367 | 208[1] |
| BAAQMD Cancer Risk Significance Threshold | | | 10 |
| Does the Cancer Risk Exceed BAAQMD's Cancer Risk Threshold? | | | **YES** |

Notes:

HI = Health Index
HRA = Health Risk Assessment
$\mu g/m^3$ = micrograms per cubic meter
NA = not applicable
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less

**Table 3.3-18 Mitigated Non-Cancer Results**

| Receptor | NAD 83 Zone 10 UTM X Coordinate (meter) | NAD 83 Zone 10 UTM Y Coordinate (meter) | Hazard Index |
|---|---|---|---|
| Maximum Chronic HI (Alameda Warehouse) | 562880 | 4182900 | 0.34 |
| Maximum Acute HI (Alameda Warehouse) | 562940 | 4182900 | 0.04 |
| BAAQMD Hazard Index Significance Threshold | | | 1 |
| Does the Hazard Index Exceed BAAQMD's Cancer Risk Threshold? | | | No |

Notes:

BAAQMD = Bay Area Air Quality Management District
HI = Health Index
NAD 83 = North American Datum of 1983
UTM = Universal Transverse Mercator

**Table 3.3-19 Mitigated $PM_{2.5}$ Concentration**

| Receptor | NAD 83 Zone 10 UTM X Coordinate (meter) | NAD 83 Zone 10 UTM Y Coordinate (meter) | $PM_{2.5}$ Concentration ($ug/m^3$) |
|---|---|---|---|
| Maximum $PM_{2.5}$ Concentration (Berth 10) | 560950 | 4186000 | 19.91 |
| BAAQMD Hazard Index Significance Threshold | | | 0.3 |
| Does the Hazard Index Exceed BAAQMD's Cancer Risk Threshold? | | | **YES** |

Notes:

BAAQMD = Bay Area Air Quality Management District
$\mu g/m^3$ = micrograms per cubic meter
NAD 83 = North American Datum of 1983
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
UTM = Universal Transverse Mercator

**Figure 3.3-10 Mitigated Cancer Risk: Residential**

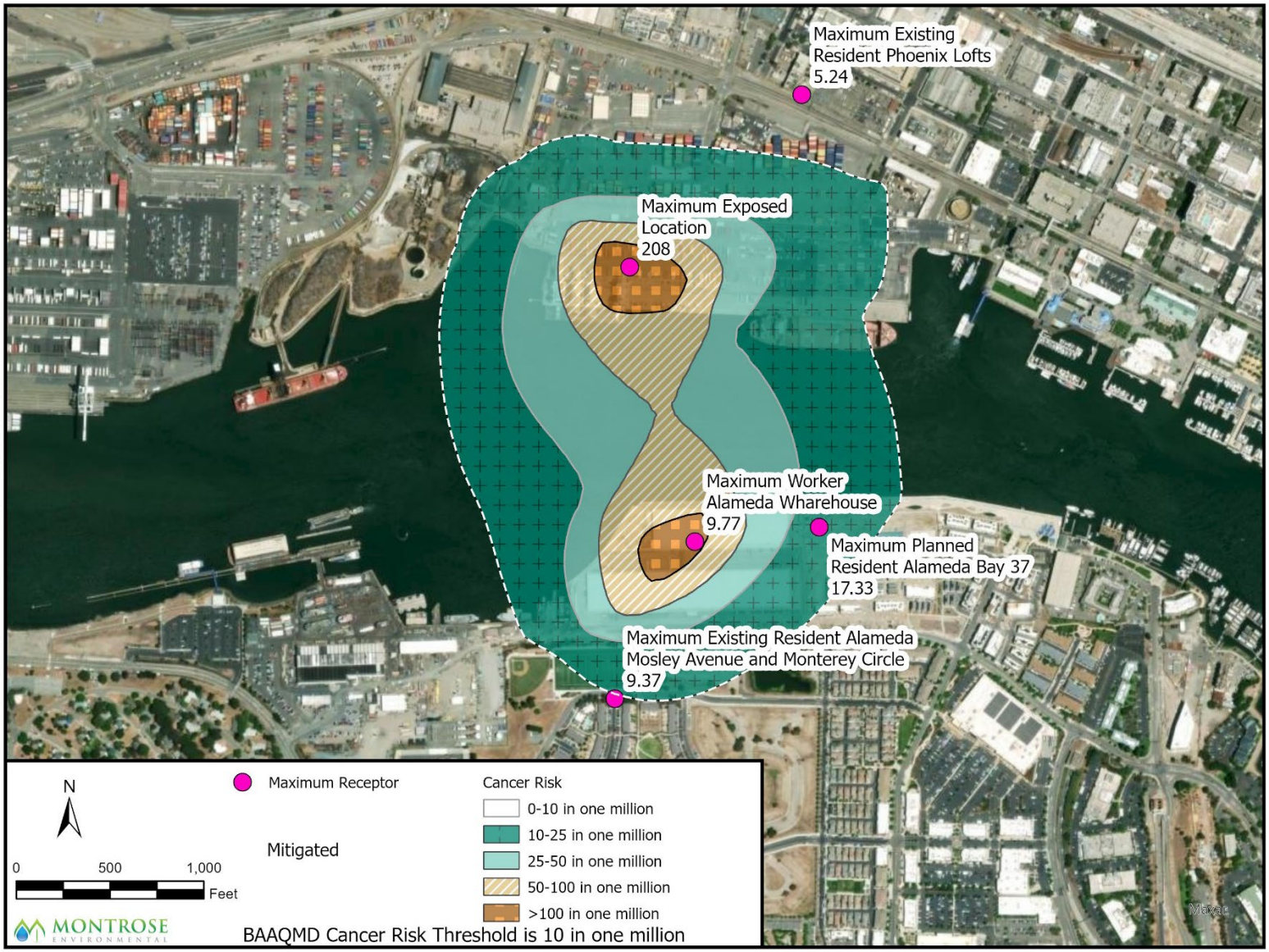
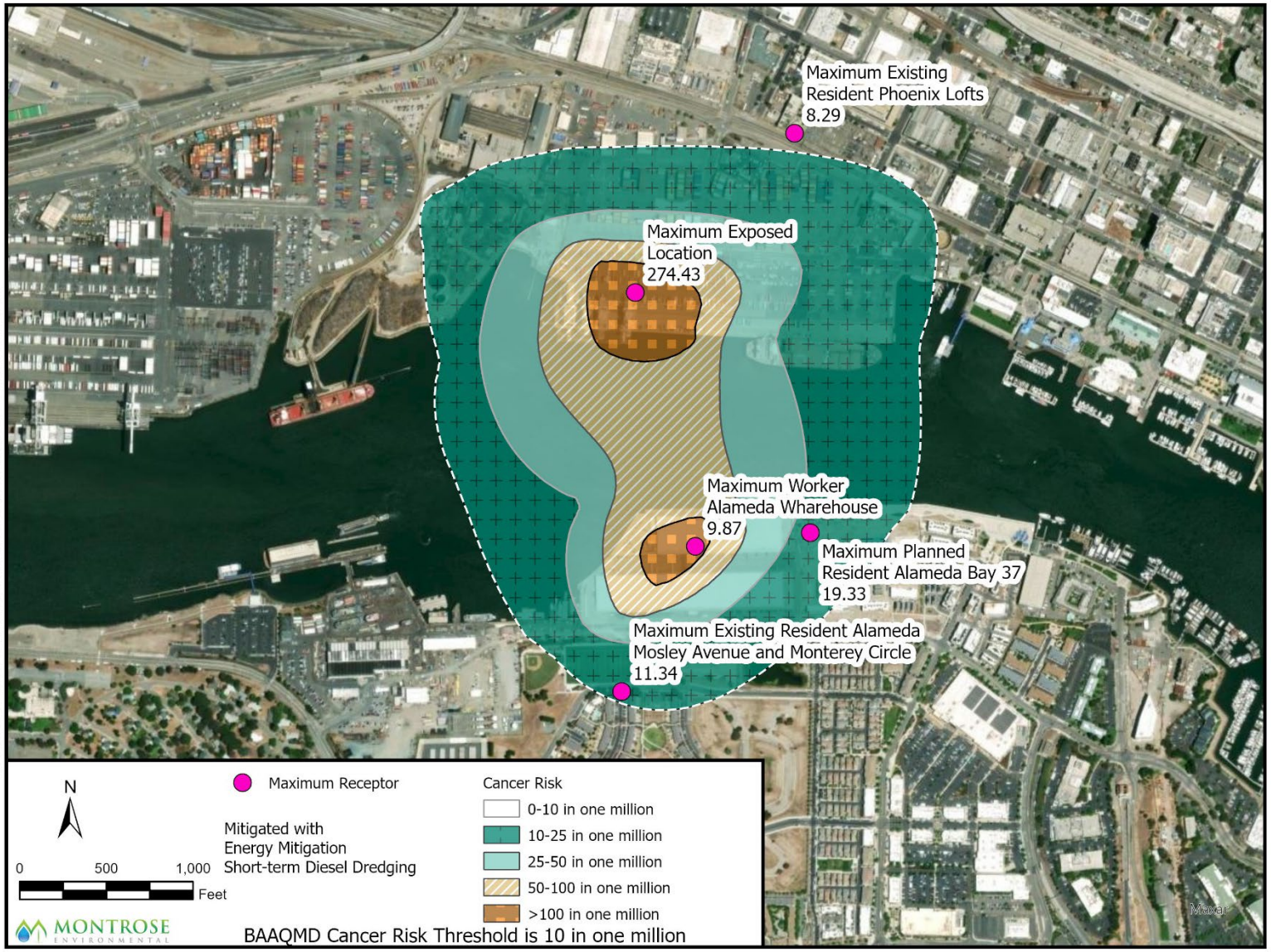


**Figure 3.3-11 Mitigated with Energy Mitigation Cancer Risk: Residential**



Mitigation Measure ENE-1 may require the occasional use of diesel dredging during Project construction in the event of a call for electricity reductions to prevent potential brownouts. It was estimated that this could occur up to 10 days a year or 240 hours a year. The additional TAC emissions associated with the use of these diesel dredgers would increase the health impacts. **Table 3.3-20** through **Table 3.3-22** show the health impacts with the potential intermittent diesel dredging. The cancer risk increases and would remain above the BAAQMD significance thresholds. Therefore, even with implementation of Mitigation Measure ENE-1, the Proposed Project construction would be **significant and unavoidable**.

**Table 3.3-20 Mitigated Construction HRA Cancer Risk Results**

| Receptor | NAD 83 Zone 10 UTM X Coordinate (meter) | NAD 83 Zone 10 UTM Y Coordinate (meter) | Excess Lifetime Cancer Risk (in one million) |
|---|---|---|---|
| Maximum Exposed Existing Resident in Alameda at Mosley Avenue and Monterey Circle | 562810 | 4182665 | 11.34 |
| Maximum Exposed Existing Resident near Howard Terminal at Phoenix Lofts | 563114 | 4183647 | 8.29 |
| Maximum Exposed Planned Resident at Bay 37 | 563142 | 4182944 | 19.33 |
| Maximum Exposed Proposed Resident at Waterfront Ballpark (same location as maximum exposed resident) | 562794 | 4183407 | 137.58 |
| Maximum Exposed Resident | 562794 | 4183407 | 137.58 |
| Maximum Exposed Worker | 562940 | 4182920 | 9.87 |
| Maximum Exposed Location | 562834 | 4183367 | 274.43[1] |
| BAAQMD Cancer Risk Significance Threshold | | | 10 |
| Does the Cancer Risk Exceed BAAQMD's Cancer Risk Threshold? | | | **YES** |

Notes:

BAAQMD = Bay Area Air Quality Management District
HI = Health Index
HRA = Health Risk Assessment
µg/m$^3$ = micrograms per cubic meter
NA = not applicable
NAD 83 = North American Datum of 1983
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
UTM = Universal Transverse Mercator

**Table 3.3-21 Mitigated with Energy Mitigation Non-Cancer Results**

| Receptor | NAD 83 Zone 10 UTM X Coordinate (meter) | NAD 83 Zone 10 UTM Y Coordinate (meter) | Hazard Index |
|---|---|---|---|
| Maximum Chronic HI (Howard Terminal) | 562834 | 4183367 | 0.37 |
| Maximum Acute HI (Alameda Warehouse) | 562940 | 4182900 | 0.04 |
| BAAQMD Hazard Index Significance Threshold | | | 1 |
| Does the Hazard Index Exceed BAAQMD's Cancer Risk Threshold? | | | No |

Notes:

BAAQMD = Bay Area Air Quality Management District
HI = Health Index
NAD 83 = North American Datum of 1983
UTM = Universal Transverse Mercator

**Table 3.3-22 Mitigated with Energy Mitigation $PM_{2.5}$ Concentrations**

| Receptor | NAD 83 Zone 10 UTM X Coordinate (meter) | NAD 83 Zone 10 UTM Y Coordinate (meter) | $PM_{2.5}$ Concentration ($\mu g/m^3$) |
|---|---|---|---|
| Maximum $PM_{2.5}$ Concentration (Howard Terminal) | 562834 | 4183367 | 271.46 |
| BAAQMD Hazard Index Significance Threshold | | | 0.3 |
| Does the Hazard Index Exceed BAAQMD's Cancer Risk Threshold? | | | **YES** |

Notes:

BAAQMD = Bay Area Air Quality Management District
$\mu g/m^3$ = micrograms per cubic meter
NAD 83 = North American Datum of 1983
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
UTM = Universal Transverse Mercator

Mitigation Measure AQ-1 does not reduce impacts to operation and maintenance and would remain the same as the unmitigated conditions, where it is expected that health impacts from in-water sources would decrease compared to the No-Project future baseline scenario, and landside operations would not be anticipated to be substantially different from the No-Project future baseline scenario.

Because the results of the HRA with mitigation indicate that cancer risk and $PM_{2.5}$ concentrations would exceed BAAQMD significance threshold even after implementation of Mitigation Measure AIR 1, the impact would be **significant and unavoidable**.

## *Impact AIR-4. Would the Proposed Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? (Criterion D) (Less than Significant)*

### Impact Analysis

During Proposed Project construction, odors could be emitted from diesel exhaust generated by construction equipment, in-water vessels, and hauling trucks. However, construction and hauling activities near existing receptors would result in odors that would be temporary and intermittent, only during construction hours. Additionally, odors associated with diesel exhaust emissions would be diffusive in nature (i.e., spread out over several large work areas) and would not persist on completion of construction.

Odors could be emitted from exposed organic matter through excavation and dredging and drying of material piles during construction. However, the exposed organic matter is not anticipated to be a permanent odor source because the sediment would dry out and be hauled away, either by truck or barges/scows. Odors could be emitted from the short-term stockpiling of the sediment materials prior to hauling off site; in particular, at the permitted Berth 10 dredge material rehandling site, where dredged material would be placed to dry prior to hauling it to a Class II (non-hazardous) landfill. Berth 10 is surrounded by Port and industrial uses, and the odor would not likely be smelled by residences further from this activity, which are approximately 0.5 mile away.

BAAQMD has not developed an odor screening distance for this Proposed Project land use type, which suggests that construction is not a common source of odors. BAAQMD is the agency responsible for investigating and controlling odor complaints in the area. BAAQMD enforces odor control by helping to document if a public nuisance exists. On receipt of a complaint, BAAQMD sends an investigator to interview the complainant, and to locate the odor source, if possible. BAAQMD typically brings a public nuisance court action when there are a substantial number of confirmed odor events in a 24-hour period. Based on BAAQMD CEQA Guidelines (BAAQMD 2023a), an odor source with five or more confirmed complaints per year averaged over three years is considered to have a substantial effect on receptors. The Port does not typically receive odor complaints during its dredging activities, which occur annually. Therefore, based on the odor complaint history and that odors would be intermittent during Proposed Project construction, the Proposed Project construction would not generate odors adversely affecting a substantial number of people.

Operation of the Proposed Project would similarly have intermittent odors from fossil fuel combustion of vessels using the turning basins and during maintenance dredging with similar decomposing organic matter odors. Because there are not typically complaints today from vessels using the turning basins, nor are there complaints during maintenance dredging activities on the existing turning basins, it is unlikely that these similar activities after completing the Proposed Project would result in anything other than intermittent odors that would not adversely affect a substantial number of people.

The construction, operation, and maintenance of the Proposed Project would only potentially emit intermittent odors from fossil fuel combustion and decaying organic matter. These activities are not on BAAQMD's list of land uses known to cause odor issues and have not historically resulted in odor complaints from activities at the Seaport. Therefore, this impact is **less than significant**.

# 3.4. BIOLOGICAL RESOURCES

This section begins with a description of the existing conditions for marine and terrestrial biological resources that occur, or have the potential to occur, at the Proposed Project sites or in the immediate vicinity. Regulations and guidelines relevant to biological resources are discussed next, followed by an impact analysis that evaluates the potential effects on biological resources that could result from implementation of the Proposed Project; and when necessary, provides appropriate mitigation.

## 3.4.1. Environmental Setting

This Environmental Setting section describes the analysis area and general setting, followed by descriptions of the following biological resources in the analysis area:

- Terrestrial habitats
- Pelagic (open water) habitat
- Intertidal habitat
- Benthic habitat
- Vegetation, wetlands, and submerged aquatic vegetation
- Essential fish habitat
- Special-status species

### *Analysis Area and General Setting*

The Seaport is situated on the eastern shoreline of Central San Francisco Bay[41] and adjacent to the Oakland-Alameda estuary,[42] the strait separating the cities of Oakland and Alameda, and Alameda from the East Bay mainland. The analysis area for marine/aquatic biological resources includes the shorelines of Howard Terminal and the Alameda Site, which would be modified by the Proposed Project; the Oakland-Alameda estuary inclusive of the Inner and Outer Harbor Channels and Turning Basins; and the surrounding waters of Central San Francisco Bay. The effects on marine biological resources would be mostly localized to the immediate area surrounding the proposed in-water construction locations at the IHTB and OHTB. Although the Proposed Project would likely involve vessel transport of dredged material to beneficial reuse sites outside of this analysis area as defined (i.e., to other areas in the greater San Francisco Bay), the effects of over-water dredged material transport, as further described in Section 3.4.4, Impacts and Mitigation Measures, would not differ from those associated with existing vessel traffic that occurs throughout San Francisco Bay. Therefore, the analysis area for marine biological resources focuses on the Oakland-Alameda estuary and nearby waters in Central San Francisco Bay.

The analysis area for terrestrial biological resources includes the landside portions of the Proposed Project sites at Howard Terminal, the Alameda Site, Berth 10, Berth 26, and the proposed construction staging areas, as described in Chapter 2; and adjacent landside areas along

[41] The Central Bay generally consists of the San Francisco Bay waters south of the Interstate 580 Richmond-San Rafael Bridge, and north of the State Route 92 San-Mateo Hayward Bridge.

[42] An estuary is a partially enclosed, coastal water body where freshwater from rivers and streams mixes with salt water from the ocean.

the Oakland and Alameda shorelines with similar types of available habitat, including developed or paved areas with long-standing industrial or Seaport-related uses.

The Oakland-Alameda estuary was originally a shallow tidal slough but was partially dredged in the mid- to late-1800s to create a viable port and shipping channel. Aquatic habitat throughout the analysis area is likely affected by vessel traffic, maintenance dredging, and industrial activities at and near the Seaport.

According to January 2021 bathymetric surveys (USACE 2021), the deepest portions of the IHTB and OHTB are at approximately -52 feet MLLW,[43] respectively. These deeper areas occur generally in the center of the navigation channel. In the OHTB, depths at or near the authorized depth of -50 feet MLLW were observed up to the existing seawall (southern and eastern sides of the proposed turning basin widening area); and open water areas immediately north of the navigation channel had depths as shallow as -5 feet MLLW (northern side of the proposed Outer Harbor turning basin widening area). The IHTB exhibited similar characteristics, with shallower depths along the perimeter of the existing turning basin sloping up to the existing shoreline, except for select areas adjacent to existing bulkheads where observed depths were closer to -40 feet MLLW.

Situated in the Seaport's Middle Harbor, lies the 180-acre Middle Harbor Enhancement Area (MHEA), adjacent to Middle Harbor Shoreline Park. The MHEA, which started in approximately 2003, used 5.7 million cubic yards of sediment to turn a -40 foot MLLW naval harbor into a subtidal restoration site, with key features including regionally rare subtidal habitat (important fish spawning and avian foraging habitat), 101 acres of eelgrass habitat (with the goal of establishing 15 acres of eelgrass beds), a public-access beach, and an educational marsh. The MHEA is approximately 1,500 feet (0.29 mile) south of the proposed OHTB widening footprint, and 10,500 feet (2 miles) northwest of the proposed IHTB widening footprint. The MHEA supports a variety of migratory birds, including wading shorebirds and burrowing owls. The MHEA restoration entails creation of shallow wildlife habitats through beneficial reuse of dredged material. Habitats present include intertidal and shallow subtidal soft-bottom habitat and eelgrass (*Zostera marina*). Phase I of the eelgrass planting took place in June 2019, and a supplemental planting occurred in August 2022. The target eelgrass acreage for the MHEA is 15 acres, as established by the Port and USACE as mitigation for impacts resulting from the Oakland Harbor -50-Foot Project. The MHEA is currently in the 10-year monitoring period for habitat values.

### *Terrestrial Habitats*

Upland industrial and maritime support facilities in the immediate IHTB widening area include Howard Terminal and warehouses at the Alameda Site. Above mean higher high water (MHHW), the facility shorelines consist of bulkheads or pile-supported hardscaping. Most of the uplands surrounding the turning basins are surfaced in pavement (concrete or asphalt) or other impermeable surfaces associated with industrial and supporting ancillary maritime uses. Upland vegetation is very limited, composed of ruderal vegetation (i.e., vegetation found on human-

[43] Although the navigational channel is authorized to a depth of -50 feet MLLW, maintenance dredging permits typically allow for up to 2 feet of overdredge depth. Overdredge is additional depth for dredging allowed below project depth due to technical limitations of the dredging equipment. Therefore, the depth in some areas in the navigation channel may exceed a depth of -50 feet MLLW.

disturbed sites) and isolated ornamental shrubs and trees. Operations at facilities in the immediate vicinity of the IHTB include metal recycling at Schnitzer/Radius Recycling; Port logistical operations such as vessel berthing and truck and container parking at Howard Terminal; and a variety of uses such as warehousing, vessel docking, ferry operations, and residential on the Alameda shoreline.

In the Outer Harbor, approximately half of Berth 10 is constructed on a pile-supported concrete wharf, and the remaining half is on asphalt-covered land. Under the Proposed Project, Berth 10 would be used as construction staging and for dredged material rehandling. The facility is enclosed by a system of gravel and earthen berms topped with concrete barriers, commonly referred to as "K" rail. Vegetation at the facility is extremely limited, consisting only of ruderal vegetation occurring in earthen areas at the margin of concrete- and asphalt-covered land. The proposed electrical infrastructure installation near Berth 26 would occur in an area that is completely developed and paved, and devoid of vegetation.

Developed, landscaped, and ruderal areas in urban environments, such as those found on the Proposed Project sites and surrounding properties, can provide cover, foraging, and nesting habitat for a variety of common birds, as well as some reptiles and small mammals, especially those that are tolerant of disturbance and human presence. Developed areas are unlikely to provide habitat for federally and state-listed terrestrial species.

Avian species that are generally common to highly developed urban areas have potential to nest in ruderal shrubs, street trees, or building roofs in the analysis area. Potentially present species include the nonnative house sparrow (*Passer domesticus*), rock pigeon (*Columba livia*), and European starling (*Sturnus vulgaris*), and native species such as house finch (*Haemorhous mexicanus*), American goldfinch (*Spinus tristis*), white-crowned sparrow (*Zonotrichia leucophrys*), Brewer's blackbird (*Euphagus cyanocephalus*), and mourning dove (*Zenaida macroura*).

Small mammals may also occur in industrial and maritime support facilities in the analysis area. Species common to developed areas include striped skunk (*Mephitis mephitis*) and raccoon (*Procyon lotor*), and nonnatives such as Virginia opossum (*Didelphis virginiana*), Norway rat (*Rattus norvegicus*), black rat (*Rattus rattus*), and feral cat (*Felis silvestris catus*). Bat roosting may occur in vacant or infrequently used buildings that may be present and could potentially include the common Mexican free-tailed bat (*Tadarida brasiliensis*; City of Oakland 2021).

As noted above, the MHEA supports a variety of migratory birds, including wading shorebirds and burrowing owls. In addition, the former Alameda Naval Air Station has hosted a breeding colony of California least terns (*Sterna antillarum browni*) since at least 1976, although it may have been used for breeding and rearing young prior to documentation (H.T. Harvey and Associates 2012). The colony is approximately 1.5 miles southwest of the IHTB.

### *Pelagic (Open Water) Habitat*

Pelagic (open water) habitat includes the open water column between the water's surface and the Bay floor (channel bottom). Pelagic food webs are primarily based on the consumption of plankton, which includes many species of microscopic algae and protozoa, as well as larval mollusks, crabs, and fish, and other larger floating organisms. San Francisco Bay contains both shallow and deep estuarine pelagic habitat, using the definitions provided in the Baylands Ecosystem Habitat Goals Report (Goals Project 1999).

Deep estuarine pelagic habitat (water depths greater than 18 feet relative to MLLW) may provide habitat to free-swimming invertebrates such as California Bay shrimp (*Crangon franciscorum*), and fishes such as Brown Rockfish (*Sebastes auriculatus*), halibut, sturgeon (*Acipenser* sp.), and Longfin Smelt (*Spirinchus thaleichthys*). Deepwater habitat may also serve as a migratory pathway for anadromous fish such as Chinook Salmon (*Oncorhynchus tshawytscha*) and steelhead (*Oncorhynchus mykiss*). Waterbirds such as surf scoter (*Melanitta perspicillata*), scaups (*Aythya* spp.), brown pelican (*Pelecanus occidentali*s), and terns (*Sterna* spp.) may roost or loaf in these open waters, particularly in areas protected from strong winds and waves. Marine mammals, such as Pacific harbor seal (*Phoca vitulina*), California sea lion (*Zalophus californianus*), and harbor porpoise (*Phocoena phocoena*) also use pelagic waters of the Bay for movement and foraging. The entirety of the maintained federal navigation channel is classified as deep estuarine pelagic habitat.

Shallow open bay habitat (water depths less than 18 feet relative to MLLW) may function as a feeding area for Pacific Herring (*Clupea pallasii*), northern anchovy (*Engraulis mordax*), bat ray (*Myliobatis californica*), and jacksmelt (*Atherinopsis californiensis*), as well as at least 40 other species of fish, crabs, and shrimp. Spawning habitat for Pacific Herring occurs on hard substrates and eelgrass along the shallow margins of the Central San Francisco Bay. Shallow bay habitat is also a nursery area for juvenile halibut and sanddabs (*Citharichthys stigmaeus*), shiner perch (*Cymatogaster aggregata*), herring, and other fishes. Similar to deep estuarine pelagic waters, anadromous fish may use shallow open bay waters as migratory pathways. Shallower waters also provide important avian foraging or refuge habitat for diving waterbird species, such as surf scoter (*Melanitta perspicillata*), scaups, brown pelican, and terns. Marine mammals may also be present, such as Pacific harbor seals. Some shallow water areas are also suitable habitat for eelgrass, a seagrass species that provides spawning habitat for Pacific Herring and foraging habitat for the California least tern. Shallow open bay habitat occurs on the northern margins of the OHTB and at the outer margins of the IHTB.

### *Intertidal Habitat*

Intertidal habitats lie between low and high tides. There is very limited intertidal habitat at the Proposed Project sites, consisting of bulkheads, piles, and rock riprap. Intertidal habitat is present in the Inner Harbor, predominantly on seawall surfaces that are exposed and inundated during tidal cycles but may include piles that support above-water structures. The Inner Harbor also includes short lengths of rock-riprapped shoreline in the intertidal zone along both the Oakland and Alameda shorelines.

Invertebrate taxa associated with intertidal habitat in the analysis area include balanoid barnacles (*Balanidae* spp.) in the high and middle intertidal zones; and limpets, mussels (*Mytilus* spp.), and Olympia oysters (*Ostrea lurida*) in the lower middle and low intertidal zones. Common intertidal algae species in the Central San Francisco Bay include sea lettuce (*Ulva* spp.), rockweed (*Fucus gardneri*), red algae species (*Polyneura latissima* and *Gigartina* spp.) and nonnative brown algae species (*Sargassum muticum*). When inundated, intertidal areas may also be frequented by fish and other aquatic species.

### *Benthic Habitat*

Benthic habitat refers to habitat at the bottom of a water body, and for the Proposed Project includes the submerged channel and turning basin bottom and adjacent area, and their associated

biota[44]. In subtidal areas, the predominant benthic habitat in the Central San Francisco Bay is composed of unconsolidated soft sediment with a mixture of mud, silt, and clay; and lesser quantities of sand, pebbles, and shell fragments (NOAA 2007). Sediment in the Oakland Harbor is predominately fine-grained (USACE 2019). Areas outside of the turning basins and navigation channels, where dredging does not occur, are typical of San Francisco Bay waters, and have primarily silty mud and sand substrates that are naturally no more than 25 feet deep (City of Oakland 2021). Benthic habitat also less commonly includes hard substrates such as piers, breakwaters, and riprap.

Benthic communities in the Oakland Harbor and Central San Francisco Bay are affected by tidal currents and sedimentation. Relatively high numbers of subsurface deposit feeding polychaetes and oligochaetes inhabit these areas, including *Tubificidae* spp., *Mediomastus* spp., *Heteromastus filiformis*, and *Sabaco elongatus* (City of Oakland 2021). Community complexity and abundance also support relatively high abundances of three carnivorous polychaete species: *Exogone lourei*, *Harmothoe imbricata*, and *Glycinde armigera* (City of Oakland 2021). Other commonly occurring benthic species in the Central San Francisco Bay include the obligate amphipod filter-feeder *Ampelisca abdita,* the tube-dwelling polychaete *Euchone limnicola* (City of Oakland 2021), clams (including the overbite clam, *C. Amurensis* or *Corbula*), amphipods such as *Monocorophium* and *Ampelisca*, polychaete worms, and Bay mussels. Larger mobile benthic invertebrate organisms are also present in the Central San Francisco Bay, such as blackspotted shrimp (*Crangon nigromaculata*), bay shrimp (*Crangon franciscorum*), Dungeness crab (*Metacarcinus magister*), and the slender rock crab (*Cancer gracilis*; City of Oakland 2021).

Several common benthic species in Central San Francisco Bay were accidentally or intentionally introduced, such as the eastern oyster (*Crassostrea virginica*), the Japanese littleneck clam (*Tapes philippinarum*), and the soft-shelled clam. Some of these nonindigenous species serve ecological functions similar to those of the native species that they have displaced, while other introduced species have reduced phytoplankton populations, and consequently impacted the zooplankton populations and organisms that depend on them.

Benthic biota provides an important food source for carnivorous fishes, marine mammals, and birds in San Francisco Bay's food web. Communities of benthic organisms also play a vital role in maintaining sediment and water quality, and are important indicators of environmental stress, because some species are particularly sensitive to pollutant exposure.

### *Vegetation, Wetlands, and Submerged Aquatic Vegetation*

Because the widening footprint of the OHTB is currently and entirely submerged, no areas of wetlands or other natural terrestrial vegetation are in the widening footprint or the immediate vicinity of the OHTB. The nearest terrestrial vegetation exists along the shoreline near the touchdown of the San Francisco-Oakland Bay Bridge, approximately 1,600 feet north of the northern edge of the Proposed OHTB. At this shoreline, a strip of ruderal upland vegetation is present between Interstate 80 and the intertidal waters of the Bay; no wetlands are present at this location.

[44] Biota is the animal and plant life of a particular region, habitat, or geologic period. In this instance, it refers to the animal and plant life at the bottom of the channel, turning basins, and adjacent areas.

No wetlands or terrestrial vegetation occur in the proposed widening footprint for, or the immediate vicinity of, the IHTB, aside from small, landscaped areas adjacent to buildings and roadways and ruderal growth along the shoreline fill adjacent to Schnitzer/Radius Recycling.

Small patches of eelgrass, a type of submerged aquatic vegetation, are present in the submerged waters in the general vicinity of both turning basins. Eelgrass colonies provide an important and highly productive habitat in San Francisco Bay and serve as important nursery and feeding grounds to many species of wildlife. For example, eelgrass is an important habitat for Pacific Herring, which lay their eggs on the eelgrass blades. Due to the climate and depths of light penetration in the Bay, eelgrass beds in San Francisco Bay are generally limited to a depth range of approximately +1 to -6 feet MLLW (USACE, EPA, and LTMS 2009). Eelgrass surveys are conducted at the Seaport by the USACE following each maintenance dredging cycle; the most recent survey was conducted in April 2023.

The nearest patch of eelgrass at the Outer Harbor is approximately 167 meters (548 feet) northeast of the proposed OHTB widening area. The nearest patch in the Inner Harbor occurs greater than 500 meters (1,640 feet) west of the proposed IHTB widening area, adjacent to the Alameda shoreline (Merkel and Associates 2023).

### *Essential Fish Habitat*

As described further below in Section 3.4.2, Regulatory Setting, essential fish habitat (EFH) is regulated and defined under the Magnuson – Stevens Fishery Conservation and Management Act (MSA) as those waters and substrate necessary to fish for spawning, feeding, or growth to maturity. All waters and intertidal areas of San Francisco Bay and its tributaries are designated as EFH under the following fisheries management plans (FMP):

- Pacific Coast Groundfish
- Coastal Pelagic Species
- Pacific Salmon

The Pacific Coast Groundfish FMP covers the groundfish fishery in California, Oregon, and Washington, and protects habitat for dozens of species of sharks and skates, groundfish (such as lingcod and whiting), rockfish, and flatfish. The extent of Pacific Coast Groundfish EFH includes all waters and substrates with depths less than or equal to 3,500 meters (approximately 11,500 feet) to MHHW level, or the upriver extent of saltwater intrusion in estuaries (defined as upstream and landward to where ocean-derived salts measure less than 0.5 part per thousand during the period of average annual low flow) (NOAA 2022). The entirety of the San Francisco Bay estuary below MHHW is designated as EFH for Pacific Coast Groundfish. The estuarine waters of the Bay and the eelgrass beds contained within are both designated as Habitat Areas of Particular Concern as part of the Pacific Coast Groundfish EFH designation.

The Coastal Pelagic FMP protects and manages four species of fish, one species of squid, and all krill species that occur in the West Coast exclusive economic zone, which extends 200 nautical miles from the coastline. Coastal Pelagic Species EFH includes all marine and estuarine waters from the shoreline along the coasts of California, Oregon, and Washington; offshore to the limits of the exclusive economic zone; and above the thermocline, where sea surface temperatures range between 10 and 26 degrees Celsius (50 and 79 degrees Fahrenheit) (NOAA 2022). The entirety of the San Francisco Bay Estuary below MHHW is designated as EFH for Coastal Pelagic Species.

The Pacific Coast Salmon FMP guides the management of commercial and recreational salmon fisheries off the coasts of Washington, Oregon, and California, and includes Chinook Salmon and Coho Salmon (*Oncorhynchus kisutch*). Pacific Coast Salmon freshwater EFH includes all rivers or creek currently or historically occupied by Chinook Salmon or Coho Salmon. Estuarine and marine areas such as San Francisco Bay are also included in this EFH designation. Areas upstream of impassible dams are excluded from Pacific Coast Salmon EFH. In estuarine and marine areas, Pacific Coast Salmon EFH extends from the nearshore and tidal submerged environments in state territorial waters out to the full extent of the exclusive economic zone offshore of California, north of Point Conception. The FMP also defines five Habitat Areas of Particular Concern for the Pacific Coast Salmon essential fish habitat: complex channels and floodplain habitats, thermal refugia, spawning habitat, estuaries, and marine and estuarine submerged aquatic vegetation.

### *Special-Status Species*

A number of fish and wildlife species known to occur in either the marine or terrestrial analysis areas are protected pursuant to federal and/or state endangered species laws, have been designated as species of special concern by federal and/or state agencies, or are afforded certain protection through regulatory means such as by the California Fish and Game Code. Species recognized under these terms are collectively referred to as special-status species. For the purpose of this analysis, special-status species include the following:

- Species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (ESA)
- Species that are candidates for possible future listing as threatened or endangered under the federal ESA
- Species listed or proposed for listing by the state as threatened or endangered under the California Endangered Species Act (CESA)
- Species described by the California Department of Fish and Wildlife (CDFW) as species of special concern.[45]
- Species designated as fully protected by the state[46]
- Marine mammals protected under the Marine Mammal Protection Act
- Plants considered to be "rare, threatened or endangered in California" under the California Rare Plant Ranking system

Lists of special-status plant and animal species assessed for their potential to occur in the analysis areas for marine and terrestrial biological resources were compiled based on data contained in the California Natural Diversity Database (CDFW 2023) and the United States Fish and Wildlife Service Information for Planning and Consultation database (USFWS 2023).

[45] A California species of special concern is one that has been extirpated from the state; meets the state definition of threatened or endangered but has not been formally listed; is undergoing or has experienced serious population declines or range restrictions that put it at risk of becoming threatened or endangered; and/or has naturally small populations susceptible to high risk from any factor that could lead to declines that would qualify it for threatened or endangered status.

[46] The classification of Fully Protected was the state's initial effort in the 1960s to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians, reptiles, birds, and mammals. Most fully protected species have also been listed as threatened or endangered species under CESA.

Determination of a species' potential to occur in the analysis areas for marine and terrestrial biological resources was based on the presence of suitable habitat required by the species or necessary for their survival. Due to the lack of natural habitat and the heavily developed nature of the terrestrial biological resources analysis area, there is no suitable habitat for the majority of the terrestrial species identified to be present through the database queries. The paved, landscaped, or ruderal condition of the landside Proposed Project sites does not contain vital habitat elements, such as adequate prey species, forage, or shelter, required to support sensitive animal species that might otherwise occur in the region where suitable habitat is present. Similarly, special-status plant species are unlikely to occur due to the heavily disturbed or developed (paved, landscaped, or ruderal) nature of the landside Proposed Project sites and corresponding absence of suitable habitat for rare species. Special-status species known to occur, or with potential to occur in the marine and terrestrial areas that may be impacted by the Proposed Project are identified in **Table 3.4-1** and described in more detail below.

**Table 3.4-1 Special-Status Species Known to Occur or Potentially Occurring in the Biological Resources Analysis Area**

| Species | Federal Status | State Status |
|---|---|---|
| **Birds** | | |
| California least tern (*Sternula antillarum browni*) | FE | SE |
| American peregrine falcon *(Falco peregrines anatum)* | — | FP |
| California brown pelican *(Pelecanus occidentalis)* | — | FP |
| **Fish** | | |
| Southern Population of North American Green Sturgeon DPS (*Acipenser medirostris*) | FT/CH | — |
| Steelhead, Central California Coast DPS (*Oncorhynchus mykiss*) | FT/CH | — |
| Steelhead, Central Valley DPS (*Oncorhynchus mykiss*) | FT | — |
| Chinook Salmon, Sacramento winter-run ESU (*Oncorhynchus tshawytscha*) | FE | SE |
| Chinook Salmon, Central Valley spring-run ESU (*Oncorhynchus tshawytscha*) | FT | ST |
| Longfin smelt (*Spirinchus thaleichthys*) | FP | ST |
| **Marine Mammals** | | |
| Pacific harbor seal (*Phoca vitulina richardii*) | MMPA | — |
| California sea lion (*Zalophus californianus*) | MMPA | — |
| Harbor porpoise (*Phocoena phocoena*) | MMPA | — |

Notes:

Federal Status: CH = Critical Habitat; FP – Federal Proposed Species for Listing; FE = Federally Listed Endangered; FT = Federally Listed Threatened; MMPA = Marine Mammal Protection Act

State Status: FP = Fully Protected SE = State Listed Endangered; ST = State Listed Threatened

Critical habitat designated by the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) for ESA-listed species has been established in the marine

biological resources area for two fish species: Southern Population of North American Green Sturgeon Distinct Population Segment (DPS) and Steelhead Central California Coast DPS. As defined by the NMFS, a DPS is a population or group of populations that is discrete from other populations of the species and significant in relation to the entire species. There is no designated critical habitat for terrestrial species in the terrestrial resources analysis area.

Three species (Pacific harbor seal, California sea lion, and harbor porpoise) likely to occur in the marine biological resources analysis area are discussed in this section. There are several other species of marine mammals that uncommonly occur in the central portion of the San Francisco Bay estuary, such as northern elephant seal (*Mirounga angustirostris*), common bottlenose dolphin (*Tursiops truncatus*), and gray whale (*Eschrichtius robustus*). These species are not federally, or state listed as threatened or endangered; however, all marine mammals are protected under the Marine Mammal Protection Act. In addition, this section discusses species protected under the Migratory Bird Treaty Act; and Pacific Herring, a CDFW-managed commercial fishery species.

## *Threatened and Endangered Species and Designated Critical Habitat*

### California Least Tern

The California least tern is a federally and state-listed endangered species. The California least tern has gray upper plumage, white under plumage, a distinctive black cap, and black stripes from the cap across the eyes to the beak. Least terns typically feed in shallow estuaries or lagoons where small fish are abundant. Its most common prey species include jacksmelt (*Atherinopsis californiensis*), topsmelt (*Atherinops affinis*), and northern anchovy (*Engraulis mordax*).

The least tern breeds in California from mid-May to August. The least tern typically departs California in August and winters in Latin America. There is a California least tern breeding colony at the former Alameda Naval Air Station in Alameda, approximately 1.5 miles southwest of the IHTB. The former Naval Air Station on Alameda Point has hosted a breeding colony since at least 1976, and possibly earlier (H.T. Harvey and Associates 2012). Least terns have been observed to forage primarily along the breakwaters and shallows of the southern shoreline of the former Naval Air Station Alameda, and in Alameda's Ballena Bay from May through August (USACE and RWQCB 2015). Least terns are also known to use the MHEA for foraging and roosting (USACE and RWQCB 2015).

In the area of the Seaport, the maintenance dredging work window for California least tern established though the LTMS program (see Section 3.9.2, Regulatory Setting) is August 1 through March 15. This window applies to all areas within 1 mile of the coastline from Berkeley Marina to San Lorenzo Creek.

### North American Green Sturgeon Southern DPS

Green Sturgeon are the most widely distributed members of the sturgeon family, and the most marine-oriented of the sturgeon species, entering rivers only to spawn. The southern DPS, listed as federally threatened, spawns only in the Sacramento River system. Adult Green Sturgeon migrate into freshwater beginning in late February, with spawning occurring in the Sacramento River from March through July, with peak activity in April and June. After spawning, juveniles remain in fresh and estuarine waters for one to four years, and then begin to migrate out to sea (Moyle et al. 2015). According to studies, Green Sturgeon adults begin moving upstream through

the Bay during winter (Kelly et al. 2006). During periods of migration, adults occur throughout the Bay and Delta.

Juvenile distribution and habitat use are still largely unknown. Although juveniles are present in the southern Bay year-round (mostly south of the Dumbarton Bridge), juveniles are presumed present year-round in all parts of San Francisco Bay in low densities (Israel and Klimley 2008). As a result, Green Sturgeon are potentially present throughout all marine portions of the analysis area at any time of the year. However, their preferred migration routes do not traverse the Oakland Harbor area. Adult Green Sturgeon typically take the more direct migratory route from San Pablo Bay, past Raccoon Strait adjacent to Angel Island, and out to the Golden Gate Bridge (Kelly et al. 2006, City of Oakland 2021).

Sub-adult and adult Green Sturgeon occupy a diversity of depths in bays and estuaries for feeding and migration, although the Oakland Harbor waters are maintained to depths that exceed observed benthic foraging depths for this species (i.e., less than -33 feet MLLW; Miller and Kaplan 2001). No spawning or rearing habitat for Green Sturgeon exists in or near the analysis area.

Federal ESA designated critical habitat for the Green Sturgeon includes the Sacramento River, the Delta, and Suisun and San Pablo Bays, along with all of San Francisco Bay below the higher high-water elevation. This includes the marine biological resources analysis area.

### Steelhead

Steelhead are anadromous, and there are two DPSs known to occur in Central San Francisco Bay: the Central California Coast DPS (federally listed as threatened), and the Central Valley DPS (federally listed as threatened). The Central California Coast steelhead DPS spawns and rears in the drainages of San Francisco, San Pablo, and Suisun Bays eastward to Chipps Island, at the confluence of the Sacramento and San Joaquin Rivers. The Central Valley Steelhead DPS spawns and rears in the Sacramento and San Joaquin Rivers and their associated tributaries.

Typically, adults migrate to freshwater for spawning after spending anywhere from 1 to 4 years in marine habitats. Steelhead typically enter San Francisco Bay in early winter, using the main channels in the Bay and Delta to migrate to upstream spawning habitat, as opposed to the margins of the Bay. Studies conducted by NMFS (2001) and CDFW (Baxter et al. 1999) indicate that the primary migration corridor is through the northern reaches of the Central Bay (Raccoon Straight and north of Yerba Buena Island).

Central California Coast DPS steelhead has small spawning runs in multiple Bay tributaries, including San Leandro Creek, approximately 5 miles southeast of the project area (Goals Project 2000). Fish migrating to and from these spawning grounds may occur in the Oakland-Alameda estuary. Juvenile steelhead travel episodically from natal streams during fall, winter, and spring high flows, with peak migration occurring in April and May (Fukushima and Lesh 1998). No spawning or rearing habitat for steelhead exists in the marine biological resources analysis area.

Critical habitat for Central California Coast steelhead includes all river reaches and estuarine areas accessible to steelhead in coastal river basins, from the Russian River to Aptos Creek (inclusive), and the drainages of San Francisco and San Pablo Bays. Also included are adjacent riparian zones, all waters of San Pablo Bay west of the Carquinez Bridge, and all waters of San Francisco Bay to the Golden Gate. Therefore, critical habitat for this DPS includes the waters in the marine biological resources analysis area.

The in-water work window for steelhead and other salmonids established through the LTMS program is June 1 through November 30.

### Chinook Salmon

The Chinook Salmon is the largest and least abundant species of Pacific salmon. Like all salmonids, the Chinook Salmon is anadromous, but unlike steelhead, Chinook Salmon are semelparous (i.e., they die following a single spawning event). Chinook Salmon have three distinct runs, referred to as Evolutionarily Significant Units (ESUs), that use San Francisco Bay. These ESUs are distinguished by the seasonal differences in adult upstream migration, spawning, and juvenile downstream migration. The Sacramento River winter-run ESU is listed as an endangered species under the federal ESA and CESA. The Central Valley spring-run ESU is listed as threatened under the federal ESA and CESA. The Central Valley fall-run ESU is not protected under the ESA, but NMFS classifies it as a Species of Concern, and it is a state-designated species of special concern.

In San Francisco Bay, Chinook migrate through the Golden Gate, Central Bay, North Bay, San Pablo Bay, and Suisun Bay, and into the Sacramento River. Out-migrating juveniles follow the same path in reverse. Studies conducted by NMFS (2001) and CDFW (Baxter et al. 1999) indicate that the primary migration corridor is through the northern reaches of the Central Bay (Raccoon Straight and north of Yerba Buena Island).

Sacramento River winter-run Chinook ESU enter the Bay between November and May or June. Their migration into the Sacramento River begins in December and continues through early August, with the majority of the run occurring between January and May and peaking in mid-March (Hallock and Fisher 1985). They are suspected to forage in Central San Francisco Bay shallow water areas (less than 30 feet deep) during in-migration and out-migration transits. No spawning or quality rearing habitat for this species exists in the marine biological resources analysis area.

During migration through San Francisco Bay, the Central Valley spring-run Chinook ESU has a similar life history to the Sacramento winter-run Chinook ESU. The Central Valley spring-run Chinook ESU are primarily present during in-migration and out-migration periods and are known to forage in Central San Francisco Bay shallow water areas. No spawning or quality rearing habitat for this species exists in the marine biological resources analysis area.

The in-water work window for salmonids established through the LTMS program is June 1 through November 30, which corresponds to the period where adults and juveniles are less likely to be present in the Bay.

### Longfin Smelt

Longfin smelt is a small anadromous fish that was historically among the most abundant fish in the San Francisco Bay estuary and the Delta. The San Francisco Bay-Delta DPS of Longfin Smelt is currently proposed for listing as endangered under the federal ESA. Longfin Smelt is state-listed as threatened. Notable declines in Longfin Smelt abundance have occurred throughout its range during the past quarter century. As they mature in the fall, adults found throughout San Francisco Bay and nearby marine waters migrate to brackish[47] or freshwater in Suisun Bay, Montezuma Slough, and the lower reaches of the Sacramento and San Joaquin

[47] Brackish water is water with salinity levels between fresh water and seawater.

Rivers. Spawning occurs primarily from January through March, after which most adults die. In April and May, juveniles are believed to migrate downstream to suitable foraging habitat in San Pablo Bay (CDFW 2018).

Longfin smelt are most likely to occur in the Central San Francisco Bay during the late-summer months before migrating upstream in fall and winter. During CDFW's Bay surveys, Longfin Smelt have been predominantly seen in observation stations in or upstream of San Pablo and Suisun Bays (CDFW 2022). At stations nearest the Proposed Project location (Stations 110 and 142), Longfin Smelt were last observed in 2007, with additional observations in 2001, 2000, 1988, 1987, and 1985. Between 2014 and 2018 (the most recent survey year), no Longfin Smelt were recorded south of San Pablo Bay; and from 2009 through 2013, none were observed between the southern limit of San Pablo Bay and its entrance. Based on these findings, there is a low likelihood of Longfin Smelt in the marine biological resources analysis area.

## *California Fully Protected Species*

### American Peregrine Falcon

The American peregrine falcon (*Falco peregrines anatum*) commonly hunts other birds in flight from perches or from high in the air. The American peregrine falcon nests on cliff ledges in natural environments, but it has adapted to nesting on shelves of tall buildings or structures in urban environments. Peregrine falcons in the San Francisco Bay area typically begin courtship activities and siting nest locations in January and February, then nest from March through May. Peregrine falcons have nested on the easternmost crane on the Howard Terminal waterfront since approximately 2015 (City of Oakland 2021); these cranes are moved along the Howard Terminal waterfront and would not be present in the Proposed Project widening area at the time of construction.

### California Brown Pelican

California brown pelicans occur in estuarine, marine subtidal, and marine pelagic waters throughout coastal California. Important habitat for pelicans during the nonbreeding season includes roosting and resting areas, such as offshore rocks, islands, sandbars, breakwaters, and pilings. Nesting and communal roost sites are protected by CDFW. Suitable areas need to be free of disturbances, including regular human activity. The California brown pelican is a common post-breeding resident (May through November) of the open waters of Central San Francisco Bay. Nesting habitat does not occur in the analysis area; San Francisco Bay is outside of the species' breeding range, which is limited to the Channel Islands south to central Mexico. A communal roost site is on the southern side of Alameda on the Alameda Breakwater (City of Oakland 2021). The Oakland-Alameda estuary, including MHEA and adjacent environs, is potential foraging habitat for the species.

## *Marine Mammals*

### Pacific Harbor Seal

Pacific Harbor seal is the most common marine mammal species observed in San Francisco Bay and is also commonly seen near the San Francisco-Oakland Bay Bridge east span (Caltrans 2018), as well as the western shoreline of Alameda. Foraging can occur throughout the Bay, and prey abundance and distribution affect where harbor seals will forage.

Harbor seals in the Bay typically haul out in groups ranging from a few individuals to several hundred seals. In Central San Francisco Bay, there is an active haul-out site on the southern side of Yerba Buena Island, approximately 2 miles west of the OHTB, and another on the far side of Alameda Island at the Alameda Point Marina, about 1.5 miles south of the IHTB. There are other areas in Central San Francisco Bay that may occasionally be used as a haul-out, but there are no records of harbor seal hauling out at the Seaport, and the shorelines of the Seaport generally do not provide suitable haul-out locations due to the developed nature of the shoreline.

#### California Sea Lion

California sea lions breed on the offshore islands of southern California and Mexico from May through July. During the nonbreeding season, adult and sub-adult males and juveniles migrate northward to areas along the California, Oregon, Washington, and Vancouver Island coastlines, where they forage in marine and estuarine waters.

California sea lions have been observed occupying docks near Pier 39 in San Francisco, about 3.2 miles from the Seaport, since 1987. Occurrence of sea lions here typically is lowest in June (breeding season) and highest in August. Pier 39 is the only regularly used haul-out site in Central San Francisco Bay, but sea lions occasionally haul out on human-made structures, such as bridge piers, jetties, or navigation buoys (Caltrans 2018). Foraging can occur throughout the Bay.

#### Harbor Porpoise

Harbor porpoise are the smallest cetacean found in California waters, and inhabit nearshore waters as well as estuaries. Harbor porpoises began to re-enter the Bay in 2008, following an absence of several decades. Keener et al. (2011) reports sightings of harbor porpoises from just inside the Bay, northeast to Tiburon, and south to the San Francisco-Oakland Bay Bridge western span.

### *Species Protected under the Migratory Bird Treaty Act*

There is a variety of seabirds protected under the Migratory Bird Treaty Act that are relatively common in the Central San Francisco Bay and may occur on or above the waters in the vicinity of the Seaport. For example, double-crested cormorant (*Phalacrocorax auritus*) and Caspian tern (*Hydroprogne caspia*) are common in the analysis area. Osprey (*Pandion haliaetus*) are also regularly seen at the Port terminals.

The MHEA supports a variety of migratory birds, including wading shorebirds and burrowing owls. With the exception of the MHEA, wading shorebirds are unlikely to occur in the Seaport because shallow water habitat is generally absent. Shoreline structures at the Port and on Alameda also support loafing gulls. Recent surveys at the Howard Terminal recorded the presence of ring-billed gull (*Larus delawarensis)*, California gull (*Larus californicus)*, and western gull (*Larus occidentalis)* (City of Oakland 2021). California gulls are the only species known to breed in the vicinity of the Seaport, with a breeding colony at the former Alameda Naval Air Station, approximately 1.5 miles from the IHTB (Shuford and Ryan 2000).

### *Pacific Herring Fishery*

Although not protected under the federal ESA or CESA, Pacific Herring (*Clupea pallasii*) support a CDFW-managed commercial fishery and are protected in San Francisco Bay under the state Marine Life Management Act, which provides guidance in the form of Fisheries

Management Plans for the sustainable management of California's historic fisheries. The Pacific Herring fishery is the last remaining commercial fishery that operates in San Francisco Bay.

The Pacific Herring is a small schooling marine fish that enters estuaries and bays to spawn. This species is known to spawn at many locations in San Francisco Bay, including the Oakland and San Francisco waterfronts, and attaches its egg masses to eelgrass, seaweed, and hard substrates such as pilings, breakwater rubble, and other hard surfaces (CDFW 2019). An individual can spawn only once during the season, and the spent female returns to the ocean immediately after spawning. Spawning usually takes place between October and March, with a peak between December and February. After hatching, juvenile herring typically congregate in San Francisco Bay during the summer, and move into deeper marine waters in the fall.

Portions of the Oakland-Alameda estuary have been identified as a potential herring spawning locations, with habitat consisting of man-made riprap, pilings, and boat hulls, subtidal eelgrass, hard sand, and oysters (Watters et al. 2004). However, while suitable habitat exists, no herring spawning has been observed along this portion of the Oakland waterfront since CDFW began mapping the herring spawn in the 2012-2013 survey year (CDFW 2019). CDFW has consistently observed herring spawning on the Bay-facing (southern) side of Alameda, adjacent to the Ballena Isle Marina, but has not observed herring spawning in the Oakland Inner Harbor (CDFW 2019).

The in-water work window for Pacific Herring established through the LTMS program is March 16 through November 30.

## 3.4.2. Regulatory Setting

The following federal, state, and local regulations, laws, or policies pertain to biological resources (both terrestrial and aquatic) and are applicable to the Proposed Project.

### *Federal*

#### Endangered Species Act (16 United States Code [USC] 1531 et seq.), as amended

The federal ESA protects threatened and endangered species and their designated critical habitat from unauthorized take. Section 9 of the ESA defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Take incidental to otherwise lawful activities can be authorized under Section 7 of the ESA when there is federal involvement, and under Section 10 when there is no federal involvement. USFWS and NMFS share responsibilities for administering the ESA.

In accordance with Section 7 of the ESA, federal agencies and their designees are required to consult with the USFWS and/or NMFS to ensure that any action authorized, funded, or carried out by them is not likely to jeopardize threatened or endangered species, or result in the destruction or adverse modification of designated critical habitat.

As part of the implementation of the LTMS for management of dredged material disposal in the San Francisco Bay region, the LTMS agencies[48] initiated ESA consultation with NMFS and USFWS for maintenance dredging and disposal. These consultations reduced the need for individual consultation for maintenance dredging projects through the establishment of programmatic work windows. These programmatic work windows are based on presence/ absence information for various sensitive species and establish times and locations wherein maintenance dredging and disposal activities may take place without further (formal or informal) consultation. Although the work windows were established for maintenance dredging projects, these work windows are often considered when evaluating potential project impacts associated with new dredging and other types of in-water work, such as that proposed under the Proposed Project; however, new dredging and other types of in-water work do not qualify for the LTMS programmatic coverage, and lead agencies must consult pursuant to Section 7. As the federal lead agency, the USACE has initiated Section 7 consultation for the Proposed Project.

### Fish and Wildlife Coordination Act (16 USC 661666[c])

Under the Fish and Wildlife Coordination Act, any federal agency that proposes to control or modify any body of water must first consult with the USFWS or the NMFS, as appropriate, and with the head of the appropriate state agency exercising administration over wildlife resources of the affected state.

### Magnuson-Stevens Fishery Conservation and Management Act (16 USC Section 1801 et seq.; Pub. L. 104297; Pub. L. 109479)

The primary law governing marine fisheries management in federal waters of the United States is the Magnuson – Stevens Fishery Conservation and Management Act (MSA). Under the MSA, eight regional fishery management councils were created to manage fisheries and promote conservation, particularly focusing on management programs to rebuild overfished fisheries, managing commercial fisheries at sustainable levels, and protecting EFH. EFH is regulated and defined under the MSA as those waters (i.e., aquatic areas and associated physical, chemical, and biological properties) and substrate (i.e., sediment, hardbottom, structures underlying the waters, and associated biological communities) necessary to fish for spawning, feeding, or growth to maturity.

In accordance with the MSA, federal agencies and their designees are required to consult with NMFS on proposed actions authorized, funded, or undertaken by the agency that may adversely affect EFH for fish species covered under a fisheries management plan. NMFS is required to comment and provide conservation recommendations for any activity (sponsored by either federal or state agencies) that could impact EFH.

### Marine Mammal Protection Act (16 USC 1361 et seq.)

Under the Marine Mammal Protection Act (MMPA), all species of marine mammals are protected. The MMPA prohibits, with certain exceptions, the "take" of marine mammals. Under the MMPA, take is defined as the means "to hunt, harass, capture, or kill, or attempt to hunt, harass, capture, or kill." Under Section 101(a)(5)(D), an incidental harassment permit may be

[48] The LTMS program comprises state and federal regulatory agencies with primary authority to review and permit dredging and disposal activities in the San Francisco Bay Area. Participating agencies include USACE, United States Environmental Protection Agency, San Francisco Regional Water Quality Control Board, State Water Resources Control Board, San Francisco Bay Conservation and Development Commission, and State Lands Commission.

issued for activities other than commercial fishing that may impact small numbers of marine mammals. Amendments to this act in 1994 statutorily defined two levels of harassment. Level A harassment is defined as any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal in the wild. Level B harassment is defined as harassment having potential to disturb marine mammals by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

### Migratory Bird Treaty Act (16 USC 703712)

The Migratory Bird Treaty Act established special protection for migratory birds by regulating hunting or trade in migratory birds. Furthermore, this act prohibits anyone to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR Part 21). Definition of "take" includes any disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young).

### Clean Water Act (33 USC 1257 et seq.)

The Clean Water Act (CWA) established the federal structure for regulating surface water quality standards and discharges of pollutants into waters of the United States. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Section 404 of the CWA regulates the discharge of dredged or fill material (e.g., fill, pier supports, and piles) into waters and wetlands of the United States, which includes San Francisco Bay and the Oakland-Alameda estuary. Any discharge under Section 404 must also obtain a Section 401 Water Quality Certification. In California, the authority to grant water quality certification is delegated to the State Water Resources Control Board; and in the San Francisco Bay area, applications for certification under CWA Section 401 are processed by San Francisco Bay Regional Water Quality Control Board (RWQCB).

### Executive Order 13112: Invasive Species

The purpose of this order is to prevent the introduction of invasive species, and to provide control for the spread of invasive species that have already been introduced. This order states that the federal government "…shall, to the extent practicable and permitted by law, not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions."

## *State*

### California Endangered Species Act of 1974, as amended

CESA operates in a similar fashion to the federal ESA but is administered by the CDFW. Certain species that are federally listed may not be listed on the CESA—or vice-versa—or may have a different listing status. Similar to the federal ESA, CESA and the Native Plant Protection Act authorize CDFW to designate, protect, and regulate the taking of protected species in the State of California. Section 2080 of the California Fish and Game Code prohibits the taking of state-listed plants and animals. Take in the context of this regulation means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill a listed species (Fish and Game Code Section 86). The take prohibitions also apply to candidates for listing under CESA.

However, CESA Section 2081 allows CDFW to issue permits for the minor and incidental take of species by an individual or permitted activity listed under the act.

### California Fish and Game Code

There are several elements of the California Fish and Game Code (FGC) that relate to prohibitions on taking of certain wildlife:

- Fully Protected Species – California FGC explicitly prohibits all take of individuals of fully protected species except for take permitted for scientific research. Fully protected amphibians and reptiles, fish, birds, and mammals are listed in FGC Sections 5050, 5515, 3511, and 4700, respectively.
- Birds of Prey – FGC Section 3503.5 prohibits take, possession, or destruction of any birds in the orders Falconiformes (hawks) or Strigiformes (owls), or of their nests and eggs.
- Other Migratory Birds – Migratory nongame birds are protected under FGC Section 3800. FGC Section 3513 adopts the federal definition of migratory bird take, which is defined by the Secretary of the Department of the Interior under provisions of the Migratory Bird Treaty Act. FGC Section 3513 does not prohibit the incidental take of birds if the underlying purpose of the activity is not to take birds.

### Marine Life Protection Act

This Act was passed in 1999 and is incorporated into the California FGC. The Marine Life Protection Act requires California to reevaluate all existing marine protected areas (MPAs), and potentially design new MPAs that together function as a statewide network. To achieve this, MPAs are developed on a regional basis with specific goals in mind and are evaluated over time to assess their effectiveness. The main goals of the Marine Life Protection Act are to maintain the diversity of marine ecosystems, conserve its populations, better educate people on human-marine life interactions, protect habitats, and effectively enforce MPAs. Although several MPAs exist in San Francisco Bay, none of them are in proximity to the Seaport. In the context of the greater San Francisco Bay, CDFW has developed a fisheries management plan for Pacific herring that is consistent with the requirements of the Marine Life Protection Act and the Commission's forage species policy.

### State Regulation of Wetlands and Other Waters

California's authority in regulating activities in wetlands and waters in the Proposed Project area resides primarily with the State Water Resources Control Board (SWRCB). The SWRCB, acting through the San Francisco Bay RWQCB, must certify that a proposed USACE permit action meets state water quality objectives (Clean Water Act Section 401). Any condition of water quality certification is then incorporated into the USACE Section 404 permit authorized for the project.

The SWRCB and RWQCB also have jurisdiction over waters of the State under the Porter-Cologne Water Quality Control Act. The SWRCB and RWQCB evaluate proposed actions for consistency with the RWQCB's Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) and authorize impacts on waters of the State by issuing Waste Discharge Requirements; or in some cases, a waiver of Waste Discharge Requirements.

The BCDC has jurisdiction over coastal activities occurring in and around San Francisco Bay and Suisun Marsh. BCDC was created by the McAteer-Petris Act (California Government Code sections 66600−66682). BCDC regulates fill, extraction of materials, and substantial change in use of land, water, and structures in San Francisco Bay, and development within 100 feet of the mean high water mark. BCDC has jurisdiction over all areas of San Francisco Bay that are subject to tidal action, including subtidal areas, intertidal areas, and tidal marsh areas that are between mean high tide and 5 feet above mean sea level.

## *Local*

### City of Alameda General Plan

The following implementing policies contained in the City of Alameda General Plan (City of Alameda 2022) pertaining to biological resource protection are relevant to the Proposed Project:

- Policy CC27.c: Protect aquatic habitat areas, including sensitive submerged tidelands areas, mudflats, and eelgrass beds for nurseries and spawning grounds for fish and other aquatic species.
- Policy CC34.h: Require consultation with the National Marine Fisheries Service and California Department of Fish and Wildlife to identify the need for any permits and to identify appropriate measures to protect aquatic species and habitats during any in-water construction requiring pile driving.
- Policy CC34.i: Require a pre-construction eelgrass and native oyster survey prior to any construction activities involving any disturbance to the shoreline or adjacent waters in accordance with guidance provided by the National Marine Fisheries Service.
- Policy CC34.j: Require all dredging activity in waters surrounding Alameda to implement Best Management Practices identified in the Long-term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region (2001) published by the United States Army Corps of Engineers in order to avoid impacts on water quality and avoid degradation of aquatic habitat.

### City of Oakland General Plan

The Open Space, Conservation, and Recreation Element of the Oakland General Plan (City of Oakland 1996) describes the following policies adopted for the purpose of protecting biological resources that are relevant to the Proposed Project:

- Policy CO6.5: Protect surface waters of the San Francisco Bay Estuary system, including San Francisco Bay, San Leandro Bay, and the Oakland Estuary. Discourage shoreline activities which negatively impact marine life in the water and marshland areas.
- Policy CO6.6: Prohibit bay fill unless there is compelling evidence that its benefits will outweigh the environmental and other costs. In such instances, support compliance with the mitigation requirements of the Bay Conservation and Development Commission and other regulatory agencies.
- Policy CO9.1: Protect rare, endangered, and threatened species by conserving and enhancing their habitat and requiring mitigation of potential adverse impacts when development occurs within habitat areas.

- Policy CO11.2: Protect and enhance migratory corridors for wildlife. Where such corridors are privately owned, require new development to retain native habitat or take other measures which help sustain local wildlife population and migratory patterns.

## 3.4.3. Significance Criteria

Based on Appendix G of the CEQA Guidelines, the below questions (criteria) were analyzed and evaluated to determine whether impacts related to biological resources are significant. Would the Proposed Project:

A. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, United States Fish and Wildlife Service, or National Marine Fisheries Service?

B. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife, United States Fish and Wildlife Service, or National Marine Fisheries Service?

C. Have a substantial adverse effect on state or federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

D. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

E. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

F. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

### *Methodology for Analysis*

Impacts on biological resources are identified and evaluated based on relevant CEQA and federal, state, and local standards, policies, and guidelines; on the likelihood that special-status species, sensitive habitats and natural communities, wetlands and waters of the United States, and wildlife corridors are present in the marine and terrestrial biological resource analysis areas (as described in Section 3.4.1, Environmental Setting); and on the likely effects that Proposed Project implementation might have on these resources.

Effects to fish and marine mammals from construction noise are evaluated using a spreadsheet noise calculation tool developed by NMFS, and by comparison to measured noise levels for similar underwater work. Noise levels were compared to established thresholds for the protection of marine mammals and fish.

### *Topics Considered and Determined to Have No Impact*

The following topics are considered to have no impact related to the Proposed Project based on its geographical location. Therefore, these topics are not addressed further in this document for the following reasons:

- ***State or federally protected wetlands*** (Criterion C). No wetlands are in or adjacent to the proposed widening footprints for the IHTB or OHTB, proposed staging areas, Berth 10, or proposed locations of electrical infrastructure at Howard Terminal and Berth 26. It is anticipated that dredged material from the Proposed Project would be placed at wetland beneficial reuse site(s). This would serve to create or restore wetlands, and placement would occur in accordance with permits for the beneficial reuse site(s); this would have a beneficial, not harmful, effect to wetlands. Therefore, the Proposed Project would have no impact on state or federally protected wetlands.
- ***Local policies or ordinances protecting biological resources*** (Criterion E). The Proposed Project would not involve the removal of any trees, and there are no other local ordinances pertaining to biological resources that would apply to the Proposed Project. The relevant policies of the City of Oakland and City of Alameda General Plans are consistent with the federal and state laws, regulations, and regulatory agency oversight with which the Proposed Project would be required to comply. Therefore, the Proposed Project would not conflict with local policies or ordinances protecting biological resources, and there would be no impact relative to this criterion.
- ***Habitation Conservation Plan/Natural Community Conservation Plan*** (Criterion F). No adopted habitat conservation plan or natural community conservation plan covers the marine or terrestrial biological resources analysis areas, and therefore the Proposed Project could not conflict with these plans. Therefore, there would be no impact relative to this criterion.

## 3.4.4. Impacts and Mitigation Measures

***Impact BIO-1. Would the Proposed Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, United States Fish and Wildlife Service, or National Marine Fisheries Service? (Criterion A) (Less than Significant with Mitigation)***

#### Impact Analysis

As described in Section 3.4.1, habitats in the area of the Proposed Project support a variety of special-status marine and terrestrial species. Potential impacts to special-status fish, bird, and marine mammal species from construction include habitat alteration due to dredging, altered behavior from increases in turbidity, potential exposure to resuspended contaminants, disturbance from airborne and underwater noise, and disturbance from nighttime lighting.

Widening of the turning basins would increase the area of the Oakland Harbor navigation channel subject to annual maintenance dredging by the USACE. Impacts related to future maintenance dredging of the widened portions of the turning basins are also addressed.

#### *Special-Status Fish*

Special-status fish could experience construction-related impacts from entrainment during dredging, accidental pollutant discharges, turbidity and sediment suspension, mobilization of contaminants, temporary benthic habitat disturbance, permanent habitat alteration, and underwater noise. Permanent habitat alteration would occur, including conversion of land to aquatic habitat and deepening of existing aquatic habitat. Impacts pertaining to EFH and eelgrass beds are addressed under Impact BIO-2. Impacts related to movement and migration are addressed under Impact BIO-3.

As described in Section 3.4.1, special-status fish with potential to occur in the analysis area include Green Sturgeon, steelhead (Central Valley DPS and Central California Coast DPS), Chinook Salmon (Sacramento River winter-run and Central Valley spring-run), Longfin Smelt, and Pacific Herring. In addition, the analysis area includes designated critical habitat for Green Sturgeon and Central California Coast DPS Steelhead, which is considered in the analysis of effects on habitat presented in the following sections.

All dredging and in-water construction activities for the Proposed Project would occur during the in-water work window for special-status salmonids (June 1 through November 30). Maintenance dredging is typically scheduled to be completed during the in-water work window for special-status salmonids, and the USACE would consult with NMFS, as necessary, for maintenance dredging outside of the work window.

#### Entrainment During Dredging

All forms of dredging have the potential to incidentally remove organisms from the environment along with the dredge material, a process referred to as entrainment. Entrained fish are likely to suffer mechanical injury or suffocation during dredging, resulting in mortality. Although individual fish have the potential to be struck or entrained by a clamshell bucket as it falls through the water column to the channel bottom, the falling bucket would generate a pressure wave around it that would force small fish away from the falling bucket. As a result of the pressure wave, mechanical clamshell dredging has a very low risk of entraining fishes (Reine and Clarke 1998; USACE 2019). Therefore, the use of a clamshell dredge minimizes the risk of fish entrainment for all fishes. Mechanical dredging is also generally accepted to entrain far fewer fish than hydraulic dredging because less water is removed along with the sediment, and no suction is involved. Dredging would be conducted during the in-water work window between June 1 and November 30, when salmonids are less likely to be present; this is also within the work window for Pacific Herring. Green Sturgeon may be present in the marine biological resources analysis area during the in-water construction period, but only in low densities, and juveniles and adults would be mobile enough to avoid the clamshell bucket. As stated in Section 3.4.1, there is a low likelihood of Longfin Smelt occurring in the marine biological resources analysis area. Because maintenance dredging of Oakland Harbor by USACE has historically been completed with a clamshell dredge, impacts related to entrainment during future maintenance dredging of the widened portions of the turning basins would be similar to those described for construction. Therefore, the potential for entrainment of special-status fish during dredging for the Proposed Project is very low, and impacts would be **less than significant**.

### Accidental Discharges

Construction activities have the potential to result in accidental discharge of contaminants into surrounding surface waters that would degrade habitat for special-status fish and could directly impact their health. Various contaminants, such as fuel oils, grease, and other petroleum products used in construction activities, could be introduced into the system directly during dredging and nearshore construction. Shoreline construction, including demolition, excavation, and sheet pile installation, could also result in increased surface run-off and contaminant loading to surface waters. As stated in Section 2.5.3, Detailed Construction Activities, and as also required by SWRCB to comply with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (see Section 3.10, Hydrology/Water Quality for additional information), construction contractors would be required to prepare a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would list the hazardous materials (including petroleum products) proposed for use during construction; describe spill prevention measures, equipment inspections, equipment and fuel storage; protocols for responding immediately to spills; erosion and sedimentation controls; and good housekeeping measures, such as protocols for site cleanup and disposal of trash and debris. Implementation of these measures and adherence to the NPDES Construction General Permit would minimize erosion and sedimentation and prevent releases of construction wastes and hazardous materials into surface waters during construction.

Vessels would be operated in compliance with all applicable regulations related to the prevention of water pollution by fuel, harmful substances, and garbage, as well as from accidental discharges. To operate in U.S. waters and ports, applicable vessels regulated by the United States Coast Guard (USCG) under Code of Federal Regulations, Title 33, are required to provide a variety of plans—including a Vessel Response Plan—to the USCG for review and approval. A Vessel Response Plan serves as an oil spill response plan for vessels. A Vessel Response Plan would include, at a minimum, a contact list, including the spill removal contractor and contacts for spill notifications; procedures for spill notifications; shipboard spill mitigation procedures to mitigate or prevent discharge or threat of discharge resulting from operations, accidents, or emergencies; and shore-based response activities, including notification, coordination actions, and organization structure for response. These measures would minimize the potential for the accidental release of hazardous substances from vessel operations during Proposed Project construction, as well as future maintenance dredging, to substantially degrade aquatic habitat.

Therefore, the Proposed Project is unlikely to result in accidental discharges that would substantially impact special-status fish, and impacts would be **less than significant**.

### Suspended Sediment/Turbidity

During any type of dredging operations, the interaction of the dredge equipment with the dredged material resuspends sediment into the water column. The mechanisms by which mechanical dredging causes increased suspended sediment concentrations, which in turn increase turbidity, include the impact and withdrawal of the bucket from the substrate, the washing of material out of the bucket as it moves through the water column, and the loss of water as the sediment is loaded onto the barge.

Removal or installation of sheet piles, piles, or other in-water improvements may also temporarily disturb benthic sediment and increase turbidity from suspended sediment levels in the immediate vicinity of in-water construction activities as a result of this physical disturbance. Increases in turbidity from suspended sediment levels during removal or installation of piles or

other in-water structures would be substantially less significant than similar effects from dredging because they result in considerably less sediment disturbance.

Temporary turbidity plumes from dredging would be localized and would affect a relatively small area in relation to surrounding areas of similar habitat. In the naturally turbid San Francisco Bay, turbidity plumes would be quickly diluted to near or within background particulate concentrations (USACE and RWQCB 2015). Effects on turbidity and suspended sediment levels from new dredging to widen the IHTB and OHTB are anticipated to be like those from existing annual maintenance dredging. Turbidity plumes were measured during clamshell dredging in the Oakland Harbor during USACE monitoring in 2016 and 2017 (USACE 2019). The San Francisco Bay navigation channel maintenance dredging water quality certification requires that increased turbidity be less than 50 Nephelometric Turbidity Units (NTUs), or no greater than 10 percent if the baseline NTU is greater than 50 at the point of compliance (i.e., 500 feet downstream of dredging). During USACE monitoring in the Oakland Harbor, exceedances of the water quality turbidity standards at the point of compliance occurred only periodically and were not sustained.

Dredging, pile driving, and other in-water construction activities would result in increased turbidity from suspended sediment. Suspended sediment has been shown to affect fish behavior, including avoidance responses, territoriality, feeding, and homing behavior. Wilber and Clarke found that suspended sediment results in cough reflexes, changes in swimming activity, and gill flaring. Suspended sediment can have other impacts, including abrasion to the body and gill clogging (Wilber and Clarke 2001). The effect of dredging on fish can vary with life stage; early life stages tend to be more sensitive than adults. Turbidity can be of particular concern to certain species' life stages, such as spawning Pacific Herring which are known to breed on in-water structures and use habitat along the Oakland-Alameda Estuary waterfront. However, as stated in Section 3.5.1, herring spawning has not been observed in the Inner Harbor Channel during surveys conducted since 2012. Waters in the analysis area are also naturally turbid due to resuspension of sediment from wind, waves, tides, and frequent vessel traffic.

The life stages of special-status fish species potentially present in the analysis area are likely less susceptible to adverse direct effects from increased turbidity. The eggs or larval life stages of steelhead, Chinook Salmon, Green Sturgeon, and Longfin Smelt are not expected to be present. Large adult and juvenile fish (including steelhead, Chinook, and Green Sturgeon) would be mobile enough to avoid areas of high-turbidity plumes caused by dredging. The USACE Waterways Experiment Station Technical Report DS-78-5 (Effects of Dredging on Aquatic Organisms) reports that: "Most organisms tested are very resistant to the effects of sediment suspensions in the water, and aside from natural systems requiring clear water such as coral reefs and some aquatic plant beds, dredging-induced turbidity is not a major ecological concern" (Hirsch et al. 1978).

As described under Dredging in Section 2.5.3, dredging and dredged material transport over water would be conducted in a manner to minimize effects from suspended sediment and turbidity from dredging operations. During dredging, this includes use of an environmental bucket, not overfilling the dredge bucket, increasing cycle times as needed to reduce the time that a load bucket travels through the water column, and restrictions on excess water discharges from barges. In addition, any turbidity monitoring or other associated measures included as conditions of applicable regulatory permits that would be obtained for implementation of the

Proposed Project, such as a Water Quality Certification from the RWQCB, would be conducted as required for permit compliance. Potential turbidity impacts during vessel transport would be minimized by establishing load lines on barges, requiring barges not be filled above the load line, and having fill levels inspected prior to transport to confirm the load line is not exceeded. Therefore, movement of sediment transport vessels would not be expected to increase turbidity above ambient ranges generated by natural hydrologic processes, weather, and existing vessel traffic.

In consideration of the potential fish life stages present, the brief duration and relatively small area of effect, background turbidity levels in San Francisco Bay and the Oakland-Alameda estuary, construction of the Proposed Project is unlikely to substantially affect federal ESA–listed fish species from increased turbidity. Although widening the turning basins would increase the amount of material maintenance dredged annually by up to 93,000 cubic yards, the volume of material dredged from Oakland Harbor varies annually and this potential incremental increase would not be expected to substantially increase the severity of suspended sediment impacts that currently occur from annual maintenance dredging, as described above. Therefore, impacts related to increased suspended sediment would be **less than significant**.

#### Resuspended Contaminants

Suspended sediment can circulate toxic metals, hydrocarbons, pesticides, pathogens, and nutrients into the water column, if such contaminants are present in disturbed sediment. Such contaminants have the potential to become biologically available to organisms either in the water column or through food-chain processes. A study on the short-term water quality impacts of dredging and dredged material placement on sensitive fish species in San Francisco Bay was completed by the San Francisco Estuary Institute (Jabusch et al. 2008). The review considered five fish species: Chinook Salmon, Coho salmon, Delta smelt, steelhead trout, and Green Sturgeon. Water quality impacts of concern include dissolved oxygen reduction, pH decrease, and releases of toxic components such as heavy metals, hydrogen sulfide, ammonia, and organic contaminants (including polycyclic aromatic hydrocarbons [PAHs], polychlorinated biphenyls [PCBs], and pesticides). Potential short-term effects include acute toxicity, subacute toxicity, and biological and other indirect effects, such as avoidance. The study concluded that direct short-term effects on sensitive fish by contaminants associated with dredging plumes are minor and that there is no significant transfer of metal concentrations into the dissolved phase during dredging, even when total metals associated with the suspended matter may be large. Additionally, organic contaminants such as pesticides, PCBs, and PAHs are generally not very soluble in water, and direct toxicity by exposure to dissolved concentrations in the water column is not very likely (Jabusch et al. 2008). As stated above, the life stages of special-status fish likely to be present in the analysis area during in-water construction are expected to be motile enough to avoid areas of high-turbidity plumes and relocate outside of the dredge material plume, rather than be exposed to potential harm. The dredge material plume would only occupy a small percentage of the habitat available to fish species at any given time.

The sediment in subtidal areas of the IHTB and OHTB widening footprints is generally not expected to contain contaminants at levels that would preclude beneficial reuse at a wetland restoration site except in the IHTB between Howard Terminal and Schnitzer/Radius Recycling, where sediment may be contaminated with heavy metals. Sediment testing would be conducted during the Proposed Project pre-construction engineering and design phase. If contaminants in excess of Dredged Material Management Office (DMMO) thresholds are present in sediment

that would be disturbed by Proposed Project construction, these contaminants could be suspended and become biologically available to special-status fish either via the water column or through food-chain processes. This could result in a **potentially significant impact** if the types and concentrations of contaminants present could result in severe health effects or mortality of special-status fish.

Future maintenance dredging of the widened areas of the turning basins would be confined to the removal of sediment accumulated since the last dredging event. Sediment deposited since the previous dredging activities would not be expected to contain elevated levels of contaminants because sediment testing results for previous USACE maintenance dredging episodes indicate that, in general, dredged materials are suitable for aquatic disposal and do not require disposal at a landfill (USACE and RWQCB 2015). In addition, future maintenance dredging events would be subject to sediment characterization and DMMO approval.

#### Temporary Benthic Habitat Disturbance

Benthic habitat can provide important foraging areas for special-status fish species, especially for Green Sturgeon and Longfin Smelt, which primarily forage in the benthos. Steelhead and Chinook Salmon are primarily drift feeders when in the estuarine environment, but also forage in the benthos. Steelhead and Chinook Salmon typically forage in waters less than 30 feet deep, while Green Sturgeon have been observed foraging at depths up to 33 feet.

Dredging would directly impact benthic communities through physical disruption and direct removal of benthic organisms, resulting in the potential loss of most, if not all, organisms in the dredged area. Organisms immediately adjacent to the navigation channel and turning basins also may be lost because of smothering or burial from sediment resuspended in the water column during dredging (USACE 2019). These effects may also occur as a result of other bottom-disturbing activities such as pile driving, although to a much lesser degree. Benthic habitat in the navigation channels and turning basins, and their margins, is regularly disturbed under baseline conditions because of annual maintenance dredging and the propeller wash of vessel traffic. The expansion areas, however, include subtidal habitat that is not subject to maintenance dredging under baseline conditions and would be newly disturbed by the Proposed Project.

Studies have indicated that even relatively large areas disturbed by dredging activities are usually recolonized by benthic invertebrates within 1 month to 1 year, with original levels of biomass and abundance developing within a few months to between 1 and 3 years (Newell et al. 1998). Recovery in deep water channels may be slower. Colonizing species composition may be different than prior to dredging, and recolonizing species would likely include nonindigenous species common to San Francisco Bay (USACE and RWQCB 2015).

Benthic habitat in the within and adjacent to the navigation channels is likely of marginal foraging value given existing and historic uses in the navigation channels and adjoining shoreline as well as the regular disruption from large vessel movement and annual maintenance dredging. Regular disturbance is reduced outside of the navigation channels and existing turning basins, although still present. The Proposed Project would result in direct temporary impacts to benthic communities in the widened turning basin areas. These effects would be similar to those caused by maintenance dredging in the existing navigation channels and turning basins, and dredged areas in the proposed expanded turning basins are expected to recolonize with benthic organisms; this would also be the case for future maintenance dredging of the widened portions

of the turning basins. Suitable foraging habitat for special-status fish is widely available outside of the proposed construction footprint. Therefore, the temporary impacts that would result from the Proposed Project would not substantially impact special-status fish foraging and would be **less than significant**.

Permanent impacts to benthic habitat would occur from widening the turning basins, which may affect fish foraging. These impacts are discussed in the Habitat Alteration section below.

### Habitat Alteration

The Proposed Project would permanently deepen subtidal waters in the IHTB and OHTB expansion areas. Expansion of the IHTB would also permanently convert approximately 10 acres of terrestrial land into intertidal or subtidal habitat.

Expanding the IHTB and OHTB would permanently convert shallow water to deeper water, which may adversely affect habitat for ESA–listed fish species. Green Sturgeon and Longfin Smelt predominantly forage in the benthos, at observed depths up to 33 feet for Green Sturgeon. Proposed deepening to expand the turning basins may affect Green Sturgeon and Longfin Smelt foraging, although there is little or no available data pertaining to foraging by these species at depths of -50 feet MLLW. Salmonids show preference for sit-and-wait foraging in the water column, and foraging effects from permanent deepening are therefore anticipated to be minimal. As noted above, benthic habitat in the within and adjacent to the navigation channels is likely of marginal foraging value.

The newly dredged areas would be subject to more frequent disturbance from operations and maintenance activity. The USFWS considers this aquatic habitat type to be Resource Category 4 (i.e., the less valuable and most common kinds of habitat) due to its regional abundance, regular disturbance, and medium value to fish and wildlife. In their Draft Fish and Wildlife Coordination Act report for the Proposed Project, USFWS determined that although restored tidal wetland is different than subtidal benthic habitat, the beneficial reuse of suitable sediment at a wetland restoration site, as proposed, would meet the Resource Category 4 mitigation goals for minimizing loss of habitat value resulting from the Proposed Project's impact to subtidal benthic habitat (USFWS 2021). Considering the generally disturbed nature of the benthic habitat that would be deepened, the abundance of suitable foraging habitat in the surrounding estuary, and offsetting effects to benthic habitat with the beneficial reuse of available suitable material for wetland restoration, potential impacts from permanent alteration of subtidal benthic habitat for special-status fish would be **less than significant**.

### Underwater Noise Impacts

In-water construction would result in underwater noise primarily from mechanical dredging and pile removal and installation. Underwater noise has the potential to alter the behavior of fish, and if sufficiently loud, can cause temporary shifts in hearing ability or injury to internal organs. The interagency Fisheries Hydroacoustic Working Group has established interim criteria for noise impacts from pile driving on fishes; although these criteria are not formal regulatory standards, they are generally accepted as viable criteria for underwater noise effects on fish. A peak sound exposure level (SEL) of 206 decibels (dB) for impulse-type noise is considered injurious to fishes. Cumulative SELs of 187 dB for fishes greater than 2 grams, and 183 dB for fishes below that weight, are considered to cause temporary shifts in hearing, resulting in temporarily decreased fitness (i.e., reduced foraging success and reduced ability to detect and avoid predators; Caltrans 2020). With regard to special-status fish potentially occurring in the analysis

area, only adults or juveniles with a size greater than 2 grams may be present. Behavioral effects are not covered under these criteria but could occur at these levels or lower. Behavioral effects may include fleeing and the temporary cessation of feeding or spawning behaviors. NMFS often uses a 150 dB root mean square (RMS) noise threshold to establish the area of potential behavioral effects to fish species for both impulse and continuous noise. There are no formal SEL thresholds for fish established for non-impulse noise, such as vibratory pile driving.

The navigation channels are active marine waterways and existing vessel activities produce underwater noise. Ambient underwater noise levels in the IHTB were monitored for this Proposed Project at half the depth of the water column during an active turning event for a large container vessel (*One Aquila*) with three assist tugboats and were found to generate a peak underwater sound exposure level of 174 to 175 dB. During clamshell dredging, the most intense sound impacts are produced by the bucket's impact with substrate. Reine et al. (2002) found peak sound exposure levels of 124 dB measured 150 meters (approximately 500 feet) from the bucket strike location. Thus, underwater noise from clamshell dredging during construction of the Proposed Project and future maintenance dredging would not be expected to exceed ambient levels experienced in the turning basins when vessels are turning. These dredging sound pressure levels are well below the peak and cumulative SEL thresholds for fish. Moreover, the mechanical dredging sound pressure levels are below 150 dB threshold NMFS has used for triggering behavioral effects (e.g., avoidance) in fish from both impulse and continuous noise. Although underwater sound produced by a given activity may be audible to fish beyond this point, overall sound levels less than 150 dB are not expected to adversely affect fish behavior. Similarly, the transport barges carrying dredge material are not expected to generate underwater noise that is different or greater than existing vessel traffic.

The removal and installation of piles into—as well as immediately adjacent to—water has the potential to generate underwater noise. Pile removal would occur via vibratory means, and pile installation would utilize vibratory or impact driving. Vibratory techniques are often employed as a minimization measure to reduce the underwater sound pressure that transmits into the water from pile driving. Pile removal would occur via vibrating out piles. Extraction of existing sheet piles, piles (concrete and steel), or other in-water structures would also generate underwater noise, although at lower sound pressure levels than would be experienced during pile installation. Based on the current conceptual design and construction phasing, the majority of pile installation would be conducted through land and would not result in underwater noise impacts. In-water pile installation, where required, would be conducted with a vibratory driver to the extent feasible, but impact pile driving may be necessary. This analysis assumed that sheet pile installation would be accomplished via a vibratory driver, but the installation of 24-inch steel batter piles may require use of an impact driver.

In support of this study, an underwater noise analysis was performed to assess underwater sound pressure levels using reference observation data from the Caltrans Technical Guidance for the Assessment of Hydroacoustic Effects of Pile Driving on Fish (Caltrans 2020) and NMFS hydroacoustic worksheets. **Table 3.4-2** and **Figure 3.4-1** and **Figure 3.4-2** identify the distance over which underwater noise thresholds may be exceeded during installation and removal of piles and sheet piles for expansion of the IHTB.

**Table 3.4-2 Distance of Underwater Noise Effects to Fish from Pile Installation and Removal**

| Description of Work | Pile Type | Installation Method | Estimated Days Work[3] | 187 dB [1] cSEL Threshold (meters/ feet) | 183 dB [1] cSEL Threshold (meters/ feet) | 206 dB Peak Threshold (meters/feet) | 150 dB RMS Threshold (meters/feet) |
|---|---|---|---|---|---|---|---|
| Extraction of steel sheet piles at the Alameda site | 12- or 24-inch-wide steel sheet piles | Vibratory | 50 | NA[2] | NA[2] | 0 | 63/207 |
| Extraction of steel pipe piles at the Alameda site | 24-inch-diameter steel pipe piles | Vibratory | 116 | NA[2] | NA[2] | 0 | 29/95 |
| Extraction of concrete piles at the Howard Terminal site | 24-inch-diameter concrete piles | Vibratory | 40 | NA[2] | NA[2] | 0 | 29/95 |
| Installation of steel sheet piles at the Alameda site, in-water near Schnitzer/Radius Recycling Terminal, and at Howard Terminal | 24-inch-wide steel sheet piles | Vibratory | 54 | NA[2] | NA[2] | 0 | 63/207 |
| Installation of steel pipe batter piles at the Alameda site, in-water near Schnitzer/Radius Recycling Terminal, and at Howard Terminal | 24-inch-diameter steel pipe piles | Impact hammer[4] | 11 | 215/705 | 215/705 | 4/13[5] | 2,154/7,067 |

Notes:

[1] This calculation assumes that single-strike SELs < 150 dB do not accumulate to cause injury (Effective Quiet).

[2] SEL thresholds are for impulse noise only and are not applicable for vibratory driving.

[3] In-water piles only.

[4] Distances for impact hammer assume use of a bubble curtain. A vibratory hammer may also be used for these piles, which would have smaller distances to thresholds than what is presented for impact driving.

[5] This radius is similar in size to the area where the water would be attenuated by a bubble curtain.

dB = decibel
RMS = root mean square
cSEL = cumulative sound exposure level

**Figure 3.4-1 Estimated Distance to In-Water Sound Pressure Criteria for Fish for Impact Driving**



**Figure 3.4-2 Estimated Distance to In-Water Sound Pressure Criteria for Fish for Vibratory Driving**



A bubble curtain (underwater noise reduction system that uses air to reduce underwater sound waves) or similar attenuation system would be used for the installation of impact-driven piles, as required by Mitigation Measure BIO-1C; such a system is assumed to provide 5 dB of noise attenuation (a 5 dB reduction). With the use of a bubble curtain or similar attenuation, installation of the 24-inch piles is not expected to generate underwater noise above the 206 dB peak noise injury threshold outside of the area attenuated by the bubble curtain. During pile driving activities, fish are not expected to be present within the immediate vicinity of the piles, because the movement of the piling through the water and initial contact with the Bay seafloor would result in fish quickly leaving the immediate area. Therefore, no physical injury to fish (barotrauma) is expected.

In areas where the 187 dB and 183 dB cumulative sound exposure level (cSEL) thresholds would be exceeded, fish could experience temporary shifts in hearing thresholds. These effects would be confined to the relatively small 215-meter (705-foot) radius from the source, and the 11 estimated work days for installation of steel pipe piles. The cessation of pile driving at the end of each work day would allow cumulative noise levels to reset before driving continues the following day. Due to the limited potential impact area and short duration of this activity, this is not considered a substantial disruption.

Behavioral effects that could occur during pile removal or installation include the temporary cessation of feeding or movement out of the area of effect during active pile driving. As detailed in the preceding analysis of dredging noise effects on fish, background underwater noise levels in Inner Harbor are elevated due to frequent vessel traffic, and fish that frequent the area may be habituated to increased noise, and therefore less likely to exhibit a behavioral response differing from existing conditions (Caltrans 2020).

Although pile-driving would be conducted during the in-water work window for steelhead, salmonids, and Pacific Herring to minimize the effect of project construction noise on special-status fish, Green Sturgeon and Longfin Smelt could be present year-round. Impact driving would exceed the 187 dB cSEL threshold for the special-status fish species with potential to be present, which could impair foraging success and reduce ability to detect and avoid predators. Further, the above analysis assumes vibratory driving would be used for most pile driving and that a bubble curtain would be used during impact pile driving. Because the Proposed Project may require impact pile driving and the potential for special-status fish to be exposed to impulse-type noise exceeding injury thresholds cannot be ruled out, the Proposed Project's impacts could be **potentially significant**.

#### *Special-Status Birds*

As described above, dredging and shoreline construction can temporarily increase turbidity, which can also affect California least tern foraging. Increased turbidity may decrease foraging success by decreasing prey abundance or by making it more difficult for least terns to detect prey. This bird species forages in the upper few feet of the water column. Turbidity impacts would be mostly confined to existing moderately deep waters or shoreline areas currently occupied by marine structures proposed for removal. Impacts to shallow-water habitat would be limited and would not occur in waters adjacent to known California least tern colonies at the former Alameda Naval Air Station or known foraging and roosting habitat in the MHEA. Suitable foraging habitat for this species is widely available outside of the proposed construction

limits, including along the southern Alameda shoreline and the Bay Farm borrow pits to the south of Alameda.

Similarly, noise from construction activities would not substantially disrupt foraging activities of California least tern. Birds currently residing in the vicinity are accustomed to varying levels of ambient noise emanating from existing human activities in the project area, including truck and train traffic, ferry operations, heavy metal recycling activities at the Schnitzer/Radius Recycling facility, and Seaport shipping operations that occur throughout the day. Typically, birds will avoid disturbance areas and move to preferable environments; and in this case, they would be able to forage in similar shoreline waters elsewhere in the Oakland-Alameda estuary away from construction activities.

Impacts to foraging activities of American peregrine falcon and California brown pelican (state-designated fully protected species) would be similar to those described above for California least tern. In addition, peregrine falcons have nested on the easternmost crane on the Howard Terminal waterfront since approximately 2015; these cranes are moved along the Howard Terminal waterfront and would not be present in the Proposed Project footprint at the time of construction. As noted above, birds currently residing in the vicinity are accustomed to varying levels of ambient noise emanating from existing human activities in the Proposed Project area; however, noise, visual disturbance, and a general increase in human activity associated with construction could indirectly affect nesting efforts.

The LTMS program maintenance dredging work window for California least tern in the project vicinity is August 1 through March 15 each year. Because in-water construction is proposed to occur partially outside of this work window (i.e., in June and July), the USACE and Port will initiate ESA consultation with USFWS and propose minimization measures (such as funding predator management activities) for USFWS concurrence to conduct work outside this window without adversely affecting the species. The USACE would also consult with USFWS, as necessary, for future maintenance dredging outside of this work window.

With the exception of the known peregrine falcon nest noted above, no nesting migratory birds are expected to occur, or be impacted, by proposed construction activities. Dredging activity would have similar effects on migratory birds that may forage in the Proposed Project area as described above for other special-status bird species. Although widening the turning basins would increase the amount of material maintenance dredged annually by up to 93,000 cubic yards, the volume of material dredged from Oakland Harbor varies annually and this potential incremental increase would not be expected to substantially increase the severity of impacts on special status bird foraging that currently occur from annual maintenance dredging. Most noise levels and other disturbances caused by construction are not expected to substantially affect migratory birds that may use the Proposed Project area, because vessel traffic, Seaport operations, and other industrial operations already are an ongoing source of ambient noise. However, noise from impact pile driving, if conducted during the bird breeding season (February 1 to August 15) could impact nesting activity occurring in close proximity to the impact pile driving activity, resulting in a **potentially significant impact**.

### *Marine Mammals*

The marine mammals with potential to occur in the analysis area primarily include Pacific harbor seal; to a lesser extent, California sea lion; and infrequently, harbor porpoise.

Increased turbidity may temporarily reduce foraging opportunities for marine mammals in the analysis area. Marine mammals would not be substantially affected by the turbidity generated during construction and future maintenance dredging operations, because they forage over large areas of San Francisco Bay and can avoid areas of temporarily increased turbidity and dredging disturbance.

NMFS has established thresholds regarding the exposure of marine mammals to high-intensity noise that may be considered a take under the MMPA (NMFS 2018). The injury (Level A Harassment) threshold for such continuous noise is specific to the species hearing group (i.e., high-frequency cetaceans [harbor porpoise] and low-frequency phocids [Pacific harbor seal] and otariids [California sea lion]). The behavioral harassment (Level B; non-injurious) threshold is 160 dB for impulse noise (e.g., impact pile driving) and 120 dB for continuous noise (e.g., vibratory pile extraction and driving) for all marine mammals. **Table 3.4-3** summarizes these underwater noise thresholds for marine mammals.

As described above for special-status fish, noise from dredging activities is comparable to ambient noise from shipping vessels, and therefore is not expected to cause harassment of marine mammals.

Vibratory pile extraction and installation and impact pile driving have the potential to impact marine mammals. The nearest haul-out for harbor seals is approximately 1.5 miles away, on the opposite side of Alameda Island, and would not be impacted by airborne noise from project construction activities.

**Table 3.4-3 Marine Mammal Injury and Behavioral Disruption Thresholds for Underwater Noise**

| Hearing Group and species considered | Underwater Continuous Noise Thresholds (e.g., Vibratory Pile Driving) | | Underwater Impulse Noise Thresholds (e.g., Impact Pile Driving) | | |
|---|---|---|---|---|---|
| | Level A cSEL Threshold | Level B RMS Threshold | Level A Peak Threshold[1] | Level A cSEL Threshold[1] | Level B RMS Threshold |
| Phocids (Pacific harbor seal) | 201 dB | 120 dB | 218 dB | 185 dB | 160 dB |
| Otariids (California sea lion) | 219 dB | 120 dB | 232 dB | 203 dB | 160 dB |
| High-Frequency Cetaceans (harbor porpoise) | 173 dB | 120 dB | 202 dB | 155 dB | 160 dB |

Notes:

[1] Level A threshold for impulse noise is a duel criterion based on peak pressure and cSEL. Thresholds are based on the NMFS Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing.

cSEL = cumulative sound exposure level
dB = decibel
RMS = root mean square

In support of this study, an underwater noise analysis was performed to assess underwater sound pressure levels on marine mammals that would result from expansion of the IHTB. To approximate the areas over which the marine mammal thresholds summarized may be exceeded, the pile driving source levels and assumptions described above under special-status fish were used in the practical spreading model. The results of that analysis are summarized in **Table 3.4-4** and shown in **Figure 3.4-3** and **Figure 3.4-4**.

Marine mammals use hearing and sound transmission to perform vital life functions. The introduction of noise into their environment could disrupt those behaviors. Sound (hearing and vocalization/echolocation) serves four primary functions: (1) providing information about the environment; (2) communication; (3) prey detection; and (4) predator detection. The distances to which the construction noise are audible depend on source levels, frequency, ambient noise levels, the propagation characteristics of the environment, and the sensitivity of the receptor.

With both vibratory extraction and vibratory and impact pile driving, exposure to noise above the Level B thresholds could result in temporary, short-term changes in the typical behavior of marine mammals and/or avoidance of the affected area. The distances provided in **Table 3.4-4** are calculated distances from the source based on the modeling methods which do not account for the presence of land and configuration of the Inner Harbor Channel; therefore, the expected extent of Level B threshold exceedance is as shown in **Figure 3.4-4**. Depending on the rate at which the piles are installed and removed, pile extraction and driving is expected to occur 40 days during 2027, 155 days during 2028, and 76 days during 2029. During these periods, behavioral effects that could result include the temporary cessation of feeding or movement out of the area of effect during active pile driving. Other potential behavioral changes could include increased swimming speed, increased surfacing time, and decreased foraging in the affected area.

As noted above, background underwater noise levels in Inner Harbor are elevated due to frequent vessel traffic, and marine mammals that frequent the area may be habituated to increased noise and thus less likely to exhibit a behavioral response (Caltrans 2020).

Should a marine mammal enter the areas over which the Level A thresholds may be exceeded (**Table 3.4-4**), a **potentially significant impact** could occur from injury to a marine mammal. An incidental harassment authorization in accordance with the requirements of the MMPA would be pursued for the Proposed Project through coordination with NMFS.

#### *Nighttime Lighting*

Dredging would be conducted 24 hours a day and is the only construction activity that would occur at night. This would require the use of minor nighttime lighting on the barge (i.e., sufficient safety lighting for other vessels to determine the location of the barges) as well as limited lighting necessary to safely perform dredging operations at night. Maintenance dredging is also typically performed 24 hours a day and uses similar nighttime lighting. Minor nighttime lighting is already required on all boats in the Outer and Inner Harbor Channels. In addition, high-mast lighting is present at all landside facilities for facility security and nighttime cargo operations in the Seaport, as well as at the City of Alameda's Estuary Park for use during nighttime outdoor sporting events. The minor nighttime lighting associated with dredging in the OHTB and IHTB would be inconsequential in relation to the existing nighttime lighting sources and would be temporary in nature. Therefore, impacts on special-status species from nighttime construction would be negligible.

**Table 3.4-4 Expected Pile-Driving Noise Source Levels and Distances of Marine Mammal Level A and B Threshold Exceedance**

| Description of Work | Pile Type | Source Levels (dB RMS)* | Distance to Level B Threshold (meters/feet) | | Distance to Level A Threshold[1,2] (meters/ feet) | | |
|---|---|---|---|---|---|---|---|
| | | | 120 dB RMS threshold (vibratory driving) | 160 dB RMS threshold (impact driving) | High Frequency Cetaceans | Phocid Pinnipeds | Otariid Pinnipeds |
| Extraction of steel sheet piles at the Alameda site | 12- or 24-inch-wide steel sheet piles | 162 dB RMS | 6,310/20,695 | NA | 17/54 | 7/22 | ½ |
| Extraction of steel pipe piles at the Alameda site | 24-inch-diameter steel pipe piles | 157 dB RMS | 2,929/9,606 | NA | 12/40 | 5/16 | <1/1 |
| Extraction of concrete piles at the Howard Terminal site | 24-inch-diameter concrete piles | 157 dB RMS | 2,929/9,606 | NA | 12/40 | 5/16 | <1/1 |
| Installation of steel sheet piles at the Alameda site, in-water near Schnitzer/Radius Recycling Terminal, and at Howard Terminal | 24-inch-wide steel sheet piles | 162 dB RMS | 6,310/20,695 | NA | 39/129 | 16/53 | 1/3 |
| Installation of steel pipe batter piles at the Alameda site, in-water near Schnitzer/Radius Recycling Terminal, and at Howard Terminal | 24-inch-diameter steel pipe piles | 185 dB RMS/ 173 dB SEL | NA | 464/1,522 | 534/1,752 | 240/787 | 18/59 |

Notes:

* As measured 10 meters (33 feet) from the source. Assumes the use of a bubble curtain or similar attenuation system for impact pile driving.

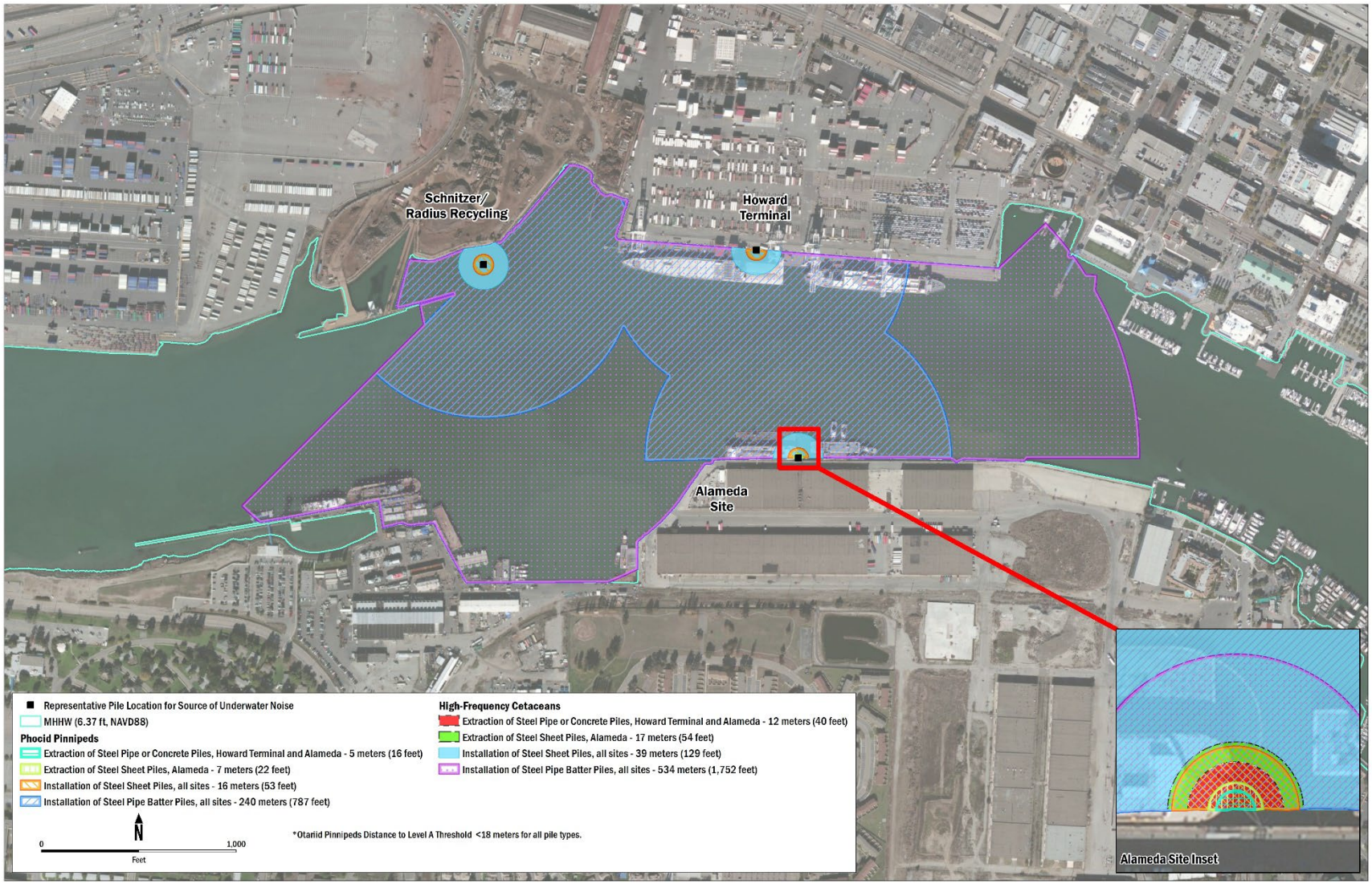
[1] Level A thresholds are based on the NMFS 2018 Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing; cSEL threshold distances are shown.

[2] All distances to the peak Level A thresholds are less than 10 meters (33 feet).

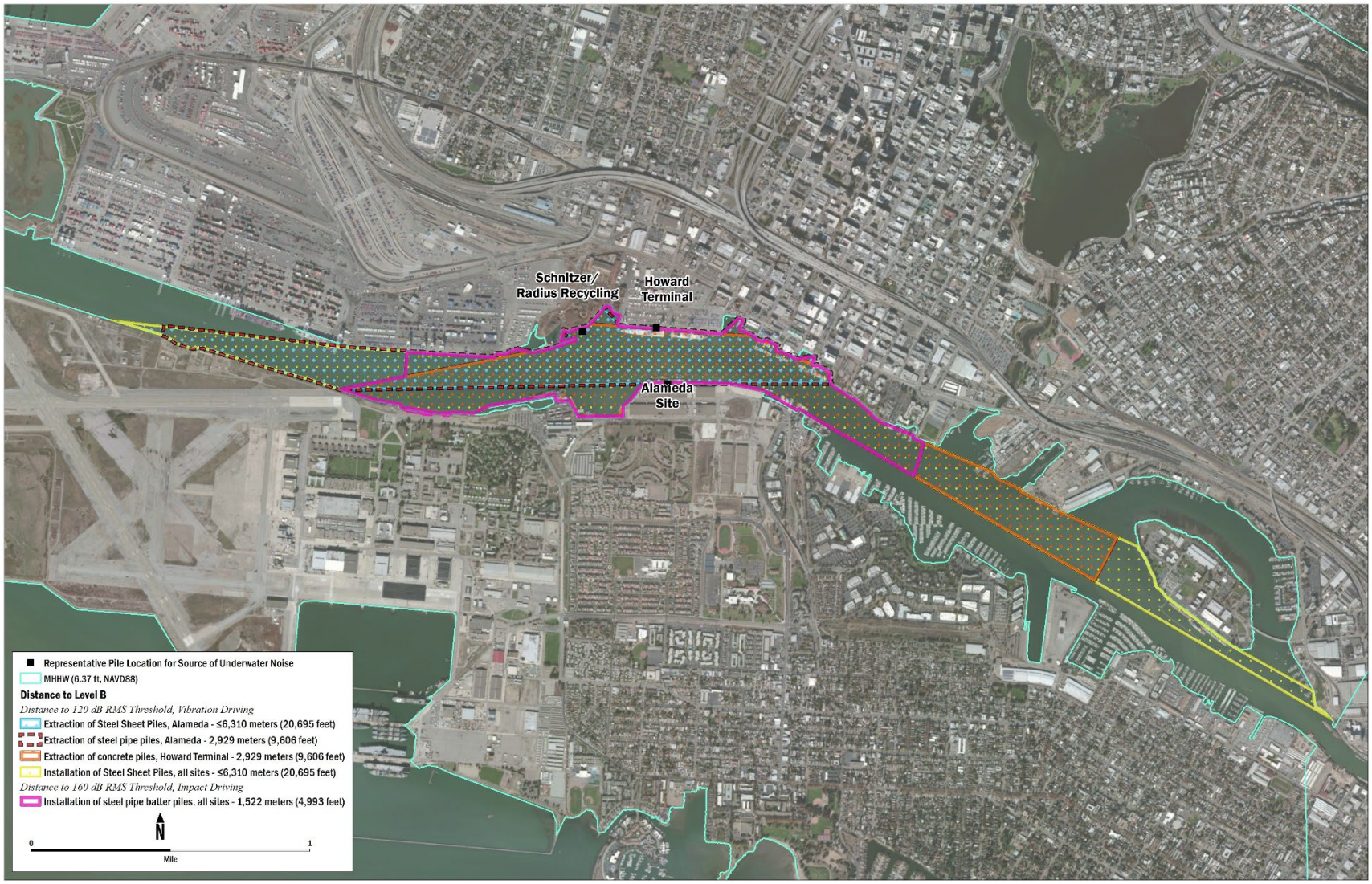
Distances are rounded to the nearest foot or to "<1.0 (0)" for values less than 1 foot.

cSEL = cumulative sound exposure level
dB = decibels
NMFS = National Marine Fisheries Service
SEL = sound exposure level
RMS=root mean square

**Figure 3.4-3 Distance to Level A Threshold for Marine Mammals**



## Figure 3.4-4 Distance to Level B Threshold for Marine Mammals



***Summary***

Based on the preceding analysis, the Proposed Project's implementation would not result in substantial adverse effects, either directly or through habitat modifications, on special-status species, except for construction impacts from resuspension of contaminants in sediment on special-status fish and pile-driving impacts on special-status fish, birds, and marine mammals, which could be potentially significant.

## Level of Significance Before Mitigation

*Potentially Significant Impact.*

## Mitigation Measures

### MM BIO-1A: Silt Curtains (also MM HYD-1)

Silt curtains[49] shall be used when dredging sediment with elevated levels of chemical contaminants, as determined through the pre-construction sediment quality characterization and as required by Project permits, or when dredging within 250 meters (or 820 feet, as determined by the pre-construction eelgrass survey) of eelgrass beds. Prior to in-water construction, a silt curtain shall be deployed from the water's edge and pushed out to the deployed location to avoid entrapping aquatic wildlife species.

### MM BIO-1B: Worker Education Program

A worker education program shall be implemented for special-status fish, birds, and marine mammals that could be adversely impacted by construction activities. The program shall include a presentation to all workers on biology, general behavior, distribution, habitat needs, sensitivity to human activities, legal protection status, and project-specific protective measures for each species. Workers shall also be provided with written materials containing this information. Written material shall be provided in different languages as needed.

### MM BIO-1C: Pile-Driving–Related Measures

The following measures shall be implemented to reduce potential impacts from pile driving on fish, marine mammals, and birds:

- To the extent feasible, all pilings or similar in-water structures shall be installed and removed with vibratory pile drivers only. If feasible, vibratory pile driving shall be conducted following USACE's Proposed Additional Procedures and Criteria for Permitting Projects under a Programmatic Determination of Not Likely to Adversely Affect Select Listed Species in California (the 2018 NLAA[50] Program; USACE and NMFS 2018).

- An impact pile driver shall only be used where necessary to complete installation of piles or in-water structures in accordance with seismic safety or other

[49] Silt curtains are land- or water-based barriers that contain suspended silt or sediment and allow it to settle. Similar to silt fences used on landside construction sites, the fabric of silt curtains prevent silts from moving from the construction area to areas outside of the silt curtain.

[50] Not likely to adversely affect.

engineering criteria. If impact driving is needed for in-water pile installation, the following measures shall be implemented:

- Prior to the start of impact pile driving, the Port in coordination with USACE shall prepare NMFS-approved Hydroacoustic and Biological Monitoring Plan (described above) to protect fish and marine mammals.
- Piles driven with an impact driver shall employ a "soft start" technique to give fish an opportunity to move out of the area before full-powered impact driving begins. Only a single impact hammer would be operated at a time.
- The impact hammer shall be cushioned using a 12-inch-thick wood cushion block during all impact hammer pile-driving operations.
- During impact pile-driving of steel piles, a bubble curtain shall be used to attenuate underwater sound levels.
- The Port in coordination with USACE shall monitor and verify sound levels during pile-driving activities. The sound monitoring results would be made available to NMFS and other regulatory agencies as needed.

- A Hydroacoustic and Biological Monitoring Plan shall be prepared prior to the start of construction for review and approval by NMFS. This plan shall provide details on the methods used to monitor and verify sound levels during pile-driving activities. The plan shall include specific measures to minimize exposure of marine mammals and fish to high sound levels, including conditions requiring construction work to temporarily stop.

- To the extent feasible, based on Project design, cost, and schedule considerations, impact pile driving shall not occur during the bird breeding season of February 1 to August 15. If impact pile driving must occur during the bird breeding season, work areas plus an appropriate buffer area determined by a qualified biologist shall be surveyed by a qualified biologist to verify the presence or absence of nesting raptors or other birds. If the survey indicates the potential presence of nesting raptors or other nesting birds, an appropriately sized buffer shall be applied around the nest in which no work would be allowed until the young have successfully fledged, so that nesting birds are not disturbed by the Project activity. In general, buffer sizes of 200 feet for raptors should suffice to prevent disturbance to birds nesting in the urban environment, but the buffers may be increased or decreased, as appropriate, depending on the bird species and the level of disturbance anticipated near the nest.

  In addition, the LTMS program dredging work window for California least tern in the Proposed Project vicinity is August 1 through March 15 each year. If impact pile driving activities must occur outside of this work window, the Port shall coordinate with the USACE to initiate additional consultation with USFWS to obtain written authorization to work outside this window.

### Level of Significance After Mitigation

*Less than Significant Impact with Mitigation.*

Mitigation Measure BIO-1A would require use of silt curtains during in-water construction in areas where sediment contains chemical contaminants with potential to cause adverse water quality conditions, as determined through the pre-construction sediment quality characterization, and as required by Project permits. Use of silt curtains would contain suspended sediment, including sediment which may contain elevated contaminant levels, to the immediate work area where it would resettle to the Bay floor. Mitigation Measure BIO-1B would require educating workers on special-status species that may be present and project-specific protective measures for each species that need to be complied with during construction. Mitigation Measure BIO-1C would require various measures to lessen noise and impacts from pile driving including preconstruction surveys for nesting birds and establishing buffers for pile driving activities during the nesting season; preparation and implementation of a hydroacoustic and biological monitoring plan; and use of "soft start" technique, wood cushion block, and bubble curtain if impact pile driving is required. With implementation of the Mitigation Measures BIO-1A through BIO-1C, impacts to special-status species from pile driving and resuspension of contaminants in sediment would be sufficiently reduced and impacts would be **less than significant**.

## *Impact BIO-2. Would the Proposed Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife, United States Fish and Wildlife Service, or National Marine Fisheries Service? (Criterion B) (Less than Significant with Mitigation)*

### Impact Analysis

No wetlands, riparian habitat, or landside sensitive natural communities are presented within or adjacent to the OHTB and OHTB widening footprints. Both EFH and eelgrass beds, sensitive aquatic habitats, are present in the marine biological resources analysis area.

#### *Impacts to EFH*

As described in Section 3.4.1, areas of the Bay below MHHW are designated as EFH under the Pacific Coast Groundfish, Coastal Pelagic Species, and Pacific Salmon FMPs. Because both open waters and substrates are included in the EFH designations, the potential impacts described above for special-status fish under Impact BIO-1 are applicable to EFH as well. Such impacts include entrainment of fish and plankton during dredging, accidental pollutant discharges, temporary increases in turbidity from suspended sediment, resuspension of contaminants in sediment, the removal of substrates and benthic invertebrates during dredging, and underwater noise during pile driving. The removal of piles and other man-made hard substrates would result in the alteration of EFH in the project footprint as well because hard-substrate habitat would be removed and replaced with soft-substrate area and new hard-substrate surfaces (e.g., new bulkhead walls and piles). As with impacts to special-status fish presented under Impact BIO-1, impacts to EFH from pile driving and resuspension of contaminants in sediment during construction would be **potentially significant**. As discussed under Impact BIO-1, sediment

dredged in the widened portions of the turning basins during future maintenance dredging would not be expected to contain elevated levels of contaminants.

In addition, there is the potential that nonnative species could be introduced to San Francisco Bay during construction and future maintenance dredging from dredging vessels that may come from outside of the Bay Area. Larval forms of nonnative species can be carried in the ballast water of vessels, and if ballast water is released in San Francisco Bay, larvae can be introduced into the San Francisco Bay ecosystem. The United States Coast Guard ballast water discharge standards under 33 CFR 151, which have been adopted by the State of California, require vessels carrying ballast water to have a ballast water management and reporting program in place, and without jeopardizing the safety of the crew, exchange ballast water with mid-ocean water or use an approved form of ballast water treatment prior to releasing any ballast water in a port in the United States. Dredge equipment would comply with these regulations, as applicable. In consideration of these regulations, Proposed Project activities would not be expected to substantially increase the spread of invasive nonnative aquatic species associated with ballast water.

Additionally, the act of removing soft-bottom sediments and their associated biotic assemblages during dredging creates an area of disturbance that is susceptible to recolonization by invasive species, often resulting in the displacement of native species. As a result, dredging can increase both the number of new invasive species entering the Bay and the distribution and abundance of existing invasive species in the Bay. Widening of the IHTB and OHTB would result in larger areas of benthic habitat disturbance where invasive species could recolonize following dredging, primarily in the Outer Harbor. These expansion areas are, however, relatively small in the context of the greater San Francisco Bay. Furthermore, the LTMS has concluded that only a few projects occurring under its oversight would entail deepening in the San Francisco Bay Estuary, and the benthos would be similar to existing conditions (USACE, EPA, and LTMS 2009). Therefore, effects on EFH related to invasive nonnative aquatic species would be **less than significant**.

#### *Impacts to Eelgrass Beds*

Eelgrass beds are considered special aquatic sites and are subject to jurisdiction under Section 404 of the CWA. Eelgrass beds are also considered “habitat areas of particular concern” by NMFS regarding EFH consultations required by the MSA. There are no eelgrass beds within 250 meters (820 feet) of the proposed IHTB widening area; the nearest patch occurs approximately 500 meters (1,640 feet) to the west of the existing IHTB (Merkel and Associates 2023). When dredging occurs more the 250 meters from eelgrass, potential impacts from dredge-induced turbidity would be minimal (USACE, EPA, and LTMS 2009). Further, as evidenced by pre- and post-dredging surveys of eelgrass conducted in the Oakland and Richmond harbors before and after maintenance dredging, dredging is not anticipated to adversely affect existing eelgrass populations (Merkel and Associates 2011 and 2012; USACE and SFRWQCB 2015).

Although the Proposed Project would not directly remove any mapped eelgrass areas and mapped eelgrass is at a distance where it is unlikely to be substantially impacted by dredge-induced turbidity, some submerged areas within and surrounding the IHTB and OHTB widening footprints are at depths potentially suitable for eelgrass. If eelgrass were to establish within or closer to the proposed widening footprints prior to construction, a **potentially significant impact** could result from removal of eelgrass or increased turbidity affecting eelgrass bed health.

### Level of Significance Before Mitigation

*Potentially Significant Impact.*

### Mitigation Measures

#### MM BIO-1A: Silt Curtains (also MM HYD-1)

#### MM BIO-1C: Pile-Driving–Related Measures

#### MM BIO-2: Eelgrass Surveys

Prior to the start of any in-water construction, the Port, in coordination with USACE, shall conduct an NMFS-approved eelgrass survey, consistent with the measures described in the NMFS October 2014 California Eelgrass Mitigation Policy and Implementation Guidelines (CEMP) (NMFS 2014). The survey shall include the following:

- Before in-water construction activities occur in the marine environment, eelgrass surveys shall be conducted in the in-water work areas plus a 250-meter (820-foot) buffer, and at an appropriate reference site(s). Surveys shall take place within 60 days before the start of construction, consistent with the methods outlined in the CEMP.
- After construction, a post-action survey of the eelgrass habitat in the in-water work areas plus a 250-meter (820-foot) buffer, and at an appropriate reference site(s), shall be completed. Surveys shall take place within 30 days of completion of construction, or within the first 30 days of the next active growth period that follows completion of construction and occurs outside of the active growth period.
- Areas of direct and indirect impact shall be determined from an analysis that compares the pre-action condition of eelgrass habitat with the post-action conditions from this survey, relative to eelgrass habitat change at the reference site(s), in accordance with the methods described in the CEMP.
- If impacts to eelgrass are known to occur prior to construction, based on the preconstruction survey, or observed to occur after construction, the Port, in coordination with USACE, shall develop a mitigation plan to achieve no net loss in eelgrass function, following the steps recommended in the CEMP. Potential mitigation options include comprehensive management plans, in-kind mitigation, mitigation banks and in-lieu-fee programs, and out-of-kind mitigation, as defined in the CEMP.

### Level of Significance After Mitigation

*Less than Significant Impact with Mitigation.*

Mitigation Measure BIO-1A would require use of silt curtains during in-water construction in areas where sediment contains chemical contaminants with potential to cause adverse water quality conditions, as determined through the pre-construction sediment quality characterization, and within 250 meters (820 feet) of eelgrass beds, as determined by the pre-construction eelgrass survey (per Mitigation Measure BIO-2). Mitigation Measure BIO-1C would require measures to lessen noise and impacts from pile driving including preparation and implementation of a

hydroacoustic and biological monitoring plan and use of "soft start" technique, wood cushion block, and bubble curtain if impact pile driving is required. Mitigation Measure BIO-2 would require pre- and post-construction eelgrass surveys, evaluation of impacts resulting from construction, and compensatory mitigation if needed to achieve no net loss. With implementation of the Mitigation Measures BIO-1A, BIO-1C, and BIO-2, the Proposed Project's impacts to sensitive aquatic habitats would be sufficiently reduced and **less than significant**.

In addition, the widened portions of the turning basins would be subject to future maintenance dredging. The provisions of Mitigation Measure BIO-2, requiring pre- and post-dredge surveys and mitigation for impacts to eelgrass are applied as part of USACE's maintenance dredging program to avoid substantial adverse impacts to eelgrass.

### *Impact BIO-3. Would the Proposed Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? (Criterion D) (Less than Significant)*

#### Impact Analysis

The landside Proposed Project sites are not part of an established terrestrial wildlife movement corridor because they do not provide a connection between different terrestrial habitat areas; rather, landside site conditions at the Proposed Project sites are consistent with surrounding industrial and commercial use areas in the terrestrial biological resource analysis area that provide the same limited habitat opportunities for local wildlife. Migrating birds that forage in intertidal and marine environments may use the Oakland-Alameda estuary and San Francisco Bay during migration; however, because the terrestrial analysis area and reinforced shoreline are developed or highly disturbed, they do not offer high-quality habitat for migrating birds.

Wildlife nursery sites are locations where fish or wildlife concentrate for hatching and raising young, such as nesting rookeries for birds and spawning areas for native fish. There are no established native wildlife nursery sites in, or in the immediate vicinity of the Proposed Project landside or in-water work locations that could be affected by construction activities.

Widening the OHTB and IHTB would not involve addition of solid structures, such as breakwaters, which would serve as a barrier to migratory fish or marine mammals; therefore, the Proposed Project would not permanently interfere with the movement of resident or migratory fish or other wildlife species. Construction-related effects such as noise and turbidity may cause fish and wildlife to avoid the immediate construction area, as described above for Impact BIO-1; however, this would not substantially limit the available habitat or movement of fish, seabirds, or marine mammals. Therefore, the Proposed Project would not substantially interfere with wildlife movement and migration, or impede the use of native wildlife nursery sites, and impacts would be **less than significant**.

# 3.5. CULTURAL RESOURCES

Cultural resources are broadly defined as buildings, sites, structures, landscapes, or objects that may have historical, architectural, archaeological, cultural, or scientific importance. The analysis in this section considers impacts that implementation of the Proposed Project might have to historical resources, archaeological resources, and human remains, as defined in Section 15064.5 of the CEQA Guidelines. Impacts to tribal cultural resources are addressed in Section 3.15.

## 3.5.1. Environmental Setting

This section focuses on cultural resources in the immediate vicinity of the Proposed Project, as well as the inventory efforts undertaken to identify them. For the cultural setting of the Proposed Project area, including prehistory, history, and ethnography, the reader is referred to the Cultural Resources Inventory Report prepared for the Proposed Project (AECOM 2023; see Appendix D).

### *Area of Potential Effects*

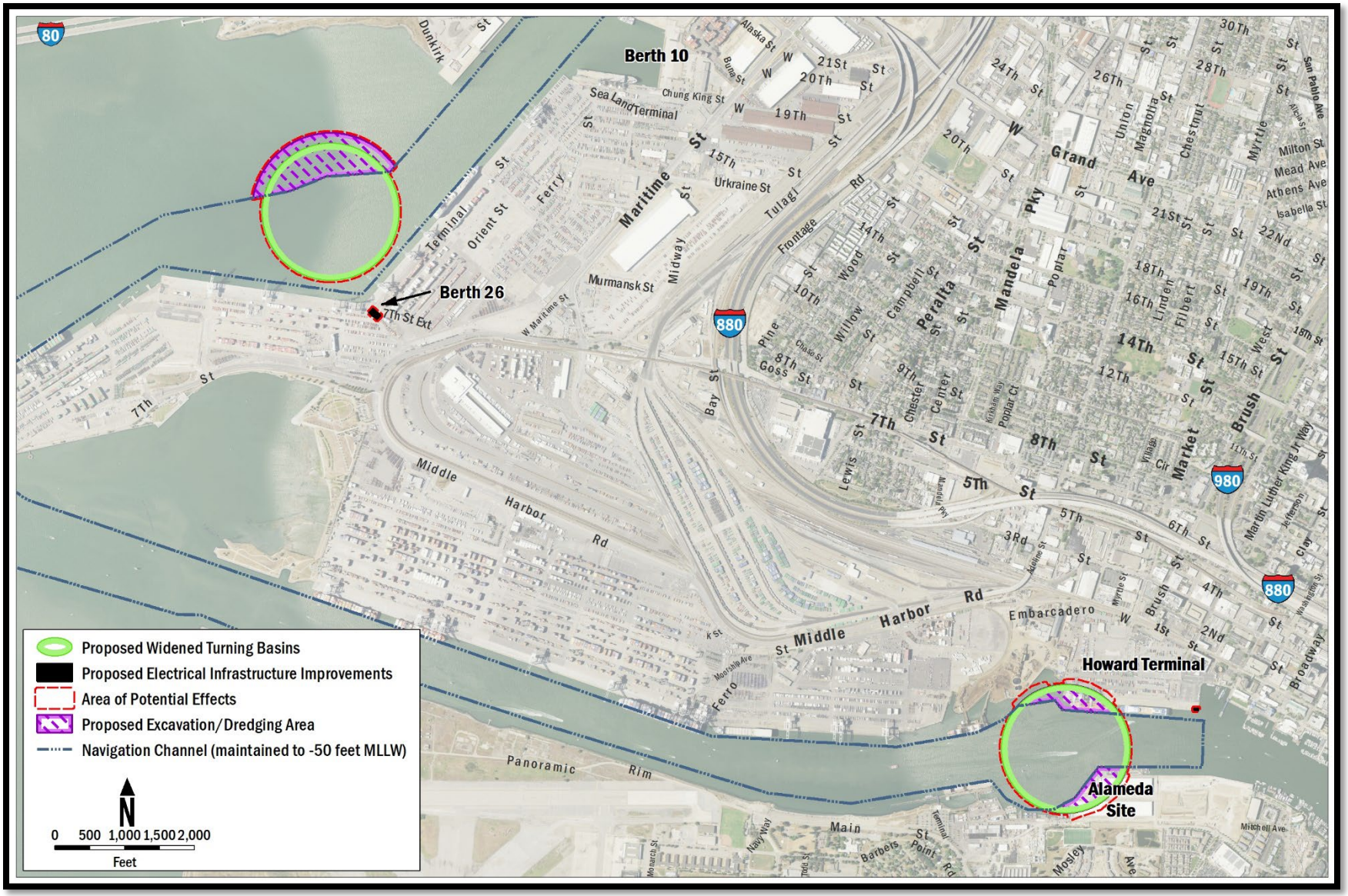
The area of potential effects (APE) is defined as the "geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" (Title 36, Section 800.16[b] of the Code of Federal Regulations [CFR] [36 CFR 800.16(b)]). The APE for the current undertaking as it pertains to both archaeological and historic architectural resources comprises all areas of the Proposed Project where implementation of the Proposed Project could have direct impacts to cultural resources, should there be any present.

The APE addresses only direct effects within the limits of construction because the Proposed Project would not introduce new features that could result in indirect effects to the setting of neighboring historic resources known to occur in the vicinity of the APE (refer to Records Search section below). The APE thus encompasses the proposed construction footprints for widening the IHTB and OHTB, inclusive of the proposed electric infrastructure at Howard Terminal and Berth 26. Construction staging would occur in developed areas adjacent to the proposed construction areas at Howard Terminal and the Alameda Site, and at Berth 10. Because no ground disturbance is proposed at the proposed construction staging areas, they are not considered to be part of the APE. Similarly, existing roads would be used to provide ingress and egress to the Proposed Project sites and staging areas. Accordingly, the roads to be used are likewise not included in the APE defined for the Proposed Project. The limits of the APE are depicted in **Figure 3.5-1**.

### *Inventory Efforts*

Several tasks were completed to identify cultural resources in the APE. These included a records search, Native American consultation, and a field survey of the APE delineated for the Proposed Project (nearly the entire APE is situated offshore, as seen in **Figure 3.5-1**). Inventory of the marine (in-water) portions of the APE was completed using the database of shipwrecks maintained by the California State Lands Commission (SLC), along with the results of previously conducted geophysical surveys.

**Figure 3.5-1 Area of Potential Effects**



## Records Review and Archival Research

A cultural resources records search was conducted by AECOM at the Northwest Information Center (NWIC) of the California Historical Resources Information System, Sonoma State University, on June 30, 2021 (File No. 202678). The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official state repository of cultural resource records and studies for Alameda County. Site records and previous studies were accessed for the APE and a 0.5-mile radius in the United States Geological Survey *Oakland West* 7.5-minute quadrangles.

No historic properties (i.e., historic architectural/built environment resources) occur in the Outer Harbor portion of the APE. The records search did reveal that the Carnation Mill and Elevator (P-01 011758) was recorded onshore, just south of the OHTB. This resource was found to be ineligible for inclusion in the National Register of Historic Places (NRHP)/California Register of Historical Resources (CRHR); it has since been razed and replaced by modern container cranes.

The records search also revealed that the entirety of the terrestrial portions of the APE in the Inner Harbor, Howard Terminal, and the Fleet Industrial Supply Center (FISC)/Bay Ship and Yacht properties in Alameda, have been previously inventoried for cultural resources. The two FISC warehouses on the Alameda Site that occur within the APE were determined to be ineligible for listing on the NRHP during an assessment of the Alameda Annex and Facility of the FISC, Oakland. In 1996, the California Office of Historic Preservation concurred with the finding that the two FISC warehouses at the Alameda Annex and Facility were ineligible for listing in the NRHP. During implementation of -50-Foot Oakland Harbor Navigation Project (-50-Foot Project), subsequent to the finding of ineligibility, a portion of the northern of the two FISC warehouses was demolished to allow for that earlier expansion of the IHTB. Since the -50-Foot Project, the eastern ends of both FISC structures have been subjected to additional demolition efforts in support of local residential development. Because the two FISC warehouses were previously found to be ineligible for listing to the NRHP, it was not necessary to reevaluate their eligibility for the NRHP for the Proposed Project.

According to the records search materials, a portion of the Todd-United Engineering Company Shipyard Historic District (P-01 003218; Historic Resource Inventory #4501 0325 9999) was situated in the Alameda portion of the APE. The Todd-United Engineering Company Shipyard Historic District is the only historic property that has been identified in the Proposed Project's APE; however, the resource is no longer extant (present), having been demolished for the previous -50-Foot Project.

Other historic resources identified in the Proposed Project vicinity, but outside the APE, include the Naval Supply Center Oakland Historic District, Oakland Army Base Historic District, Southern Pacific West Oakland Shops Historic District, Naval Air Station Alameda Historic District, the Southern Pacific Railroad Industrial Landscape Historic District, and the Oakland Pier Interlocking Tower (also known as Southern Pacific Mole). As stated above, the Proposed Project would not introduce new features that could result in indirect effects to the setting of neighboring historic resources.

In addition to the NWIC records search, a review of the on-line local historic inventories of both the Cities of Alameda and Oakland were reviewed (Alameda Architectural Preservation Society 2023; City of Oakland 2023). None of the listed individual structures, landmarks, districts, or other built environment resources in either Alameda or Oakland are within the APE delineated for the Proposed Project.

Although previously determined not eligible for listing to the NRHP and not included on the City of Alameda's historic inventory, the warehouses on the Alameda Site were nonetheless addressed for local significance as a historical resource. The City of Alameda's historic preservation ordinance identifies design integrity[51] as a criterion for listing. The warehouses lack design integrity as a result of the partial demolitions that have occurred over time. In addition, the setting of the warehouses has also been negatively affected by the surrounding properties changing from primarily light industrial uses to residential over time. Therefore, the warehouses do not retain integrity and would not be considered locally significant.

A review was also conducted of the shipwreck database maintained by the SLC. The SLC shipwreck database reveals that no known or suspected shipwrecks occur in the APE defined for the Proposed Project.

In addition, the USACE and the Port supplied a large number of documents to AECOM during completion of the inventory. These included other environmental documents, cultural resources reports, geophysical surveys, and technical data that could provide insight regarding the potential for cultural resources to occur in the APE. These documents did not indicate the presence of potential archaeological resources in the APE. They also demonstrated both existing turning basins were subject to previous dredging events, which would have removed any potential archaeological resources that could have been present in original surface materials above the current channel design depth. The potential for undiscovered archaeological resources beneath the terrestrial portions of the APE for the IHTB likewise is low; all these areas are on reclaimed land, and past construction practices for the existing facilities at Howard Terminal and Alameda were fairly extensive in scale and disturbed the underlying sediment (all are constructed atop introduced fill). Although unlikely, the possibility for the presence of undiscovered archaeological resources in surficial submerged sediment between the edge of the maintained navigation channel and the existing bulkheads cannot be entirely dismissed.

Construction of the Proposed Project would presumably extend through the imported fill, on through the soft marine sediments—presumably, Young Bay Mud (YBM)—and into more competent material[52] that lies below; in this case, presumably the Posey-Merritt Sands that occur in this vicinity (AECOM 2023). These sand units are believed to be nonmarine sediments that were deposited prior to the inundation of San Francisco Bay. Posey Sand is typically deposited in broad channels, and Merritt Sand is deposited by wind action (e.g., sand dunes). The greatest potential for buried prehistoric archaeological sites exists at the interface between the YBM and underlying strata (in this case, presumably, the Posey-Merritt sands), which represents the late-Holocene ground surface (i.e., pre-Bay inundation and sea-level stabilization). The YBM was too soft to support human habitation; it is therefore on these buried land surfaces (paleosols) that archaeological deposits could have developed and ultimately become buried during the sedimentation processes associated with rising sea levels.

[51] Integrity is the ability for a property to convey its significance of location, design, setting, materials, workmanship, feeling, and association.

[52] Competent material is defined as undisturbed natural material that will safely carry the foundation bearing pressures, as determined in the design of the structure being built.

## Native American Consultation

Native American consultation completed to date for the Proposed Project includes efforts by USACE in compliance with NEPA and Section 106 of the National Historic Preservation Act, and efforts by the Port in compliance with AB 52.

The USACE initiated consultation efforts with the local Native American community on September 16, 2020, with a letter requesting participation in resource agency and tribal working group meetings pursuant to NEPA. These meetings, held virtually due to the global COVID-19 pandemic, were held on October 8, 2020; May 4, 2021; August 17, 2021; and September 29, 2022. All were attended by Kanyon Konsulting LLC – Cultural Representative of Indian Canyon Mutsun Band of Costanoan Ohlone People.

On June 22, 2021, AECOM, on behalf of USACE and the Port, electronically submitted a Sacred Lands File (SLF) and Native American Contacts List Request form to the California Native American Heritage Commission (NAHC). The NAHC replied on July 15, 2021, providing both a list of Native American contacts and the results of the SLF review. The NAHC indicated that their review of the SLF was "positive," meaning that Native American resources may be in or near the Proposed Project APE and identified the Amah Mutsun Tribal Band of Mission San Juan Bautista and the North Valley Yokuts as the parties to contact concerning this finding. The complete list of tribal groups identified by the NAHC is as follows:

- Amah Mutsun Tribal Band of Mission San Juan Bautista;
- Costanoan Rumsen Carmel Tribe;
- Indian Canyon Mutsun Band of Costanoan;
- Muwekma Ohlone Indian Tribe of the San Francisco Bay Area;
- North Valley Yokuts Tribe;
- the Ohlone Indian Tribe;
- Wuksache Indian Tribe/Eshom Valley Band; and
- the Confederated Villages of Lisjan.

On September 22 and 23, 2021, a second letter was sent by USACE to all of the groups identified in the July 15, 2021 response from the NAHC. This second letter requested any information these groups may have regarding properties, features, or materials in the Proposed Project area and immediate vicinity that may be of concern to the local Native American community.

USACE received one response to its letters from Kanyon Sayers-Roods, a representative of the Indian Canyon Mutsun Band of Ohlone. Ms. Sayers-Roods did not have specific information about resources in the area. As noted above, Ms. Sayers-Roods participated in the series of resource agency and tribal working group meetings that were initiated by USACE after the first round of outreach letters.

On May 19, 2023, in accordance with AB 52, the Port sent out letters to all of the groups and individuals identified by the NAHC, requesting information regarding any known cultural and Native American resources in the vicinity of the Proposed Project, and inviting tribes to respond with a request for consultation within 30 days. The Port received responses from the North Valley Yokuts Tribe and The Confederated Villages of Lisjan; however, no responses were received that identified specific properties, features, or materials in the Proposed Project area and immediate vicinity that may be of concern.

### Field Methods

On July 7, 2021, AECOM conducted a field survey of the APE delineated for the Proposed Project. This approach included walking the APE and confirming the presence of previously identified cultural resources in relation to the APE delineated for the Proposed Project. This effort was restricted entirely to resources of the built environment because there are no known archaeological resources in or adjacent to the APE. No archaeological survey was attempted because the surface of the APE is either submerged lands or completely paved over by development (i.e., no visible natural ground surface). Furthermore, the entire terrestrial portion of the APE for the OHTB and both sides (i.e., Alameda and Oakland) of the IHTB has been constructed on fill and is therefore unlikely to contain intact archaeological deposits predating these facilities. Lastly, as detailed in the technical report prepared for the Proposed Project (AECOM 2023), according to the records search results, the entire terrestrial portion of the APE has been subject to previous cultural resources inventory efforts. Past inventory efforts for the OHTB include Anastasio and Garaventa (1986) and Caltrans (2005), and the IHTB was covered by Busby and his colleagues (1997).

The results of the inventory efforts outlined above confirmed that no cultural resources, either archaeological or historic architecture, are known or remain extant in the APE delineated for the Proposed Project.

## 3.5.2. Regulatory Setting

### *Federal*

#### National Historic Preservation Act

The National Historic Preservation Act (16 United States Code [USC] 470 et seq.) declares federal policy to protect historic sites and values, in cooperation with other nations, states, and local governments. Subsequent amendments designated the State Historic Preservation Officer as the individual responsible for administering state-level programs. Federal agencies are required to consider the effects of their undertakings on historic resources, and to give the Advisory Council on Historic Preservation a reasonable opportunity to comment on those undertakings. Federal agencies are required by statute to "take into account" the effects of their actions and undertakings on "historic properties." A historic property is the federal term that refers to cultural resources (e.g., prehistoric or historical archaeological sites; maritime historical resources, including shipwrecks, buildings, and structures on the shore or in the water; and cultural artifacts) that are 50 or more years old, possess integrity, and meet the criteria of the NRHP. The NRHP eligibility criteria are found at 36 CFR Section 60.4. A lead federal agency is responsible for project compliance with Section 106 of the National Historic Preservation Act and its implementing regulations (36 CFR Part 800).

### *State*

#### California Environmental Quality Act

CEQA requires lead agencies to determine whether a proposed project would have a significant effect on historical resources, including both archaeological and historic architectural (built environment) resources. The CEQA Guidelines (Section 15064.5(a)) define a historical resource as: (1) a resource listed in or determined to be eligible by the State Historic Resources

Commission for listing in the CRHR; (2) a resource included in a local register of historical resources, as defined in Public Resources Code (PRC) Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Such resources may be considered to be historically significant, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

In addition, Section 15064.5 (a)(4) states that "the fact that a resource is not listed in, or determined to be eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to PRC Section 5020.1(k)), or identified in an historical resources survey (meeting the criteria in PRC Section 5024.1(g)) does not preclude a lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1." If a lead agency determines that an archaeological site is a historical resource, the provisions of PRC Section 21084.1 and CEQA Guidelines Section 15064.5 would apply.

If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, then the site may meet the threshold of PRC Section 21083 regarding unique archaeological resources. A unique archaeological resource is an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. It contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information.
2. It has a special and particular quality, such as being the oldest of its type or the best available example of its type.
3. It is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC Section 21083.2 [g]).

The CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment (CEQA Guidelines Section 15064[c][4]).

### California Native American Graves Protection and Repatriation Act (2001)

In the California Health and Safety Code, Division 7, Part 2, Chapter 5 (Sections 8010-8030), broad provisions are made for the protection of Native American cultural resources. The Act sets the state policy to ensure that all California Native American human remains, and cultural items are treated with due respect and dignity. The Act also provides the mechanism for disclosure and return of human remains and cultural items held by publicly funded agencies and museums in California. Likewise, the Act outlines the mechanism with which California Native American tribes not recognized by the federal government may file claims to human remains and cultural items held in agencies or museums.

### California PRC, Section 5020

This California code created the California Historic Landmarks Committee in 1939. It authorizes the Department of Parks and Recreation to designate Registered Historical Landmarks and Registered Points of Historical Interest.

### California PRC, Section 5097.9

PRC Section 5097.9 details procedures to be followed whenever Native American remains are discovered. It states that no public agency—and no private party using or occupying public property, or operating on public property, under a public license, permit, grant, lease, or contract made on or after July 1, 1977—shall interfere with the free expression or exercise of Native American religion as provided in the United States Constitution and the California Constitution. It further states that no such agency or party shall cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine on public property, except on a clear and convincing showing that the public interest and necessity so require.

### California PRC, Section 7050.5

Every person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the PRC. In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, the PRC states that there shall be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlie adjacent remains, until the coroner of the county in which the human remains are discovered has determined the remains to be archaeological. If the coroner determines that the remains are not subject to his or her authority, and if the coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, he or she shall contact the NAHC by telephone within 24 hours.

### California Health and Safety Code, Section 7051

Under this code, every person who removes any part of any human remains from any place where it has been interred, or from any place where it is deposited while awaiting interment or cremation, with intent to sell it or to dissect it, without authority of law, or written permission of the person or persons having the right to control the remains under Section 7100, or with malice or wantonness, has committed a public offense that is punishable by imprisonment in the state prison.

### California Code of Regulations, Title 14, Section 4307

Under this state preservation law, no person shall remove, injure, deface, or destroy any object of paleontological, archaeological, or historical interest or value.

## 3.5.3. Significance Criteria

Impacts to cultural resources, both archaeological and historical architecture (built environment), that affect the characteristics of any resource that qualify it for the NRHP or adversely alter the significance of a resource listed on, or eligible for listing on, the CRHR, are considered a significant effect on the environment. These impacts could result from physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings that materially impairs the significance of an historical resource (CEQA Guidelines Section 15064.5 [b][1], 2000). Material impairment is defined as demolition or alteration in an adverse manner [of] those characteristics of a historical resource that convey its historical significance and that justify its

inclusion in, or eligibility for inclusion in, the CRHR (CEQA Guidelines Section 15064.5[b][2][A]).

Based on Appendix G of the CEQA Guidelines, the following questions (criteria) were analyzed and evaluated to determine whether the Proposed Project's impacts related to cultural resources are significant. Would the Proposed Project:

A. cause a substantial adverse change in the significance of a historical resource as defined in Public Resources Code Section 15064.5?

B. cause a substantial adverse change in the significance of an archaeological resource pursuant to Public Resources Code Section 15064.5?

C. disturb any human remains, including those interred outside of dedicated cemeteries?

## Methodology for Analysis

Under state regulatory frameworks, only those cultural resources deemed significant (e.g., NRHP- and/or CRHR-listed or eligible, or otherwise determined by the lead agency to be a locally significant historical resource) can be affected (i.e., impacted) with implementation of a project. Under CEQA, a cultural resource is considered significant if it meets the criteria for listing in the CRHR; resources that have been determined eligible for the NRHP are automatically eligible for the CRHR and therefore considered significant under CEQA. Significant cultural resources are termed "historical resources" under CEQA. These include both built-environment historic resources and historic and precontact archaeological resources. CEQA section 15064.5 defines as significant any resource that:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. is associated with lives of persons important in our past;
3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

Resources that are listed in or formally determined to be eligible for listing in the NRHP are automatically listed in the CRHR and are therefore considered historical resources for the purposes of CEQA.

This analysis considers whether the Proposed Project would cause a substantial adverse change in the significance of historical or archaeological resources through physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings, or would result in the intentional disturbance of human remains.

## 3.5.4. Impact Analysis and Mitigation Measures

### *Impact CUL-1. Would the Proposed Project cause a substantial adverse change in the significance of a historical resource as defined in Public Resources Code Section 15064.5? (Criterion A) (No Impact)*

#### Impact Analysis

Background research and field surveys confirmed that there are no historical resources extant (present) in the APE delineated for the Proposed Project. Therefore, implementation of the Proposed Project would not result in a substantial adverse change in the significance of a historical resource and would have **no impact** on any known historical resources.

### *Impact CUL-2. Would the Proposed Project cause a substantial adverse change in the significance of an archaeological resource pursuant to Public Resources Code Section 15064.5? (Criterion B) (Less than Significant with Mitigation)*

#### *Impact Analysis*

There are no previously recorded archaeological resources in the APE delineated for the Proposed Project. As a result of previous maintenance-and-development-related dredging in both the IHTB and OHTB, there is a low potential for intact (i.e., undisturbed, *in situ*) archaeological resources in the submerged (underwater) portions of the APE. Therefore, it is not anticipated that archaeological resources would be inadvertently discovered during construction of the Proposed Project. Future maintenance dredging of the widened areas of the turning basins would be confined to the removal of sediment accumulated since the last dredging event. Sediment deposited since the previous dredging activities would not contain undisturbed archaeological resources; therefore, maintenance dredging would not be expected to impact archaeological resources.

Although unlikely, it is still possible that previously unrecorded archaeological resources could be inadvertently (accidentally) exposed during Proposed Project construction. Unless properly evaluated and managed, this could result in a significant impact to cultural resources.

#### Level of Significance Before Mitigation

*Potentially Significant Impact.*

#### Mitigation Measure

##### MM CUL-2: Inadvertent/Unanticipated Archaeological Cultural Resources Discovery Protocols

If a potential archaeological resource is discovered during Project construction, the following actions shall be taken:

4. Dredging and excavation work, or any other activities at the locations and within 50 feet of the finds must halt.

5. The crew member(s) shall immediately notify the Project Construction Manager and the Port Project Manager.

6. Work can be shifted to other Project areas to avoid loss of work time. However, work shall only resume in the suspected area once the situation has been properly examined and assessed by a qualified archaeologist, and the Port has given notification that work may resume.

To ensure that the work force is aware of the regulatory protections afforded to cultural resources, the potential impacts that could occur with the inadvertent discovery of previously unknown archaeological resources during Project construction, how to recognize archaeological resources, as well as the procedures to be followed in the event of such a discovery, the Port shall provide a cultural resources awareness training to the Project's prime contractor and subcontractors involved with sediment- and soil-disturbing activities. The Port shall also provide a construction "ALERT" sheet for the Project prepared by a qualified archaeologist. The ALERT sheet shall contain, at a minimum, visuals that depict each type of artifact that could potentially be encountered, as well as the procedures to be followed in the event of a potential discovery (see below), and the contact information of those Port personnel who are to be contacted in the event of a discovery. Prior to any soil-disturbing activities, each contractor shall be responsible for ensuring that the ALERT sheet is circulated to all field personnel. The ALERT sheet shall also be posted in a visible location at the Project site, as well as being available at any time during construction.

In the event that potential archaeological resources are inadvertently discovered during Project construction, all activity within a 50-foot radius of the find shall be stopped, the appropriate Port personnel shall be notified as listed above, and a qualified archaeologist shall be retained by the Port to examine the find. Project personnel shall not collect or move any uncovered materials whether suspected to be archaeological in nature or not. The archaeologist shall provide a preliminary evaluation of the find(s) to determine whether it meets the definition of a historical or unique archaeological resource.

If the find(s) meets the definition of a historical resource (i.e., it is CRHR-eligible) or unique archaeological resource under CEQA, then it shall be avoided and preserved in place (the preferred method if feasible). Feasibility of avoidance shall be determined with consideration of factors such as the nature of the find, Project design, costs, and other considerations. If avoidance is not feasible, as determined by the Port, the qualified archaeologist shall prepare a treatment plan that includes measures to reduce impacts to the resource. The treatment plan measures may include, but need not be limited to, design changes to limit disturbance of the resource and/or data recovery.

## Level of Significance After Mitigation

*Less than Significant Impact with Mitigation.*

In the event of an unanticipated discovery, implementation of Mitigation Measure CUL-2 would avoid substantial adverse impacts to archaeological resources by requiring that work stop within 50 feet of the find until it is properly evaluated by a qualified archaeologist. If it is determined to be a historical resource or unique archaeological resource under CEQA and avoidance is not

feasible, a treatment plan would be developed in coordination with the Port (as well as the relevant state and federal agencies) to avoid, preserve in place, move, record, or otherwise treat discovered archaeological resources appropriately, in accordance with applicable laws and regulations. With implementation of Mitigation Measure CUL-2, the Proposed Project's impact to archaeological resources would be **less than significant**.

## *Impact CUL-3. Would the Proposed Project disturb any human remains, including those interred outside of dedicated cemeteries? (Criterion C) (Less than Significant with Mitigation)*

### Impact Analysis

As discussed above, there are no previously recorded archaeological resources, including those suspected to contain human remains, in the APE delineated for the Proposed Project. As a result of previous maintenance-and-development-related dredging in both the IHTB and OHTB, the sediment that occurs in the APE delineated for the Proposed Project is unlikely to contain undisturbed (*in situ*) archaeological resources. Therefore, it is not anticipated that archaeological resources, including those containing human remains, would be inadvertently discovered during Proposed Project construction. Future maintenance dredging of the widened areas of the turning basins would be confined to the removal of sediment accumulated since the last dredging event. Sediment deposited since the previous dredging activities would not contain undisturbed archaeological resources, including those containing human remains; therefore, maintenance dredging would not be expected to disturb human remains.

Although unlikely, it is still possible that previously unrecorded archaeological resources, including those containing human remains, could be inadvertently exposed during construction of the Proposed Project. Unless properly evaluated and managed, this could result in a significant impact to cultural resources.

### Level of Significance Before Mitigation

*Potentially Significant Impact.*

### Mitigation Measure

#### MM CUL-3: Inadvertent/Unanticipated Discovery of Human Remains

In the event that human remains are inadvertently discovered during Project construction, all work shall immediately halt in accordance with Health and Safety Code Section 7050.5 and Public Resources Code Sections 5097.94 and 5097.98. The Port shall also notify the Alameda County Coroner of the discovery. If the Alameda County Coroner determines that an investigation of the cause of death is required or that the remains are Native American, all work shall cease within 50 feet of the remains until appropriate arrangements are made. If the remains are Native American, the Port shall contact the California NAHC, pursuant to subdivision (c) of Section 7050.5 of the California Health and Safety Code. If the Port determines that avoidance is not feasible, then an alternative plan shall be prepared with specific steps and timeframe required to resume construction activities.

### Level of Significance After Mitigation

*Less than Significant Impact with Mitigation.*

In the event of an unanticipated discovery of human remains, implementation of Mitigation Measure CUL-3 would avoid substantial adverse impacts by requiring either data recovery and/or monitoring in accordance with applicable laws, including notification of the Alameda County Coroner and coordination with Native American representatives, as appropriate. With implementation of Mitigation Measure CUL-3, the Proposed Project's impact to the unanticipated discovery of human remains would be **less than significant**.

# 3.6. ENERGY

This section evaluates the Proposed Project's impacts on energy resources. This analysis will determine whether the Proposed Project could result in significant effects on the environment, including effects from the wasteful, inefficient, and unnecessary consumption of energy, and identifies mitigation measures to minimize any significant effects. The goal of this assessment is to evaluate whether the Proposed Project would ensure the wise and efficient use of energy. This section describes the California energy profile (i.e., mix of energy resources and consumption characteristics); describes the energy production and transmission profile of the electrical utilities used by the Proposed Project for electricity; identifies regulatory and policy frameworks that govern the production and consumption of energy resources and aim to increase energy efficiency while reducing reliance on fossil fuels; and examines the Proposed Project's energy usage characteristics to determine whether the Proposed Project could result in any significant energy-related environmental impacts during its construction or operation activities. In addition, this section considers whether the Proposed Project would comply with state and local plans for renewable energy or energy efficiency.

## 3.6.1. Environmental Setting

Construction and operation of the Proposed Project would require the use of electricity, and the use of fuel for vehicles and equipment, primarily in the form of gasoline and diesel. Therefore, these energy resources are discussed below in the context of the state and local settings for the Proposed Project.

### *Federal*

The United States has extensive energy resources, including an abundant supply of crude oil and natural gas. The United States has a diversified mix of electricity generating resources, including natural gas, hydroelectric, nuclear, and renewable resources such as wind, solar, and thermal. The federal energy policies encourage efficient use of energy resources with implementation of automobile efficiency standards, alternative fuel use requirements, and energy efficiency standards and programs for consumer products and buildings. The Proposed Project is located in the western part of the United States and is regionally isolated from the eastern and central United States oil pipelines and refined petroleum products. Therefore, the majority of fossil fuels used in motor vehicles and offroad equipment in this region is derived from refineries located within the State of California. Electricity supply is more integrated, and large regional power agreements and load balancing occurs throughout the Western United States and Western Canada.

### *State*

California has extensive energy resources, including an abundant supply of crude oil and high production of conventional hydroelectric power, and the state also leads the nation in electricity generation from renewable resources (solar, geothermal, and biomass resources). In 2022, renewable resources accounted for 49 percent of California's in-state electricity generation, with natural gas at 42 percent, and nuclear and other sources making up the remainder of the resources. California has the second highest total energy consumption in the United States, but

the fourth lowest energy consumption rate per capita in the United States due to its mild climate and energy efficiency programs. A comparison of California's energy consuming end-use sectors indicates that the transportation sector is the greatest energy consumer, at about 38 percent of total energy consumed, followed by industrial, residential, and commercial sectors. California is the seventh largest producer of crude oil and the third largest in crude oil refining capacity in the United States. California is the second largest consumer of motor gasoline in the United States due to its large population, but early adoption of hybrid, electric, and alternative-fuel vehicles keeps it from being the largest consumer (US EIA 2023a). Total system electric demand in California is predicted to increase in coming years. Factors contributing to the projected increase include greater numbers of light-duty electric vehicles,[53] increased manufacturing electricity consumption, and decreases in savings from energy efficiency programs as population increases. With regard to total consumption of electricity across all sectors, California consumed 247,250 gigawatt hours (GWh) of electricity in 2021 (US EIA 2023b).

### Transportation Fuels Supply

The energy consumed by the transportation sector accounts for roughly 84.5 percent of California's petroleum products demand (US EIA 2023c). In 2022, taxable gasoline sales (including aviation gasoline) in California accounted for approximately 13.6 billion gallons of gasoline (CDTFA 2023), and taxable diesel fuel sales accounted for approximately 3.2 billion gallons of diesel fuel (CDTFA 2023).

In 2022, California consumed approximately 3.7 billion gallons of diesel fuel; of that, about 1.7 billion gallons were low-carbon diesel consisting of 1.4 billion gallons of renewable diesel, and 281 million gallons of biodiesel (CARB 2023).

Other transportation fuel sources used in California include alternative fuels, such as methanol and denatured ethanol (alcohol mixtures that contain no less than 70 percent alcohol), natural gas (compressed or liquefied), liquefied petroleum gas (LPG), hydrogen, and fuels derived from biological materials (i.e., biomass).

California Energy Commission (CEC) forecasts show that the demand for gasoline in California will range from 12.1 billion to 12.6 billion gallons in 2030, with most of the demand generated by light-duty vehicles. Although the models used by CEC for demand forecasting show an increase in light-duty vehicles along with population and income growth over the forecast horizon, total gasoline consumption is expected to decline, primarily due to increasing fuel economy (stemming from federal and state regulations) and gasoline displacement from the increasing market penetration of zero-emission vehicles (ZEVs). For diesel, demand is forecasted to increase modestly by 2030, following the growth of California's economy, but would be tempered by an increase in fleet fuel economy and market penetration of alternative fuels—most prominently, by natural gas in the medium- and heavy-duty vehicle sectors (CEC 2018).

According to the CEC, 2021 sales of gasoline and diesel fuel in Alameda County were 492 million gallons and 53 million gallons, respectively (CEC 2022). Note that the CEC only tracks fuel sales at the retail level, which allows for data to be collected on a county-by-county

[53] Light-duty vehicles are any motor vehicles with a gross vehicle weight rating of 10,000 pounds (4,500 kilograms) or less.

basis, whereas the California Department of Tax and Fee Administration (CDTFA) tracks all fuel sales—retail and non-retail—but only at the statewide level.

## *Local*

### Port Utility Services

The Port of Oakland (Port) provides utility services (electrical, water, and sewer) as a publicly owned utility (POU) to Port facilities (tenant-operated and Port-operated facilities) in support of aviation, maritime, and commercial real estate operations. The Oakland International Airport and Port-owned lands are served by the Port. Electricity for other areas of the Port and larger Seaport is provided by PG&E. For the areas served by the Port as a POU, the Port's Utilities Department purchases and manages the delivery of electricity to the Port's customers (Port of Oakland 2023a). In 2022, the Port of Oakland usage was 117,000 megawatt-hours of electricity.

**Table 3.6-1** shows the mixture of power sources for the Port's power content label of electrical supply (Port of Oakland 2023b).

**Table 3.6-1 Port of Oakland 2021 Power Content Label**

| Energy Resources | Port Power Mix | 2021 California Power Mix |
|---|---|---|
| Eligible Renewables[1] | 49.9% | 33.6% |
| • Biomass and Waste | 9.4% | 2.3% |
| • Geothermal | 0.0% | 4.8% |
| • Eligible Hydroelectric | 0.2% | 1.0% |
| • Solar | 21.9% | 14.2% |
| • Wind | 18.4% | 11.4% |
| Coal | 0.0% | 3.0% |
| Large Hydroelectric | 8.7% | 9.2% |
| Natural Gas | 0.1% | 37.9% |
| Nuclear | 0.0% | 9.3% |
| Other | 8.3% | 0.2% |
| Unspecified Sources of Power[2] | 33% | 6.8% |
| **Total** | **100%** | **100%** |

Notes:

1 The eligible renewable percentage above does not reflect RPS compliance, which is determined using a different methodology.

2 Unspecified power is electricity that has been purchased through open market transactions and is not traceable to a specific generation source.

RPS = Renewable Portfolio Standard

## Alameda Utility Services

Alameda Municipal Power (AMP) provides electricity to residents and businesses in the City of Alameda. The infrastructure for electrical dredging of the IHTB is in Alameda and would use power provided by AMP. **Table 3.6-2** shows the mix of power sources for AMP's electricity supplies.

**Table 3.6-2 Alameda Municipal Power 2021 Power Content Label**

| Energy Resources | AMP Power Mix | 2021 California Power Mix |
|---|---|---|
| Eligible Renewables[1] | 79.6% | 33.6% |
| • Biomass and Waste | 23.4% | 2.3% |
| • Geothermal | 49.3% | 4.8% |
| • Eligible Hydroelectric | 0.8% | 1.0% |
| • Solar | 0.1% | 14.2% |
| • Wind | 6.2% | 11.4% |
| Coal | 0.0% | 3.0% |
| Large Hydroelectric | 20.4% | 9.2% |
| Natural Gas | 0.0% | 37.9% |
| Nuclear | 0.0% | 9.3% |
| Other | 0.0% | 0.2% |
| Unspecified Sources of Power[2] | 0.0% | 6.8% |
| **Total** | **100%** | **100%** |

Notes:

1 The eligible renewable percentage above does not reflect RPS compliance, which is determined using a different methodology.

2 Unspecified power is electricity that has been purchased through open market transactions and is not traceable to a specific generation source.

RPS = Renewable Portfolio Standard

Source: Alameda Municipal Power 2023

## Shore Power

The Port built an electrical distribution system to provide power to vessels while they are at berth. Vessels can turn off their diesel-fueled engines when they are plugged into the Port's shore power system, reducing local harmful air pollutants and greenhouse gas emissions. The California Air Resources Board (CARB) promulgated a regulation in 2007 requiring container vessels, cruise ships, and reefer ships to reduce emissions (the primary option being plugging into shore power) while berthed at the largest seaports in the state, including the Port of Oakland. The Port constructed its shore power system in 2012 and 2013, including a substation and switchgear plus two to four outlets per berth, and vessels started plugging in soon thereafter.

Historically, the Port's plug-in success rate routinely met or surpassed compliance targets, which were set at 50 percent of each fleet's visits in 2014, increasing over time to 80 percent in 2020. From 2018 through 2021, the Port's annual average plug-in success rate averaged 74 percent, with the highest plug-in rate in 2019 at 76 percent. The COVID-19 pandemic negatively affected shore power usage starting in 2020, because shipping lines faced challenges in equipping their vessels to receive shore power due to supply-chain problems for procuring equipment, difficulties scheduling retrofits and time in drydock, and travel restrictions for technical personnel. These issues were compounded at the Port by coast-wide port congestion that resulted in many cancelled visits to the Port. In 2022, the average shore power plug-in rate was 62 percent, due primarily to overall reduced vessel calls and the higher fraction of unequipped vessels. CARB updated its At-Berth regulation with a new compliance target for container vessels of 100 percent of vessel visits except for allowed exemptions starting in 2023. Since this regulation has been in effect, the Port has seen a steady rise in shore power usage, reaching 93 percent for the month of July 2023, and an average of 83 percent for the calendar year.[54]

## 3.6.2. Regulatory Setting

Federal and state agencies regulate energy use and consumption through various programs. On the federal level, the United States Department of Transportation (USDOT), United States Department of Energy (USDOE), and United States Environmental Protection Agency (USEPA) are three agencies with substantial influence over energy policies and programs. Generally, federal agencies influence transportation energy consumption through the establishment and enforcement of fuel economy standards for automobiles and light trucks, funding of energy-related research and development projects, and funding for transportation infrastructure projects. On the state level, the CEC is one of California's most significant energy policy and planning agencies. The California Public Utilities Commission (CPUC) regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. The Port of Oakland, as a publicly owned utility, is regulated by its Board of Commissioners, but the CPUC regulates certain matters, including electrical grid safety and the wildfire safety advisory board. As previously mentioned, most of the Port's utility territory in the Seaport is served by the Port's own electric utility with its own board as the primary regulator, but for the parts served by privately owned utilities, the regulation is shared amongst the Port's Board of Commissioners and the CPUC.

This section summarizes federal, state, and local laws, regulations, and policies pertinent to the evaluation of the Proposed Project's impacts on energy.

### *Federal*

#### Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 was established in response to the oil crisis of 1973, which increased oil prices due to a shortage of reserves. The Act required that all vehicles

[54] This number includes vessel calls that would fall under exemptions. In 2023, CARB allowed facilities and vessels to transition from the old to the new at-berth regulation, and can meet an overall compliance of 20 percent, or start using the vessel incident event and terminal incident event exemptions with a limit on the percentage of calls that can be designated as incident events.

sold in the United States meet certain fuel economy goals,[55] known as the Corporate Average Fuel Economy (CAFE) standards. The National Highway Traffic Safety Administration (NHTSA) of the USDOT administers the CAFE program, and the USEPA provides the fuel economy data.

### Energy Policy Act of 2005

The Energy Policy Act of 2005 seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. For example, under the Energy Policy Act, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products. Businesses are eligible for tax credits for buying hybrid vehicles, building energy-efficient buildings, and improving the energy efficiency of commercial buildings. Additionally, tax credits are given for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment. The Energy Policy Act of 2005 also established the first renewable fuel volume mandate in the United States. The original Renewable Fuel Standard program required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. Under the Energy Independence and Security Act of 2007, the Renewable Fuel Standard program was expanded to include diesel, and to increase the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.

### Corporate Average Fuel Economy

Established by the United States Congress in 1975, the CAFE standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The NHTSA and USEPA jointly administer the CAFE standards. Congress has specified that CAFE standards must be set at the "maximum feasible level" with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy. For further information regarding the current USEPA and NHTSA joint rulemaking for vehicle standards, see Section 3.3.2 Air Quality Regulatory Setting.

## *State*

### Warren-Alquist Act

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the CEC. The Act established a state policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures.

### Integrated Energy Policy

In 2002, the Legislature passed Senate Bill 1389, which required the CEC to develop an integrated energy plan biannually for electricity, natural gas, and transportation fuels, for the California Energy Report. The plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for ZEVs and their infrastructure needs, and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

[55] Fuel economy standards are expressed in miles per gallon.

The latest update is the 2022 Update to the Integrated Energy Policy Report (CEC 2023b). The 2022 Integrated Energy Policy Report (IEPR) Update identifies actions the state and others can take to ensure a clean, affordable, and reliable energy system. The 2022 IEPR Update covers a broad range of topics, including energy reliability and western electricity integration, decarbonizing the electricity sector, and transportation electrification.

### Renewables Portfolio Standard

California adopted standards to increase the percentage of energy from renewable resources that retail sellers of electricity, including investor-owned utilities and community choice aggregators, must provide in their portfolio. The Renewables Portfolio Standard (RPS) was established in 2002 under Senate Bill (SB) 1078, accelerated in 2006 under SB 107, and expanded in 2011 under SB 2. Recently, SB 350, SB 100, and SB 1020 added to renewables requirements as discussed below. The standards are referred to as the RPS. Qualifying renewables under the RPS include bioenergy such as biogas and biomass, small hydroelectric facilities (30 megawatts [MW] or less), wind, solar, and geothermal energy. The CPUC and the CEC jointly implement the RPS program.

In November 2008, then-Governor Schwarzenegger signed Executive Order S-14-08, which expanded the State's RPS to 33 percent renewable power by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the RPS by signing Executive Order S-21-09, which directed CARB to enact regulations to help the state meet its RPS goal of 33 percent renewable energy by 2020.

SB 350, also known as the Clean Energy and Pollution Reduction Act of 2015, was enacted on October 7, 2015, and provides a new set of objectives in clean energy, clean air, and pollution reduction by 2030. The objectives include the following:

1. To increase from 33 percent to 50 percent by December 31, 2030, the procurement of California's electricity from renewable sources.
2. To double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

On September 10, 2018, then-Governor Brown signed SB 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also creates new standards for the RPS goals that were established by SB 350 in 2015. Specifically, SB 100 increases required energy from renewable sources for both Investor Owned Utilities and Publicly Owned Utilities from 50 percent to 60 percent by 2030. Incrementally, these energy providers are also required to have a renewable energy supply of 33 percent by 2020, 44 percent by 2024, and 52 percent by 2027. The updated RPS goals are considered achievable, because many California energy providers are already meeting or exceeding the RPS goals established by SB 350.

Senate Bill 1020 of 2022 (SB 1020) revises state policy requiring eligible renewable resources and zero-carbon resources to supply 90 percent of all retail sales of electricity to California end-use customers by December 31, 2035; 95 percent of all retail sales of electricity to California end-use customers by December 31, 2040; 100 percent of all retail sales of electricity to California end-use customers by December 31, 2045; and 100 percent of electricity procured to serve all state agencies by December 31, 2035, as specified. It also contains provisions for cooperation between CPUC and Independent System Operators (ISOs) providing electricity for

the purpose of transmission planning by allowing the exchange of confidential business information without risk of public disclosure requirements.

### Low-Carbon Fuel Standard

The Low-Carbon Fuel Standard (LCFS), established in 2007 through Executive Order S-1-07 and administered by CARB, requires producers of petroleum-based fuels to reduce the carbon intensity of their products that started with a 0.25 percent reduction in 2011, and culminated in a 10 percent total reduction in 2020. In September 2018, CARB extended the LCFS program to 2030, making significant changes to the design and implementation of the program, including a doubling of the carbon intensity reduction to 20 percent by 2030.

Petroleum importers, refiners, and wholesalers can either develop their own low-carbon fuel products or buy LCFS credits from other companies that develop and sell low-carbon alternative fuels, such as biofuels, electricity, natural gas, and hydrogen. The Port started participating in the LCFS program in January 2019 as an opt-in entity, generating credits by providing electricity to vessels through shore power, as well as providing charging infrastructure for battery-electric Class 8 on-road trucks, battery-electric cargo-handling equipment, and battery-electric light-duty vehicles.

### Zero-Emission Vehicles

In March 2012, then-Governor Brown issued Executive Order B-16-12, establishing a goal of 1.5 million ZEVs on California roads by 2025. In addition to the ZEV goal, Executive Order B-16-12 stipulated that by 2015, all major cities in California must have adequate infrastructure and be " zero-emission vehicle ready;" by 2020, the state establish adequate infrastructure to support 1 million ZEVs; and by 2050, virtually all personal transportation in the state will be based on ZEVs; and GHG emissions from the transportation sector will be reduced by 80 percent below 1990 levels in 2050.

On January 26, 2018, then-Governor Brown issued Executive Order B-48-18, establishing a goal of 5 million ZEVs on California roads by 2030, and spurred the installation and construction of 250,000 plug-in electric vehicle chargers, including 10,000 direct-current fast chargers, and 200 hydrogen refueling stations by 2025.

In September 2020, Governor Newsom signed Executive Order N-79-20, which sets a new state goal that 100 percent of in-state sales of new passenger cars and trucks will be zero-emission by 2035; that 100 percent of medium- and heavy-duty vehicles in the state be zero-emission by 2045 for all operations where feasible, and by 2035 for drayage trucks; and that 100 percent of off-road vehicles and equipment will be zero emission by 2035 where feasible. This order calls on state agencies, including CARB, the CEC, the CPUC, the Department of Finance, and others to develop and propose regulations and strategies to achieve these goals.

### State Alternative Fuels Plan (AB 1007)

Assembly Bill 1007 (Pavley, Chapter 371, Statutes of 2005) required the CEC to prepare a state plan to increase the use of alternative fuels in California (State Alternative Fuels Plan). The CEC prepared the State Alternative Fuels Plan in partnership with CARB, and in consultation with other state, federal, and local agencies. The final State Alternative Fuels Plan, published in December 2007, attempts to achieve an 80 percent reduction in GHG emissions associated with personal modes of transportation, even as California's population increases.

### The Electric Industry Restructuring Act

The Electrical Industry Restructuring Act (AB 1890), enacted in 1996, restructured the way utilities operated in California; in most cases allowing customers the ability to choose their electric generation supplier. It created the independent statewide transmission operator, ISO, as well as a Power Exchange that allows power producers to compete to sell their electricity generation in response to bids submitted by buyers. AB 1890 also established funding for public interest programs to fund research, development, and demonstration projects in the following areas: renewable energy technologies, environmentally preferred advanced generation, energy-related environmental research, end-use energy efficiency, and strategic energy research.

### California Sustainable Freight Action Plan

The California Sustainable Freight Action Plan includes strategies to improve freight efficiency and transition to zero-emission freight handling technologies. It includes goals to achieve 25 percent improvement of freight system efficiency by 2030, to deploy over 100,000 freight vehicles and equipment capable of zero-emission operation by 2030, and to maximize near-zero-emission freight vehicles and equipment powered by renewable energy by 2030 (Caltrans 2016).

### Other State Regulations and Policies

For further information regarding the following regulations and policies, see Section 3.3.2, Air Quality Regulatory Setting.

- Advanced Clean Cars
- Advanced Clean Truck Regulation
- CARB's Commercial Harbor Craft Regulation

## *Local*

### Port of Oakland

The Port of Oakland has several energy-related policies. The Seaport Air Quality 2020 and Beyond Plan: The Pathway to Zero Emissions, finalized in 2019, outlines the Port's strategies for achieving its vision of a zero-emissions Seaport. This plan, although focused on air quality, contains several energy-related strategies. See Section 3.3, Air Quality, for more discussion on this plan. These strategies include the following:

- converting a portion of the Seaport's vehicle fleet to battery electric vehicles;
- using renewable diesel in the Port's diesel-powered equipment and vehicles;
- retrofitting rubber-tired gantry cranes to hybrid equipment;
- conducting feasibility studies for zero-emissions cargo handling equipment;
- developing battery-electric equipment demonstration projects;
- supporting hydrogen fuel cell demonstration projects;
- developing electric charging infrastructure projects, and
- participating in LCFS program to generate funding for projects.

The Year 3 progress report on the 2020 and Beyond Plan (Port of Oakland 2022) updated progress. The following actions have been completed:

- All 13 Rubber-Tired Gantry cranes at Oakland International Container Terminal converted to hybrid electric engines. Other tenants are in the process of evaluating grant applications to assist with upgrades to their Rubber-Tired Gantry cranes.
- The Port completed construction of 10 truck chargers at the Shipper's Transport Express facility. Battery electric trucks are in active operation moving containers in the Seaport.
- Charging infrastructure has been installed at several locations.
- GSC Logistics operates three electric drayage trucks and one electric yard tractor.
- Sea Logix operates four electric road trucks.
- The Port completed the maritime Power Capacity Study for Terminal Electrification.
- The Port completed a guide for Port tenants for EV Charging Station Permit Applications.
- The Port completed several feasibility studies regarding zero-emission trucks and cargo-handling equipment.
- The Port completed a report on Seaport electrical system capacity, incentive programs for vessels and locomotives, and financing and costs of the 2020 and Beyond Plan.

The Port has made progress on several on-going measures. This includes several projects in coordination with Port tenants to install chargers and infrastructure to add battery-electric top picks and electric yard tractors and begin design or obtain funding for updates to substations, replacement circuits, and upgrades to power generation resiliency. The Port has switched to renewable diesel for its fleet, and regulations will require harbor craft to use renewable diesel. The Port has registered its shore power equipment and electric car charging stations in the LCFS program and purchased renewable energy certificates to cover the electricity demand in the LCFS program. Upgrades to tugs are ongoing, with 78 to 85 percent of tug assist work in Oakland anticipated to be performed by clean tugs in 2023. The Port is coordinating with a hydrogen supplier on a hydrogen fuel cell demonstration project to bring approximately 30 hydrogen fuel cell trucks to the Port. The Port is also purchasing hybrid-electric equipment and trucks that are at the end of their life.

The Port adopted an amendment to its environmental ordinance in March 2023, requiring Port tenants that operate cargo-handling equipment to create a plan for converting cargo-handling equipment to zero emissions (Port of Oakland Administrative Code Chapter 9.01). The Tenants are required to submit their conversion plan by December 31, 2023. The Port's Utilities Department has an energy efficiency rebate program for Port tenants to replace their energy-inefficient electric equipment and fixtures; this program is expected to result in energy savings.

## 3.6.3. Significance Criteria

Based on Appendix G of the CEQA Guidelines, the questions (criteria) below were analyzed and evaluated to determine whether the Proposed Project's impacts related to energy are significant. Would the Proposed Project:

A. Result in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during Proposed Project construction or operation?

B. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Appendix F, Energy Conservation, of the CEQA Guidelines does not contain specific criteria for determining significance related to energy resources but does require that EIRs include a discussion of energy impacts. In accordance with Public Resources Code (PRC) Section 21100(b)(3), impacts on energy resources would be considered significant if the Proposed Project would result in wasteful, inefficient, and unnecessary consumption of energy, and conversely if the Proposed Project would not incorporate renewable energy or energy efficiency measures into building design, equipment use, transportation, or other project features.

## *Methodology for Analysis*

To determine whether a project would result in the wasteful, inefficient, or unnecessary consumption of fuel or energy, and conversely whether the project would fail to incorporate renewable energy or energy efficiency measures into building design, equipment use, transportation or other project features, Appendix F of the CEQA Guidelines identifies six categories of potential energy-related environmental impacts:

1. The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate the energy intensiveness of materials may be discussed.
2. The effects of the project on local and regional energy supplies and on requirements for additional capacity.
3. The effects of the project on peak and base period demands for electricity and other forms of energy.
4. The degree to which the project complies with existing energy standards.
5. The effects of the project on energy resources.
6. The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

This analysis, relative to Impact ENE-1, assesses the fuel and electricity consumption of the Proposed Project during construction and operation by way of the six questions above. This analysis, relative to Impact ENE-2, evaluates the Proposed Project for consistency with applicable plans, listed earlier in this section, related to renewable energy and energy efficiency.

The analysis estimates the gasoline, diesel, and electricity consumption associated with the construction and operation of the Proposed Project. Appendix B shows the calculations based on the methods and assumptions described below, including a breakdown by Proposed Project construction activity (see also Section 2.5.3 in Chapter 2, *Project Description*).

All gasoline use is assumed to originate from construction worker vehicles used in commuting to the Proposed Project site. In addition, all construction worker vehicles commuting to the Proposed Project site conservatively were assumed to use gasoline even though other options such as diesel, hybrid, electric and other alternative fuels are possible. Based on the number of

worker vehicles trips and the California Emissions Estimator Model (CalEEMod) default trip length of 10.8 miles,[56] an estimate of total worker vehicle miles traveled is determined. This vehicle miles traveled is multiplied by the fuel efficiency of the vehicles based on CARB's Emission FACtors model (EMFAC 2021[57]) fuel consumption for light-duty autos and light-duty trucks to yield the amount of gasoline used.

Construction diesel use was assumed to originate from the use of heavy, heavy-duty trucks (e.g., hauling trucks), offroad equipment (e.g., excavator, cranes, dozers), and in-water vessels, including tow boats, scow auxiliary engines, and dive vessels. Similar to the estimate for gasoline use, the calculation for estimating diesel use is based on the number of hauling trips (roundtrip) to Class I and Class II landfills, as well as the recycler and miscellaneous vendor trips multiplied by their trip lengths, to give the total vehicle miles traveled by heavy and heavy-duty trucks, all of which are assumed to be diesel. **Table 3.6-3** shows the one-way trip lengths for the Class I, Class II Landfills, Recycler, and other hauling vendor trips, which are conservatively based on the typical travel path from the construction area with the longest distance. The truck vehicle miles traveled is multiplied by the fuel efficiency of the vehicles based on EMFAC 2021 fuel consumption for heavy-heavy duty trucks. For offroad equipment, which consists of landside in-water equipment and vessels, the brake-specific fuel consumption factor (or the amount of fuel consumed per horsepower) was based on values used by CARB in its OFFROAD model and in the latest harbor craft emission inventory. The beneficial reuse assumed placement 50 miles away to estimate the tow boat travel emissions. These brake-specific fuel consumption factors are multiplied by the horsepower, load factor, and hours of activity to determine the amount of diesel fuel used.

**Table 3.6-3 On-Road Vehicle Trip Lengths**

| Trip Type | One-Way Trip Length (miles) |
|---|---|
| Class I (hazardous) Landfill)[1] | 201 |
| Class II (non-hazardous) Landfill[2] | 32 |
| Recycler[3] | 10 |
| Other Hauling Vendor Trips[4] | 20 |
| Workers[4] | 10.8 |

Notes:

1 The Class I landfill location is assumed to be Kettleman Hills Landfill in Kettleman City, California.

2 The Class II landfill location is assumed to be Keller Canyon Landfill near Pittsburg, California.

3 Material acceptable for recycling or reuse would be hauled to Argent Materials in Oakland, California or other local recyclers.

4 The default CalEEMod trip lengths were used for vendor trips and workers.

[56] The default trip lengths in CalEEMod were provided by local air districts and transportation agencies for use in the model when site-specific information is not available.

[57] EMFAC is a model developed and used by CARB to assess emissions from on-road vehicles and is approved by USEPA.

Construction electricity use was assumed to originate solely from dredging, because this is the only equipment specifically identified to use electricity. There may be additional electricity from any other uses of electricity during project construction that do not have information readily available to estimate at this time, but it would be minor in comparison to the dredging electricity use and was otherwise accounted for with the diesel and gasoline fuel. Proposed Project electricity use was estimated by multiplying the number of dredging hours by the hourly power draw of 1,237 kilowatts for the electric dredger and applying the CARB load factor of 0.44 for dredging based on their latest harbor craft emission inventory methodology. The Proposed Project would use electric dredging equipment that would plug into on-shore shore power. For the OHTB dredging activities, the electricity would come from the newly built substation near Berth 26. The IHTB dredging activities would use the existing shore power connection in Alameda and a newly built connection on the Oakland Seaport side near the IHTB.

For operation energy use as discussed in Chapter 2, the Proposed Project is not expected to increase cargo throughput or change landside operations at the Port, and there would be negligible changes in energy use associated with landside operations as a result of the Proposed Project. The existing activities at the impacted land and waterside areas would be consolidated or relocated, and there would be negligible changes in energy use associated with the relocation of existing activities. The specific locations and extent of consolidation that would occur are unknown, which prevents a detailed analysis from occurring; but in general, any change due to differences in minor trip lengths and activity would be minimal overall, assuming no other changes to demand and growth.

The Proposed Project operation would have some changes associated with in-water operations compared to the future No Project baseline scenario. The use of the future operational baseline rather than the existing baseline is appropriate for this situation, and allowed under CEQA because the vessel fleet will likely change in the future as a result of other economic and global influences to the shipping industry, including growth, efficiency improvements, and vessel emission improvements as well as the physical change to the turning basins. The difference between the Proposed Project and No Project future information is the physical changes to the size of the turning basins. With or without the Proposed Project, the Port will experience a 2.1 percent growth in cargo annually. It also includes planned harbor improvements that would be anticipated to occur under both the Proposed Project and No Project future scenarios. Most importantly for energy analysis, the mix of OGVs and number of vessel calls are expected to change when compared to the future No Project baseline scenario and will be substantially different from the current mix of ocean-going vessels (OGVs) and number of vessel calls. To evaluate the change in energy use for the in-water operation, the vessel fleet mix and vessel calls as reported in **Table 3.1-1** were used. In addition to the vessel fleet mix and number of vessels calls per year, additional assumptions are required to estimate energy use associated with vessels calling on the Port. Information from the 2020 Seaport Emission Inventory was used as a basis for establishing several key assumptions. The average vessel transit and maneuvering time per call were averaged over all vessel size classes, consistent with the assumption used in the 2020 Seaport Emission Inventory. The future fleet engine tier levels were determined based on carrying forward the 2020 vessel age distribution, which means that the number of vessels with a given age from the calendar year being analyzed was constant. For example, if the 2020 vessel fleet had a vessel that was 1, 5, and 10 years old in 2020, we would assume that the 2030 vessel fleet also had a vessel that was 1, 5, and 10 years old rather than a vessel that was 11, 15, and

20 years old. The load factors for the vessels and tugs were updated to reflect current CARB emission inventory methods (CARB 2021). Vessel engine sizes were determined for each vessel class using representative main and auxiliary engine sizes by vessel TEU capacity. Vessels were assumed to have 95 percent shore power utilization with 3 hours of auxiliary engine use allocated to account for connect and disconnect time consistent with the CARB At-Berth regulations. The remaining 5 percent of vessels were assumed to not use shore power.[58] Time at anchorage was not included in this analysis because anchorage events exhibited significant temporal variability that was impossible to determine if vessel size was a causative factor in making the decision to go to anchor, or in deciding how long to anchor. All vessels require tugs to assist them when transiting and maneuvering; however, the number of tugs required for a vessel is related to the size of the vessel, and varies based on the power of tugs available, and whether the vessel is traveling inbound or outbound. The average number of tugs for each vessel type was determined consistent with assumptions in the 2020 Seaport Emissions Inventory and ranged from an average of 3.5 tugs per call (e.g., 1 to 2 tugs for inbound vessels and 1 to 2 tugs for vessels outbound) to 7.5 tugs per call (e.g., 3 to 4 tugs in-bound and 3 to 4 tugs outbound). All tugs were assumed to have 6,772 hp main engine power.

The brake-specific power in units of horsepower or kilowatts, the hours of transiting and maneuvering, and the brake-specific fuel consumption factor used by CARB in its latest Harbor Craft and OGV emissions inventories were multiplied together to calculate the gallons of diesel fuel from in-water activities. Electricity consumption while at berth was not estimated because total hours at berth for the Proposed Project and No Project future baseline scenarios were not available. All container vessels are required to use shore power under CARB's At-Berth regulation (or have other emissions reduction measures), and there would be minimal annual differences in total time at berth using shore power between the Proposed Project and No Project future baseline scenarios because the amount of cargo would be the same.

Maintenance dredging is anticipated to require an annual increase of up to 93,000 cubic yards of additional dredging of the turning basins. Emissions for this additional maintenance dredging were estimated assuming that 6,000 cubic yards of material are dredged a day using a diesel dredger that has an offroad engine. Maintenance dredging of Oakland Harbor by USACE has historically been completed with a diesel clamshell dredger. Electric dredging is not practicable due to the continued movement of the dredge and associated electrical cable during maintenance dredging throughout the active waterway, as opposed to the Proposed Project construction which would only occur outside of the existing federal navigation channel. Both a barge and a tow boat are assumed to be used to move the dredgers and barge. A second tow boat would be used to transport the filled barge to a disposal site conservatively assumed to be 50 miles away. Twenty-six workers are assumed to be needed during dredging, and emission estimates include these worker trips using the same CalEEMod default trip length. The fuel consumption of diesel and gasoline was estimated in a manner similar to the methods used for these categories described under construction. Full details of assumptions used to estimate criteria pollutant emissions from maintenance are provided in Appendix B.

[58] These 5 percent of vessels may not be able to use shore power due to reasons that may include being unequipped, the unavailability of equipment or staff, or other reasons.

## 3.6.4. Impact Analysis and Mitigation Measures

***Impact ENE-1. Would the Proposed Project result in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during Project construction or operation? (Criterion A) (Less than Significant with Mitigation)***

### Impact Analysis

The Proposed Project would result in a temporary increase of energy consumption during the construction period for worker commutes, land-based construction equipment and truck trips, and in-water equipment, including tow boats, scows, and dive boats. Based on the six categories of potential energy-related impacts outlined in Appendix F of the CEQA Guidelines listed above, the following analysis presents the estimated fuel and electricity use during the construction period and evaluates qualitatively the other categories.

All aspects of fossil fuel consumption associated with the Proposed Project construction and maintenance were considered in this analysis. This includes all fossil fuel consumption from traffic generated during construction, including worker commutes, material hauling, recycled material hauling, and landfill material hauling. This also includes all in-water vessel traffic associated with use of the dredgers, tow boats, scows, and dive vessels, as well as all landside offroad construction equipment. Proposed Project construction is estimated to use 24,588 gallons of gasoline due to worker commutes. Off-road equipment, including the in-water equipment and vessels, is estimated to use 983,041 gallons of diesel fuel, and material hauling trucks were estimated to use 304,232 gallons of diesel fuel. Dredging equipment is estimated to use 4,978 megawatt-hours of electricity for powering the electric dredgers. These energy consumption numbers are presented in **Table 3.6-4**. It is possible that some equipment and vehicles could use hybrid or alternative fuel technology; however, this analysis conservatively assumes maximum consumption of diesel and gasoline.

**Table 3.6-4 Construction Fuel and Electricity Consumption**

| Energy Type | Off-Road | Hauling | Workers | Total |
|---|---|---|---|---|
| Gasoline (gallons) | — | — | 24,588 | 24,588 |
| Diesel Fuel (gallons) | 983,041 | 304,232 | — | 1,287,274 |
| Electricity (megawatt-hours) | 4,978 | — | — | 4,978 |

Source: Appendix B

Energy use during Proposed Project construction would result in increased demand on local and regional supplies of fossil fuel, such as diesel and gasoline. Given that California is the seventh largest producer of crude oil and has the third largest refining capacity in the nation, the amount of fuel consumed during Proposed Project construction would not have substantial impact on the availability of these fuels in the state. Any impacts on local fuel supplies would be temporary and would not require an increase in fuel production capacity. Similarly, due to the relatively small demand on gasoline and diesel fuel during the Proposed Project construction, which is less

than 0.03 percent of California's total production of gasoline and diesel, there would not a be a temporary disruption in local fuel supplies or requirement for additional fuel capacity to be constructed. Therefore, the impacts on demand of gasoline and diesel fuel would be minimal.

To support electrical dredging for widening the OHTB, electrical infrastructure would be installed near Berth 26, from which the dredging operator would then draw power for the electrical dredging activities. The infrastructure would allow the Port to control, isolate, and meter power during dredging activities. Similarly, electrical infrastructure would be installed in Howard Terminal near the IHTB, from which the dredging operator would draw power for the electrical dredging activities in the IHTB as an option, in addition to the existing electrical infrastructure in Alameda.

The electricity that would be consumed during dredging of the OHTB and the Oakland side of the IHTB is estimated to be 2,950 megawatt hours, which is approximately 3 percent of the total electricity provided by the Port's Utilities Department in 2021. The electricity that would be consumed during dredging of the IHTB on the Alameda side of the IHTB is estimated to be 1,106 megawatt hours and is approximately 0.3 percent of the total electricity provided by AMP. The electricity that would be consumed during dredging of the IHTB on the Oakland side is estimated to be 921 megawatt hours and is approximately 0.9 percent of the total electricity provided by AMP. The electrical dredging hookup in Alameda is an existing resource and was used for the –50-Foot Oakland Harbor Channel Deeping Project in the past. However, there has been significant growth in Alameda since this infrastructure was last used for dredging, and the capacity to add additional power to Alameda is limited without upgrades to the transmission supply to the island. In addition, during peak energy loads, Alameda has been subject to rolling brownouts.[59]

The amount of electricity used during Proposed Project construction would affect the local and regional energy supply requirements for additional capacity. The 26-week dredging season includes the summer months, when peak electricity use can occur in the region during extended heat waves that can cause strain on the electricity supply. This is particularly true during the late afternoon and early evening hours, when renewable energy from solar systems is going offline; wind has not reached its daily peak capacity; and hydroelectric power is still operating under variable conditions. On project approval, Port Utilities would adjust its electricity supply to ensure adequate supply of electricity during peak and non-peak load times. However, this may cause strain on other electrical resources and supply, especially during peak electricity use, and may cause others electricity consumers to have rolling brownouts. Part of the Proposed Project is to build the electrical infrastructure needed to conduct electric dredging at the OHTB and IHTB for use during the Proposed Project.

Proposed Project construction would comply with existing energy standards described in Section 3.6.2 and would use energy-efficient equipment in line with CARB fleet and equipment requirements, including the modifications to existing regulations that would likely require the use of renewable diesel fuel. The Proposed Project would make efficient use of transportation by identifying different types of waste (recycle, Class I landfill, and Class II landfill) and appropriate locations nearby, as available, to minimize the amount and length of truck trips. The Proposed Project would have an impact on energy resources due to its large energy needs, even

[59] A brownout is a reduction in or restriction on the availability of electrical power in a particular area. Brownouts are partial outages, while blackouts are a complete shutdown of electricity.

with limited duration during construction. The peak capacity effect on the transmission grid feeding the applicable areas and potential for rolling brownouts during the dredging season could be significant.

Post-construction, the Proposed Project operation and maintenance would result in an increase in energy demand compared to existing operations of vessels calling on the Seaport and associated cargo handling equipment and trucks. It is anticipated that the overall number of vessel calls would decrease under the Proposed Project in the future with an increase in the average size of vessels. There would be changes to the tug assists used, because the larger vessels on average would require more assist tugs. The use of the future operational baseline rather than the existing baseline is appropriate for this situation, and allowed under CEQA because the vessel fleet would likely change in the future as a result of other economic and global influences to the shipping industry, including growth, efficiency improvements, and vessel emission improvements as well as the physical change to the turning basins. The difference between the Proposed Project and No Project future information is the physical changes to the size of the turning basins. With or without the Proposed Project, the Port will experience a 2.1 percent growth in cargo annually. It also includes planned harbor improvements that would be anticipated to occur under both the Proposed Project and No Project future scenarios. Most importantly for energy consumption, the mix of OGVs and number of vessel calls are expected to change when compared to the future No Project baseline scenario and will be substantially different than the current mix of OGVs and number of vessel calls.

The estimated marine diesel fuel and electricity consumption for the Proposed Project and future No Project in 2030, 2040, and 2050 based on the anticipated number of vessel calls by vessel class is shown in **Table 3.6-5**. It is projected that there will be a decrease of about 10 percent in diesel fuel consumption for in-water operations compared to the future No Project scenario. This represents less than 3.5 percent of California's diesel fuel production. Electricity consumption while at-berth is anticipated to increase about 20 percent with the Proposed Project due to longer times at-berth per vessel call for larger vessels.

**Table 3.6-5 In-Water Operational Diesel Fuel and Electricity Consumption**

| Future Operational Year | Proposed Project (gallons of Diesel) | No-Project (gallons of Diesel) | Proposed Project (Megawatt-hours) | No-Project (Megawatt-hours) |
|---|---|---|---|---|
| 2030 | 9,356,048 | 9,553,350 | 740,641 | 66,006 |
| 2040 | 11,033,458 | 11,829,845 | 1,170,527 | 976,071 |
| 2050 | 12,665,542 | 13,964,768 | 1,852,570 | 1,534,466 |

These larger vessels may require more power and time while at-berth than smaller vessels, and therefore would increase the electricity and potential peak load of electricity at the Seaport while at-berth compared to the No-Project fleet. As electrification increases, Seaport operations would also continue to increase energy consumption as the Port implements its 2020 and Beyond Plan, which lays out a strategy to achieve future zero emissions, with electrification as the primary pathway towards zero emissions. The Plan includes substantial future investment in energy-related infrastructure and purchasing of zero-emission vehicles and equipment. Although the electrification of the Seaport, cargo handling equipment, and trucks would reduce fossil-fuel

energy use, it would increase the electricity demand. As stated above for construction, this increased demand could affect local and regional energy supplies and infrastructure and may result in brownouts if adequate electricity generation during peak demand times is not available.

Maintenance dredging is anticipated to require an annual increase of up to 93,000 cubic yards of additional dredging of the turning basins. The increase in fuel consumption from this additional maintenance dredging using diesel dredgers, barges, towboats, and disposal 50 miles away is 44,562 gallons of diesel, and 285 gallons of gasoline for worker commutes. Energy use during Proposed Project maintenance dredging would result in increased demand on local and regional supplies of fossil fuel, such as diesel and gasoline. Given that California is the seventh largest producer of crude oil and has the third largest refining capacity in the nation, the amount of fuel consumed during Proposed Project maintenance dredging would not have a substantial impact on the availability of these fuels in the state. Any impacts on local fuel supplies would be temporary and would not require an increase in fuel production capacity. Similarly, due to the relatively small demand on gasoline and diesel fuel during the Proposed Project construction, which is less than 0.001 percent of California's total production of gasoline and diesel, there would not be a temporary disruption in local fuel supplies or requirement for additional fuel capacity to be constructed. Therefore, the impacts on demand of gasoline and diesel fuel would be minimal.

Therefore, based on some of the six categories outlined in Appendix F, the Proposed Project construction and operation could result in inefficient wasteful or unnecessary consumption of energy, or wasteful use of energy resources. The Proposed Project would not result in inefficient wasteful or unnecessary consumption of energy under categories 1, 4, and 6. The Proposed Project would be potentially significant for electricity use under categories 2, 3, and 5, and this impact is **potentially significant**.

### Level of Significance Before Mitigation

*Potentially Significant Impact.*

Energy shortages can be caused by a number of unpredictable events, including but not limited to persistent high heat or cold (where reliance on air conditioning or heating creates a sustained heightened energy demand); equipment failure or maintenance (where electrical lines, generators, or other energy equipment go off-line due to failures or due to planned maintenance events); weather events (such as electrical storms that interfere with transmission or wind conditions that contribute to temporary voluntarily shut-downs in certain portions of the electrical grid); natural disasters (such as wildfires or flooding that physically interfere with electrical production or provision); or limitations in energy supply (such as lower-than-expected electricity generation from solar or wind assets). The California Independent System Operator (CAISO) monitors these fluctuations in electricity supply/demand and maintains the reliability of the power grid in California by providing continuous, real-time monitoring of electricity supply and demand. This allows CAISO to balance the grid and align anticipated electricity generation with expected consumption, so that the public receives a steady supply of electricity. However, when electricity supply is unlikely to meet anticipated demand, CAISO uses an alert system to keep the public informed. CAISO recently transitioned to a series of notifications that match the North American Electric Reliability Corporation's Energy Emergency Alert (EEA) system and provides a series of escalating energy alerts when electricity demand begins to outpace anticipated supply. These alerts include pro-active and escalating electricity measures to help

balance the grid, and range from encouraging consumers to conserve, to mandatory rotating power outages. Specifically, the alerts include:

- Energy Emergency Alert Watch (EEA Watch) – Analysis shows all available resources are committed or forecasted to be in use, and energy deficiencies are expected. This notice can be issued the day before the projected shortfall or if a sudden event occurs. Consumers are encouraged to conserve energy.
- Energy Emergency Alert 1 (EEA 1) – Real-time analysis shows all resources are in use or committed for use, and energy deficiencies are expected. Consumers are encouraged to conserve energy.
- Energy Emergency Alert 2 (EEA 2) – ISO requests emergency energy from all resources and has activated emergency energy programs. Consumers are urged to conserve energy to help preserve grid reliability.
- Energy Emergency Alert 3 (EEA 3) Preparing for rotating power outages − The grid operator is unable to meet minimum reliability reserve requirements and has declared the initial step of an EEA 3. Utilities have been alerted to prepare for outages, but rotating outages have not been ordered.
- Energy Emergency Alert 3 (EEA 3) Ordering rotating power outages − The grid operator has ordered utilities to begin rotating power outages to protect grid reliability. The final step of an EEA 3 is declared when electricity supply is not sufficient to meet demand and required reserves are unable to be maintained.

Although limitations in electricity provision are a result of many unpredictable supply and demand factors, as discussed above, the Port anticipates that the electricity demands of its electrical dredging activities may contribute to potential electricity shortages in the area from time to time. Therefore, the Port will impose the following mitigation measure to ensure that the Proposed Project's electricity demand from dredging ceases prior to any rotating power outages that may be directed by CAISO.

### Mitigation Measure

### MM ENE-1: Switch to Diesel Dredging during Peak Electricity Demand Events

The Port's Project Managers and the Port's supervising staff shall enroll in CAISO's notification system prior to any dredging activities, so that Project Managers and Port supervisorial staff receive the EEA notices. When an EEA 3 Notice to prepare for rotating power outages is issued by CAISO for the Northern California Region and/or CAISO Grid and/or AMP, the Port shall cease electric dredging activities, and may continue dredging activities using alternative means of power (diesel-generation).

## Level of Significance After Mitigation

*Less than Significant with Mitigation.*

Implementation of Mitigation Measure ENE-1 will ensure that in the event of peak electricity demand overloads that could lead to insufficient temporary electricity supplies—either from CAISO-related requests or requests from AMP—the electrical dredging operations would switch from electricity use to diesel use temporarily to help decrease electricity demand and assist in avoiding potential brownouts or other consumers curtailment of energy supply. This would also

eliminate the Proposed Project's contribution to electrical demand during alert events. Once the peak electricity demand event has been alleviated, the dredging would resume using electricity. It was assumed for energy estimation purposes that the total annual hours of diesel dredging could be up to 10 days or 240 hours each year.[60] This would result in additional diesel fuel consumption of 19,336 gallons, with a corresponding decrease in electricity consumption of 300 megawatt hours. The Port historically has received similar authorizations from the state during extreme heat events to suspend at-berth shore power requirements to alleviate similar peak electricity demands. The Port would comply with all authorizations received from the state to suspend shore power in the future, which would be anticipated to occur under both the Proposed Project Future baseline scenario as well as the No Project Future baseline scenario. The Proposed Project has addressed potential concerns with Alameda transmission supply limitations with the addition of electricity supply infrastructure located at Howard Terminal for use on both sides of the IHTB. Switching the dredgers from electrical to diesel during peak electricity demand events would decrease the chance of the Proposed Project contributing to any adverse impacts on regional energy supplies, including during peak demands for electricity. Therefore, this impact would be **less than significant with mitigation.** Evaluation of the impacts to other resource topics from this additional use of diesel, particularly air quality emissions, is discussed in the individual resource areas.

## *Impact ENE-2. Would the Proposed Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency? (Criterion B) (Less than Significant)*

### Impact Analysis

This analysis considered whether the Proposed Project would be consistent with applicable plans, listed in Section 3.6.2, related to renewable energy or energy efficiency. Proposed Project construction would result in a temporary increase of energy consumption as described above in Impact ENE-1. During construction, the Proposed Project would adhere to the state's standards designed to minimize use of fuel in construction equipment and vehicles, such as the limit on equipment idling. All equipment used for Proposed Project construction would follow state regulations for equipment fleets and harbor craft, which require the use of newer engines on a fleetwide basis.

The Proposed Project would be consistent with the Seaport 2020 and Beyond Plan and does not provide any conflicts with this plan strategy. The 2020 and Beyond Plan strategies focus on projects to improve the infrastructure and use of ZEV at the Port. The Proposed Project specifically would further the progress of near-term strategy to use renewable diesel, and it is developing necessary electrical infrastructure necessary to use zero-emission equipment such as electrical dredgers during the Proposed Project construction in the Outer Harbor. The Proposed Project would allow for better orientation of large vessels in the IHTB so that they can be better oriented to use shore power, and thereby enable increased use of shore power consistent with the near-term strategy to increase shore power use. Other 2020 and Beyond Strategies are not impacted by the Proposed Project and would not further these strategies, nor would it impede the

[60] The number of hours and days assumed are conservative, and are based on information regarding frequency of events called in the recent past.

implementation of these strategies, including use of battery electric equipment and vehicles, replacing or retrofitting cargo-handling equipment, constructing additional electrical infrastructure projects, and conducting feasibility studies.

The California Sustainable Freight Action Plan aims to improve freight efficiency and transition to zero-emission freight handling technologies. The Proposed Project is designed to improve the efficiency of Port operations by decreasing delays associated with visits from larger vessels. In addition, the ability to better service larger vessels in the turning basins would make the overall vessel fleet efficient, as noted in the future operational conditions, where fewer vessel calls would be needed compared to the No-Project future scenario. As mentioned above, the Proposed Project would improve the ability for large vessels to connect to shore power because they can be oriented to plug into the shore power systems. The Sustainable Freight Action Plan also has goals to use ZEV and be powered by renewable energy, which the project would not impede the implementation of these strategies.

The Proposed Project would not impede any ability to implement renewable energy plans for the Port or the State for achieving the 2020 and Beyond Plan and the Renewable Energy Portfolios. Therefore, the Proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and is **less than significant**.

# 3.7. GEOLOGY/SOILS

This section identifies and describes the geology, soils, seismicity, and paleontological resources in the Proposed Project area, and analyzes the effects of the Proposed Project's impacts related to these resources. This section relies in part on the Geotechnical Appendix prepared by the USACE for the Oakland Harbor Turning Basins Widening Revised Draft Integrated Feasibility Report and Environmental Assessment (USACE 2023).

## 3.7.1. Environmental Setting

### *Regional Setting*

The Proposed Project lies along the eastern margin of San Francisco Bay in a geologically complex region of California referred to as the Coast Ranges geomorphic province (an area that has similar bedrock structure, history, and age). The province is defined by the north to northwest-trending Coast Ranges, which are traversed by numerous faults of the San Andreas fault system. The dominant geologic processes that have shaped the San Francisco Bay region are earthquakes along the San Andreas, Hayward, and other faults; uplift and erosion of the East Bay and peninsular hills; and subsidence of the San Francisco Bay basin.

Shallow water reclamation by infilling along the margins has reduced the original San Francisco Bay from approximately 700 square miles to its present size of approximately 400 square miles. The landside portions of the Proposed Project are entirely on artificial fill[61] of varying depths (Graymer 2000), as described in more detail below.

### *Local Geology and Soils*

The Seaport was constructed in the natural drainage channel of San Antonio Creek, which is in the broad low-lying plain that borders the eastern shore of San Francisco Bay. The majority of the Seaport, including Howard Terminal and all of the Outer Harbor Terminal, lies beyond the historic shoreline. The Alameda Site is in an area that was formerly tidal flats. The soils immediately underlying the fill in former tidal flats consist of soft, compressible clays. Materials beneath the Bay plain consist of relatively thick deposits of unconsolidated marine sediments deposited during the Pleistocene and Holocene geologic time. Bedrock is about 450 to 600 feet deep (USACE 2023). Soils and geologic layers underlying the Proposed Project sites are described below in order from the surface to increasing depth: artificial fill, Young Bay Mud, San Antonio Formation, and Alameda Formation.

#### Artificial Fill

As a consequence of the land reclamation and prior construction activities along the Oakland and Alameda shorelines, a variable surficial layer of fill material exists at the landside Proposed Project sites where ground-disturbing activities would occur (i.e., Howard Terminal, the Alameda Site, and Berth 26). The fill material, much of which was dredged from San Francisco Bay; varies in density; and is composed of a mixture of sand, gravel, and clayey materials, with scattered debris and organics.

[61] Artificial fill is land that was created by placement of materials such as soil, sediment, rock, sand, and gravel, or some combination thereof.

### Young Bay Mud

Soft sediment, locally known as Young Bay Mud, lies directly underneath the existing fill. Despite the name, this submarine sediment can be very old and may have been deposited as far back as 10,000 years. The Young Bay Mud deposits consist of soft, silty clay that is highly compressible. The Young Bay Mud varies in the thickness in the Proposed Project area and may be deeper in areas of the Seaport where it has filled eroded channels in the underlying formations. The Young Bay Mud has been removed from the existing federal channel and turning basins as a result of previous dredging but is exposed in the existing channel side slopes (USACE 2023).

### San Antonio Formation

In the Proposed Project area, the contact between Young Bay Mud and the San Antonio Formation generally ranges from approximately -30 feet MLLW to approximately -55 feet MLLW (USACE 2023). San Antonio Formation is composed of alluvium deposited in environments ranging from alluvial fans and floodplains to lakes and beaches. The unit is generally moderately dense to very dense sand and stiff to hard silt and clay. The San Antonio formation consists of continental deposits, including the Merritt Sand Formation and the alluvial Posey Sand Formation, which were deposited more than 10,000 years ago and can be found at various depths. The Merritt Sand Formation is generally uniformly graded and medium dense to dense dune sand.

### Alameda Formation

The Alameda Formation, consisting of interbedded Pleistocene sands and clays, is below the San Antonio Formation and was the initial unit deposited over Franciscan bedrock. The Alameda Formation was dissected and eroded prior to deposition of the Old Bay Mud, which primarily consists of stiff to hard overconsolidated clay deposited approximately 115,000 years ago. The Alameda Formation and Old Bay Mud are often mapped together as layered sediments and have a combined thickness of several hundred feet. This is the deepest layer that may be encountered during the Proposed Project's construction.

## *Current Sediment Inputs*

Sources of new sediment into the San Francisco Bay system include the Sacramento and San Joaquin Rivers, which flow through the Carquinez Strait into the northeastern end of San Pablo Bay; the Napa, Sonoma, and Petaluma Rivers; and a variety of smaller streams and other drainages (including storm drains and flood control channels). In the Oakland Harbor, sediment is contributed from vicinity shorelines and creeks, and carried via tidal currents, which cause siltation of the existing turning basins and shipping channels. Propeller wash (the force in the water column behind the propeller) from container vessels contributes to the redistribution of sediment transport in Oakland Harbor. The USACE performs annual maintenance dredging of shoaled sediment in the federal navigation channels at Oakland Harbor to return the channels to their authorized depth of –50 feet MLLW. Approximately 1 to 2 feet of new material, typically silts and clays, is deposited annually into the federal channels and turning basins (USACE 2023).

## *Geologic and Seismic Hazards*

### Fault Rupture and Ground Shaking

The San Francisco Bay Area is recognized by geologists and seismologists as one of the most seismically active regions in the United States. Throughout the region, there is potential for damage resulting from movement along any one of a number of active faults, seismic shaking, and seismically induced ground failures (e.g., liquefaction, lateral spreading, and settlement).

Significant earthquakes occurring in the San Francisco Bay area are generally associated with crustal movement along well-defined, active fault zones of the San Andreas Fault system. The faults considered capable of generating significant earthquakes are generally associated with the well-defined areas of crustal movement, which trend northwesterly. The Proposed Project sites are not on an active fault but are situated between two known active fault zones. The San Andreas Fault, which generated the San Francisco earthquake of 1906 and the Loma Prieta earthquake of 1989, passes 13 miles southwest of the Proposed Project sites. The Hayward Fault is approximately 4.5 miles to the east of the Proposed Project sites.

The Working Group on California Earthquake Probabilities (WGCEP), a collaboration between the United States Geological Survey, the California Geology Survey, and the Southern California Earthquake Center, has developed estimates of future earthquakes in California. Their most recent report, the Uniform California Earthquake Rupture Forecast (2014), estimates that there is a 72 percent chance of a magnitude 6.7 or greater earthquake on one of the San Francisco Bay Area faults between 2014 to 2044, and a 90 percent chance of a magnitude 6 or greater during the same time period, with the Hayward and San Andreas Faults being the most likely to cause such an event (Field and WGCEP 2015).

Seismically induced ground shaking resulting from earthquakes is a geologic hazard in the Proposed Project area. The amplitude and frequency of ground shaking is related to the size of an earthquake, the distance from the rupturing fault, the type of fault (e.g., strike-slip), and the response of the geologic materials at a site. Ground shaking can be described in terms of acceleration, velocity, and displacement of the ground. As a rule, the greater the earthquake magnitude and the closer the fault rupture to a site, the greater the intensity of ground shaking.

### Liquefaction, Lateral Spreading, and Settlement Subsidence

Liquefaction of soils occurs when loose, cohesionless soils become saturated, temporarily losing shear strength during strong ground shaking. Significant factors that affect soil liquefaction potential are grain-size distribution, relative density, degree of saturation, the initial stresses acting on the soils, and the characteristics of the earthquake (such as the intensity and duration of the ground shaking). Liquefaction-induced lateral spreading is defined as the finite, lateral displacement of gently sloping ground as a result of pore-pressure buildup or liquefaction in a shallow underlying deposit during an earthquake. Liquefaction-induced lateral spreading requires the soil to have liquefied, and for there to be a free face or sloping ground surface for the flow to occur.

The potential damaging effects of liquefaction include differential settlement, loss of ground support for foundations, ground cracking, and heaving and cracking of structure slabs. In general, a relatively high potential for liquefaction exists in loose, sandy soils that are within 40 feet of the ground surface and are saturated (below the groundwater table). The California Geological Survey composite map of seismic hazard zones for the United States Geological

Survey Oakland West Quadrangle indicates the landside Proposed Project sites are in a Liquefaction Zone (California Geological Survey 2023). Damaged pavement from liquefaction was documented at Howard Terminal following the 1989 Loma Prieta Earthquake (USACE 2023).

In addition to liquefaction, other potential geologic hazards in the Proposed Project area include compaction consolidation (settlement) and seismically induced settlement. Dissipation of excess pore pressure generated by ground shaking can produce volume changes in the liquefied soil layers and cause settlement of the ground surface.

#### Subsidence

Subsidence is the gradual lowering of the land surface due to compaction of underlying materials. Subsidence can occur as a result of the extraction of groundwater, which can cause subsurface clay layers to compress and lower the overlying land surface. The subsidence occurs because the presence of water in the pore spaces in between grains helps to support the skeletal structure of the geologic unit. If the water is removed, the structure becomes weaker and can subside.

### *Paleontological Resources*

Paleontological resources are the fossilized remains or impressions of plants and animals, including vertebrates (animals with backbones; mammals, birds, fish, etc.), invertebrates (animals without backbones; starfish, clams, coral, etc.), and microscopic plants and animals (microfossils). They are valuable, non-renewable, scientific resources used to document the existence of extinct life forms and to reconstruct the environments in which they lived. Fossils can be used to determine the relative ages of the depositional layers in which they occur, and of the geologic events that created those deposits. The age, abundance, and distribution of fossils depend on the geologic formation in which they occur, and the topography of the area in which they are exposed.

Paleontological sensitivity is defined as the potential for a geologic unit to produce scientifically significant fossils. This is determined by rock type, history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey. In its "Standard Guidelines for the Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources," the Society of Vertebrate Paleontology (SVP 2010) defines four categories of paleontological sensitivity (potential) for rock units: high, low, undetermined, and no potential. Although the artificial fill directly beneath the Howard Terminal and the Alameda Site has no potential for recovery of paleontological resources and the underlying Young Bay Mud has a low potential, the geologic units below the fill and Bay Mud (i.e., Merritt Sand and San Antonio Formation) would be considered to have a high sensitivity for paleontological resources.

## 3.7.2. Regulatory Setting

### *Federal*

No federal plans, policies, regulations, or laws related to geology, soils, seismicity, or paleontological resources apply to the Proposed Project.

## *State*

### Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. In accordance with the Alquist-Priolo Act, the State Geologist established regulatory zones, called "Earthquake Fault Zones," around the surface traces of active faults, and published maps showing the earthquake fault zones. Within the fault zones, buildings for human occupancy cannot be constructed across the surface trace of active faults. Each earthquake fault zone extends approximately 200 to 500 feet on either side of the mapped fault trace because many active faults are complex and consist of more than one branch that may experience ground surface rupture. CCR Title 14, Section 3601(e) defines buildings intended for human occupancy as those that would be inhabited for more than 2,000 hours per year. The Proposed Project sites are not mapped in an active earthquake fault zone per the Alquist-Priolo Special Studies Zone Act. Therefore, the Alquist-Priolo Act does not apply to the Proposed Project.

### California Building Code

The most recent version of the California Building Code (CBC) was published by the California Building Standards Commission on July 1, 2022. The CBC requires that all structures and permanently attached nonstructural components be designed and built to resist the effects of earthquakes. The CBC is included in Title 24 of the CCR and sets minimum requirements for building design and construction. Relevant provisions of the CBC require the preparation of foundation and soils reports and other geotechnical reports that address site-specific conditions, potential hazards, and required methods and design parameters for remediating and protecting against potential seismic hazards.

### Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act was passed in 1990, following the Loma Prieta earthquake, to reduce threats to public health and safety and to minimize property damage caused by earthquakes. The Seismic Hazards Mapping Act requires the State Geologist to delineate various seismic hazard zones; and cities, counties, and other local permitting agencies to regulate certain development projects in these zones. For projects that would locate structures for human occupancy in designated Zones of Required Investigation, the Seismic Hazards Mapping Act requires project applicants to perform a site-specific geotechnical investigation to identify the potential site-specific seismic hazards and corrective measures, as appropriate, prior to receiving building permits. As stated above, the Proposed Project sites are in the Oakland West Quadrangle, and the California Geological Survey has identified the potential for seismic hazards at the landside Proposed Project sites.

## *Regional*

### San Francisco Bay Conservation and Development Commission Engineering Criteria Review Board

The Engineering Criteria Review Board is an advisory board that assists the San Francisco Bay Conservation and Development Commission (BCDC) in evaluating the engineering aspects of projects that require BCDC's permits. The McAteer-Petris Act requires BCDC to review all proposed projects that involve fill in San Francisco Bay and prohibits the Commission from approving any fill project that would be unsafe. The Commission relies on the expertise provided

by the Engineering Criteria Review Board on whether a proposed project is designed based on sound safety standards.

### *Local Plans, Ordinances and Policies*

#### City of Oakland Municipal Code

In the Oakland Municipal Code, Title 15 is known as the Oakland Amendments of the 2019 Editions of The California Building Standards Code, or the 2019 Oakland Building Construction Code. This chapter of the Municipal Code adopts the standards and requirements of the CBC and requires that they be applied to any new developments within the city.

#### City of Oakland General Plan

Chapter 3, *Geologic Hazards*, of the *Safety Element* of the City of Oakland General Plan (City of Oakland 2004) describes the following policies regarding geological resources, adopted for the purpose of avoiding or mitigating an environmental effect, and that apply to the Proposed Project.

- Policy GE1: Develop and continue to enforce and carry out regulations and programs to reduce seismic hazards and hazards from seismically triggered phenomena.
- Policy GE2: Continue to enforce ordinances and implement programs that seek specifically to reduce the landslide and erosion hazards.

#### City of Alameda Municipal Code

The City of Alameda Municipal Code adopts the standards and requirements of the CBC and requires that they be applied to any new developments in the city. Article XVIII of the City's Municipal code includes additional provisions to promote earthquake hazard reduction applicable to unreinforced-masonry bearing wall non-residential buildings.

#### City of Alameda General Plan

The City of Alameda General Plan (City of Alameda 2022) contains the following policies that are relevant to geologic hazards and the Proposed Project.

- Policy HS9: Building and Infrastructure Standards. Maintain up-to-date building codes and encourage or require new and existing buildings and infrastructure to be designed or retrofitted for timely restoration of service (functional recovery) following an earthquake, with particular attention on the effects of liquefaction on buildings and infrastructure.
- Policy HS13: Private Buildings. Require owners of vulnerable structures, to the extent feasible, to retrofit existing structures to withstand earthquake ground shaking, and require retrofitting when such structures are substantially rehabilitated or remodeled.
    - Action f: Shoreline Property Management. Require owners of shoreline properties, to the extent feasible, to inspect, maintain, and repair the perimeter slopes to withstand earthquake ground shaking, consolidation of underlying bay mud, and wave erosion.

## 3.7.3. Significance Criteria

Based on Appendix G of the CEQA Guidelines, the below questions (criteria) were analyzed and evaluated to determine whether impacts related to geology and soils are significant. Would the Proposed Project:

A. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
    1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map or Seismic Hazards Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?
    2. Strong seismic ground shaking?
    3. Seismic-related ground failure, including liquefaction?
    4. Landslides?
B. Result in substantial soil erosion or the loss of topsoil?
C. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Proposed Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?
D. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?
E. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?
F. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

## *Methodology for Analysis*

Existing information and studies are available for the Proposed Project area, including site-specific data regarding soil composition and depths to different geologic layers. These resources were used to identify the existing geologic and seismic setting for the Proposed Project area, and to determine the susceptibility of the area to geologic hazards. The Proposed Project would be regulated by the various laws, regulations, and policies summarized in Section 3.7.2, Regulatory Setting. Compliance by the Proposed Project with applicable federal, state, and local laws and regulations is assumed in this analysis, and local and state agencies would be expected to continue to enforce applicable requirements to the extent that they do so now.

## *Topics Considered and Determined to Have No Impact*

The following topics are considered to have no impact related to the Proposed Project based on the Proposed Project characteristics, its geographical location, and underlying site conditions. Therefore, these topics are not addressed further in this document for the following reasons:

- ***Fault Rupture*** (Criterion A1). There are no active faults that cross the Proposed Project sites, and the nearest active fault to the Proposed Project sites is the Northern Hayward section of the Hayward Fault Zone, approximately 4.5 miles to the east of the Proposed Project. Therefore, the potential for fault rupture to affect the Proposed Project is very low and not discussed further.
- ***Landslides*** (Criterion A4). The Proposed Project sites are not in areas designated by the State Geologist where previous landslide movement has occurred. The Proposed Project

sites are also not mapped in areas designated as having the potential for seismically induced landslides. Therefore, no impact is associated with this hazard.

- ***Wastewater Disposal*** (Criterion E). The Proposed Project would not require the use of septic or other alternative disposal wastewater systems. Therefore, no impact is associated with this hazard.

## 3.7.4. Impact Analysis and Mitigation Measures

### *Impact GEO-1. Would the Proposed Project expose people or structures to strong seismic ground shaking and seismic-related ground failure such as liquefaction? (Criteria A2 and A3) (Less than Significant)*

#### Impact Analysis

The Proposed Project is in a seismically active region with high potential for effects related to seismically induced strong ground shaking and liquefaction. Both the San Andreas and Hayward faults have generated major historical earthquakes and are considered to have a high probability of producing another major earthquake within the next 30 years.

Widening the OHTB involves dredging to the northwest of the existing OHTB, away from the Outer Harbor Terminal, as well as electrical infrastructure installation requiring relatively limited and shallow ground disturbance landside near Berth 26. These elements would not increase potential risks related to seismic ground shaking or seismic-related ground failure. Similarly, construction staging would not involve disturbance below the ground surface or introduction of new structures that could increase potential risks related to seismic ground shaking or seismic-related ground failure.

Widening the IHTB requires excavation of land, including installation and replacement of bulkheads at Howard Terminal and the Alameda Site, respectively; electrical infrastructure installation requiring relatively limited and shallow ground disturbance at the eastern end of Howard Terminal; partial demolition of warehouses at the Alameda Site; and installation of a 300- to 400-foot-long bulkhead between the northwestern portion of the IHTB footprint and the Schnitzer/Radius Recycling Terminal. Although the Proposed Project would require changes to existing landside facilities, it would not introduce new structures that would either cause or exacerbate seismic ground shaking or liquefaction-induced effects that may occur in the vicinity of the Proposed Project. The proposed new bulkheads (see Figure 2-9 in Chapter 2) for Howard Terminal and the Alameda Site are similar to that constructed at the Alameda Site as part of the -50-Foot Project, and rock slope protection would be placed in front of the new bulkheads, similar to existing conditions at the Alameda Site. Lastly, the proposed in-water bulkhead in front of the Schnitzer/Radius Recycling Terminal in the northwestern portion of the IHTB (see Figure 2-9 in Chapter 2) would be designed to ensure that widening the IHTB does not compromise the shoreline stability at Schnitzer/Radius Recycling. The Proposed Project would comply with all seismic standards, requirements, and conditions contained in engineering design and construction-–related codes, which would ensure structural integrity of built features and safe construction, and therefore would not result in increased risk of seismic-related hazards.

During the Proposed Project pre-construction engineering and design phase, a site-specific geotechnical investigation would be performed to inform the design and engineering required to

comply with applicable building code standards. A geotechnical investigation would entail the drilling of soil borings (including cone penetrating testing) to characterize soil properties, and to provide engineers with information necessary to determine design features and construction measures that would minimize risk to structures and people due to seismic shaking and seismic-related ground failure including liquefaction. Future maintenance dredging of the widened areas of the turning basins would be confined to the removal of sediment accumulated since the last dredging event and would not result in increased risk of seismic-related hazards. Therefore, no substantial adverse effects related to seismic hazards would be expected, and the Proposed Project's impacts would be **less than significant**.

### *Impact GEO-2. Would the Proposed Project result in substantial soil erosion or the loss of topsoil? (Criterion B) (Less than Significant)*

#### Impact Analysis

The landside portions of the Proposed Project where ground-disturbing activities would occur are fully paved, with fill material beneath. There is no topsoil in the Proposed Project construction footprint at Howard Terminal, the Alameda Site, and Berth 26, and consequently, no effects on topsoil would occur. Construction staging would occur in paved areas and would not involve disturbance below the ground surface that could result soil erosion or loss of topsoil.

Ground-disturbing construction activities associated with electrical infrastructure installation at Berth 26 and Howard Terminal and the removal of land at Howard Terminal and the Alameda Site for widening the IHTB could expose soils to erosion from wind or stormwater. However, as stated in Section 2.5.3, Detailed Construction Activities, a stormwater pollution prevention plan (SWPPP) would be prepared and implemented during construction. The SWPPP would include erosion and sedimentation controls such as silt fences, fiber rolls, wind erosion controls, and stabilized construction entrances/exits. With implementation of proper erosion control measures, construction of the Proposed Project would not result in substantial soil erosion during construction. At the completion of construction, all disturbed landside areas would be paved, and there would be no potential for soil erosion. Future maintenance dredging of the widened areas of the turning basins would be confined to the removal of sediment accumulated since the last dredging event and would not involve landside ground disturbance that could result in soil erosion or loss of topsoil. Therefore, the Proposed Project's impacts related to soil erosion would be **less than significant**.

### *Impact GEO-3. Would the Proposed Project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Proposed Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse? (Criterion C) (Less than Significant)*

#### Impact Analysis

Initial slope stability analyses were performed to evaluate the end-of-construction and long-term stability of the cut slopes for both the widened IHTB and OHTB, and installed bulkheads at the IHTB (USACE 2023); these analyses informed the development of the Proposed Project improvements as presented in Chapter 2. The proposed side-slope configuration for the widened

OHTB is 3:1, which is consistent with the existing OHTB slopes. No major slope failures have been observed along the existing federal channel. The proposed new bulkheads (see Figure 2.5-2 in Chapter 2) for Howard Terminal and the Alameda Site are similar to that constructed at the Alameda Site as part of the -50-Foot Project, and rock slope protection would be placed in front of the new bulkheads, similar to existing conditions. Lastly, the proposed in-water bulkhead in front of the Schnitzer/Radius Recycling Terminal in the northwestern portion of the IHTB (see Figure 2.5-2 in Chapter 2) would be designed to ensure that widening the IHTB does not compromise the shoreline stability at Schnitzer/Radius Recycling. As described above, a site-specific geotechnical investigation would be performed during the Proposed Project's pre-construction engineering and design phase to further refine the Proposed Project design to comply with applicable building code standards and ensure that the constructed facilities maintain slope reliability and do not result in adverse effects related to landslide, lateral spreading, subsidence, liquefaction, or collapse. Future maintenance dredging of the widened areas of the turning basins would be confined to the removal of sediment accumulated since the last dredging event and would not result in increased risk related to landslide, lateral spreading, subsidence, liquefaction, or collapse. Therefore, the Proposed Project's impact related to unstable soils or geologic units would be **less than significant**.

### *Impact GEO-4. Would the Proposed Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property? (Criterion D) (Less than Significant)*

#### Impact Analysis

Expansive soils are characterized by their ability to undergo significant volume change (shrink and swell) due to variations in soil moisture content from rainfall, landscape irrigation, and/or perched groundwater. Expansive soils are typically very fine-grained, with a high to very high percentage of clay. The Young Bay Mud underlying the artificial fill at the landside Proposed Project sites is mostly clay, which is known to have shrink-swell properties if subjected to changes in water content. As described under Impact GEO-1, a site-specific geotechnical investigation would be performed during the Proposed Project pre-construction engineering and design phase to inform the design and engineering required to comply with applicable building code standards, including features to minimize risk from expansive soils, if determined to be present. Therefore, no substantial adverse effects related to expansive soils would be expected, and the Proposed Project's impacts would be **less than significant**.

### *Impact GEO-5. Would the Proposed Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (Criterion F) (Less than Significant with Mitigation)*

#### Impact Analysis

Geologic units beneath the artificial fill and Bay Mud (i.e., Merritt Sand and San Antonio Formation) underlying the Proposed Project sites have the potential for containing paleontological resources. However, due to the nature of the ground-disturbing activities at depths where paleontological resources may be encountered (i.e., dredging, pile removal, and pile installation for bulkheads), there would be limited potential for recovery of any undisturbed

soil materials or intact deposits from the Merritt Sand and San Antonio Formation. There would not be large areas of exposure into those layers under the Proposed Project during construction. For instance, any driven piles would be driven into the ground, and no subsurface materials would be returned to the surface. Although dredged materials would be returned to the surface, exposed geologic layers would be underwater and not visible. Nonetheless, because of the sensitivity of the Merritt Sand and San Antonio Formation for paleontological resources, the potential to encounter paleontological resources remains. If encountered and not properly evaluated and managed, this could result in a significant impact.

Future maintenance dredging of the widened areas of the turning basins would be confined to the removal of sediment accumulated since the last dredging event. Sediment deposited since the previous dredging activities would not contain undisturbed paleontological resources; therefore, maintenance dredging would not be expected to impact paleontological resources.

### Level of Significance Before Mitigation

*Potentially Significant.*

### Mitigation Measure

#### MM GEO-5: Inadvertent Discovery of Paleontological Resources

Before construction begins, the Port shall ensure that all construction personnel receive awareness training that includes information on the possibility of encountering fossils during construction, and proper procedures in the event fossils are encountered.

Pursuant to State CEQA Guidelines Section 15064.5(f), in the event that any paleontological resources are discovered during ground-disturbing activities, all work within 50 feet of the resources shall be halted and the Port shall consult with a qualified paleontologist to assess the significance of the find. In the event of discovery of paleontological resources, the assessment shall be done in accordance with the Society of Vertebrate Paleontology standards. If any find is determined to be significant, appropriate avoidance measures shall be considered unless avoidance is determined unnecessary or infeasible. Feasibility of avoidance shall be determined with consideration of factors such as the nature of the find, Proposed Project design, costs, and other considerations. If avoidance is infeasible, other appropriate measures (e.g., data recovery, excavation) shall be instituted. Work may proceed on other parts of the Project site while measures for the paleontological resources are implemented. All significant paleontological materials recovered shall be subject to scientific analysis, professional museum curation, and/or a report prepared by a qualified paleontologist, as appropriate, according to current professional standards.

### Significance after Mitigation

*Less than Significant with Mitigation.*

In the event of an unanticipated discovery, implementation of Mitigation Measure GEO-5 would avoid substantial adverse impacts to paleontological resources by requiring that work stop in the immediate vicinity of the find until it is properly evaluated by a qualified paleontologist. If it is determined to be a significant find and avoidance is not feasible, appropriate measures would be implemented to excavate or otherwise recover data, in accordance with current professional standards. With implementation of Mitigation Measure GEO-5, the Proposed Project's impact to paleontological resources would be **less than significant**.

# 3.8. GREENHOUSE GAS EMISSIONS

This section assesses the potential for the Proposed Project to result in significant adverse environmental impacts from greenhouse gas (GHG) emissions. This analysis considers the GHG emissions that would result from construction activities associated with the Proposed Project and compares these emissions to thresholds of significance.

This section relies in part on the Air Quality, Greenhouse Gas, and Energy Technical Report (Air Quality Technical Report) prepared by Montrose Environmental in support of the Proposed Project (see Appendix B, *Air Quality, Greenhouse Gas, and Energy Technical Report*).

## 3.8.1. Environmental Setting

### *Greenhouse Gases and Climate Change*

Gases that trap heat in the atmosphere are called GHGs. GHGs allow sunlight to enter the atmosphere, but trap a portion of the outward-bound infrared radiation, which warms the air. The process is similar to the effect of greenhouses, which are used to grow plants year-round even during cold months, which raises the internal temperature—therefore the name "greenhouse gas."

Global climate change is a change in the prevailing weather patterns on Earth that can be measured by wind patterns, storms, precipitation, and temperature. Climate change is a global problem, and GHGs are global pollutants, unlike criteria air pollutants (such as ozone precursors) and toxic air contaminants (TACs), which are pollutants of regional and local concern. Both natural processes and human activities emit GHGs. The natural accumulation of GHGs in the atmosphere regulates the Earth's temperature; however, emissions from human activities, such as fossil fuel–based electricity production and the use of internal combustion engines and motor vehicles, have elevated the concentration of GHGs in the atmosphere since the start of the industrial revolution. This human-caused (anthropogenic) accumulation of GHGs has contributed to an increase in the temperature of the Earth's atmosphere and has contributed to global climate change.

Although there is disagreement as to the rate of global climate change, multiple studies published in peer-reviewed scientific journals show that 97 percent or more of actively publishing scientists agree: climate-warming trends over the past century are very likely due to human activities (NASA 2015). Emissions of carbon dioxide ($CO_2$) and nitrous oxide ($N_2O$) are byproducts of fossil fuel combustion, but are also emitted from other sources, including cement manufacture and land use changes such as converting grassland to urban development. Methane ($CH_4$), a highly potent GHG, results from off-gassing associated with agricultural practices and landfills, as well as from incomplete combustion of fossil fuels.

The principal GHGs are $CO_2$, $CH_4$, $N_2O$, sulfur hexafluoride ($SF_6$), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and nitrogen trifluoride ($NF_3$). $CO_2$ is the reference gas for estimating GHG emissions; that is, the global warming potential (GWP) of $CO_2$ is used as the standard by which other GHGs are measured. To account for the GWP of different GHGs, emissions are often quantified and reported as $CO_2$ equivalents ($CO_2e$), a measure of how much global warming a given type and mass of GHG may cause compared to the equivalent amount of

$CO_2$. For example, $SF_6$ is a GHG commonly used in the utility industry as an insulating gas in circuit breakers and other electronic equipment. SF6, while comprising a small fraction of the total GHGs emitted annually worldwide, is a much more potent GHG, with 22,800 times the GWP of $CO_2$. GHG emissions are commonly reported in units of metric tonnes, rather than the more common U.S. short tons, because GHG emissions are commonly compared on a global scale.

GWP ratios are provided by the Intergovernmental Panel on Climate Change (IPCC). Historically, GHG emission inventories were calculated using ratios from the IPCC's Second Assessment Report (SAR), published in 1996. The IPCC has since updated the ratios based on the latest science in its Fourth Assessment Report, Fifth Assessment Report, and Sixth Assessment Report, published in 2007 (IPCC 2007), 2014 (IPCC 2015) and 2022 (IPCC 2022), respectively. The California Air Resources Board (CARB) currently uses GWP ratios in the Fourth Assessment Report (2007) for the statewide GHG emissions inventory (CARB 2023), and in the current version of the California Emissions Estimator Model (CalEEMod) (CAPCOA 2022) that was used to calculate $CO_2e$ values for the Proposed Project. Compounds that are regulated as GHGs are discussed in more detail below.

**Carbon Dioxide**. In the atmosphere, carbon generally exists in its oxidized form as $CO_2$. Natural sources of $CO_2$ include the respiration (breathing) of humans, animals, and plants; volcanic outgassing; decomposition of organic matter[62]; and evaporation from the oceans. Human-caused sources of $CO_2$ include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. Natural $CO_2$ removal processes, such as photosynthesis by land- and ocean-dwelling plant species, cannot keep pace with this extra input of human-made $CO_2$; consequently, the gas is building up in the atmosphere. $CO_2$ accounted for approximately 80 percent of anthropogenic GHG emissions in California in 2019 (CARB 2022).

**Methane**. $CH_4$ is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Decomposition occurring in landfills accounts for the majority of human-generated $CH_4$ emissions in California and in the United States as a whole. Agricultural processes such as intestinal fermentation in animals, manure management, and rice cultivation are also large sources of $CH_4$ in California. Methane is also released at points of natural gas extraction and in leakages throughout the gas pipeline system.

The GWP of $CH_4$ is considered by CARB to be approximately 25 times that of $CO_2$ as averaged over a 100-year timescale. On this timescale, $CH_4$ accounted for approximately 9 percent of anthropogenic GHG emissions in California in 2019 (CARB 2022). However, because $CH_4$ breaks down rapidly into $CO_2$ and water once in the atmosphere, there is growing recognition among climate scientists that a 20-year time horizon is more relevant. The 20-year GWP of $CH_4$ is between 84 and 87 times greater than that of $CO_2$. That means methane is a much larger contributor to California's anthropogenic GHG emissions over the shorter time frame of 20 years than originally calculated over 100 years.

**Nitrous Oxide.** $N_2O$ is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural

[62] Organic matter is matter composed of organic compounds that come from the remains of organisms such as plants and animals.

source emissions. $N_2O$ is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion emit $N_2O$, and the quantity emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated $N_2O$ emissions in California. $N_2O$ has a GWP of approximately 298 times that of $CO_2$, and its emissions accounted for approximately 3 percent of anthropogenic GHG emissions in California in 2019 (CARB 2022).

**Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride**. HFCs are primarily used as substitutes for ozone-depleting substances and have global warming potentials that range from hundreds to thousands of times that of $CO_2$. PFCs and $SF_6$ are emitted from various industrial processes, including semiconductor manufacturing and electric power transmission and distribution. These accounted for approximately 6 percent of anthropogenic GHG emissions in California in 2019 (CARB 2022).

**Nitrogen Trifluoride.** $NF_3$ is primarily used in manufacturing semiconductor and liquid crystal display (LCD) panels, certain types of solar panels, and chemical lasers. The ability to measure $NF_3$ atmospheric concentrations has only recently become possible, and this has revealed much higher concentrations than originally assumed. This is a major cause of concern because $NF_3$ is an extremely potent GHG and has a GWP of 17,200 times that of $CO_2$ (WRI and WBCSD 2013).

## *Effects of Climate Change*

Climate change refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer). The scientific community's understanding of the fundamental processes responsible for global climate change has improved over the past decade, and its predictive capabilities are advancing. However, there remain significant scientific uncertainties in, for example, predictions of local effects of climate change; occurrence, frequency, and magnitude of extreme weather events; effects of aerosols; changes in clouds; shifts in the intensity and distribution of precipitation; and changes in oceanic circulation.

For California, projected effects from climate change are described in California's Fourth Climate Change Assessment (California Climate Change Center [CCCC] 2019). Based on projections using climate modeling, temperatures in California are expected to rise between 5.6 degrees °F and 8.8°F above year 2000 averages by 2050 (CCCC 2019). The predicted changes in the future climate have been found to affect the natural environment in California in the following ways (CCCC 2012, 2019):

- Increased wildfire risk and wildfire severity;
- Adverse effects on native freshwater fish species;
- Increased ground-level ozone levels and particulate air pollution;
- Earlier snowmelt and runoff;
- Faster-than-historical sea level rise and increased coastal flooding; and
- Impacts on the agricultural industry from population decreases of pollinators and increases of pests and disease.

These changes in California's climate and ecosystems are projected to occur because California's population is expected to increase from 40 million in 2020 to 45 million by 2050 (CDF 2023a). As the population increases, the demand for transportation, water, and electrical utilities, as well as other commodities, will increase correspondingly, resulting in an increase in the amount of anthropogenic GHG emissions anticipated under a "business as usual" scenario.

Although the possible outcomes and the feedback mechanisms involved are not fully understood and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be substantial. All of these impacts would have either direct or indirect adverse effects for the residents and businesses in and near the Proposed Project area.

## *Emissions Inventories*

An emissions inventory that identifies and quantifies the primary human-generated sources and sinks (things that absorb more carbon than they release, such as plants, ocean, and soil) of GHGs is a well-recognized and useful tool for addressing human society's contributions to climate change. This section summarizes the latest information on global, United States, California, and local GHG emission inventories.

### Global Emissions

Global emissions estimates are based on country inventories developed as part of programs of the United Nations Framework Convention on Climate Change. Worldwide human-made emissions of GHGs in 2010 were approximately 49 billion metric tonnes $CO_2e$, including ongoing emissions from industrial and agricultural sources and emissions from land use changes (e.g., deforestation). Emissions of $CO_2$ in 2010 from fossil fuel use and industrial processes accounted for 65 percent of the total, while $CO_2$ emissions from all sources accounted for 76 percent of the total. Methane emissions accounted for 16 percent and $N_2O$ emissions for 6.2 percent. For perspective, worldwide emissions of GHGs in 1970 were 27 billion metric tonnes $CO_2e$ (IPCC 2015).

### U.S. Emissions

In 2021, the United States emitted about 5,586 million metric tonnes $CO_2e$ ($MMTCO_2e$) after accounting for land sequestration.[63] Of the major sectors nationwide, transportation accounted for the highest amount of GHG emissions (approximately 29 percent), followed by electricity (25 percent), industrial (24 percent), agriculture (11 percent), commercial (7 percent), and residential (6 percent). Between 1990 and 2021, total net U.S. GHG emissions decreased by 2 percent. Since peaking in 2005, total net emissions have decreased by about 17 percent (USEPA 2023).

### State of California Emissions

CARB compiles GHG inventories for the State of California. Based on CARB's 2020 GHG inventory data, California emitted 369.2 $MMTCO_2e$, including emissions resulting from imported electrical power (CARB 2023). Between 1990 and 2022, the population of California grew by approximately 9.7 million (from 29.8 to 39.1 million) (California Department of Finance 2023a), representing an increase of approximately 31 percent from 1990 population

[63] Land sequestration is the storage of carbon and nitrogen that is stored for a period of time in the land, such as in the roots and vegetation of plants or absorbed in water in the ocean.

levels. In addition, the California economy, measured as gross state product, grew from $773 billion in 1990 to $3.60 trillion in 2022, representing an increase of approximately 365 percent (over four times the 1990 gross state product) (California Department of Finance 2023b). Despite this population and economic growth, CARB's 2020 statewide inventory indicates that California's net GHG emissions in 2020 were below 1990 levels of 431 $MMTCO_2e$, which was the 2020 GHG reduction target codified in California Health and Safety Code (HSC), Division 25.5, also known as The Global Warming Solutions Act of 2006 (AB 32). Although 2020 data may be slightly irregular due to the COVID-19 pandemic, previous years were already below the 1990 levels.

### San Francisco Bay Area Emissions Inventory

In the nine-county San Francisco Bay Area, the transportation sector represented the largest source of the Bay Area's GHG emissions in 2015 at 41 percent, followed by stationary industrial sources at 26 percent, electricity generation and co-generation at 14 percent, and fuel use (primarily natural gas) by buildings at 10 percent. The remaining 8 percent of emissions are composed of fluorinated gas emissions and emissions from solid waste and agriculture. Of the total transportation emissions in 2015, on-road sources accounted for approximately 87 percent, while off-road sources accounted for the remainder (BAAQMD 2017).

### Alameda County Emissions Inventory

Emission inventories developed for Alameda County reveal that activities in the unincorporated county regions and within the county's 14 municipalities generated approximately 43,327 metric tonnes $CO_2e$ emissions in 2019 (Alameda County 2021). The transportation sector generated approximately 66 percent of these emissions, while owned and leased building facilities accounted for 31 percent. The remainder of emissions were divided between infrastructure, waste generation, and agricultural uses.

### City of Oakland Emissions Inventory

The City of Oakland partnered with the International Council for Local Environmental Initiatives (ICLEI), an international association of local, regional, and national governments and government organizations that have made a commitment to sustainable development, to prepare the Baseline Greenhouse Gas Emissions Inventory Report to determine the community-wide levels of GHG emissions that the City of Oakland emitted in its base year of 2005. The City has updated its core emissions inventory several times, most recently in 2019. The core emissions inventory includes emissions associated with energy used and waste produced within the Oakland city limits, as well as other emission sources associated with activities occurring in Oakland, such as industrial point sources, vehicle travel on roads and highways, public transit, airport and maritime port operations, and energy used to convey water to Oakland (City of Oakland 2022).

Oakland emitted approximately 2.63 $MMTCO_2e$ in 2019 from all major sources, with almost two-thirds of the total coming from on-road transportation. The 2019 inventory report shows that core emissions have decreased by approximately 21 percent since 2005. Despite these decreases, the inventory report shows that emissions failed to meet the City's 2020 target of 36 percent below 2005 baseline levels (City of Oakland 2022).

### Port of Oakland Seaport Air Emissions Inventory

Since 2012, the Port of Oakland has published GHG emissions for the activities within the geographic area defined in its periodic Seaport Air Emissions Inventories. On the waterside, the geographic area extends to the outer ring of buoys west of the Golden Gate Bridge, approximately 30 nautical miles from the Port. On the landside, the geographic area is defined approximately by the boundaries of I-80, I-880, and Howard Terminal (excluding the City-owned portion of the former Oakland Army Base and the privately owned facilities of Union Pacific Rail Yard, and Schnitzer/Radius Recycling). The Port of Oakland Seaport GHG emissions for 2020 are summarized in the 2020 Seaport Air Emissions Inventory (Port of Oakland 2021). The estimated 2020 emissions of GHG from the Seaport are 202,786 short tons of $CO_2e$ or 183,964 metric tonnes $CO_2e$. Ocean-going vessels make up the largest category at 45 percent of all GHG emissions at the Seaport, followed by cargo handling equipment (22 percent) and trucks (13 percent).

### Port of Oakland Shore Power

The Port built an electrical distribution system to provide power to vessels while they are at berth. Vessels can turn off their diesel-fueled engines when they are plugged into the Port's shore power system, reducing local harmful air pollutants and GHG emissions. CARB promulgated a regulation in 2007 requiring container vessels, cruise ships, and reefer ships to reduce emissions (the primary option being plugging into shore power) while berthed at the largest seaports in the state, including the Port of Oakland. The Port constructed its shore power system in 2012 and 2013, including a substation and switchgear plus two to four outlets per berth, and vessels started plugging in soon thereafter.

Historically, the Port's plug-in success rate routinely met or surpassed compliance targets, which were set at 50 percent of each fleet's visits in 2014, increasing over time to 80 percent in 2020. From 2018 through 2021, the Port's annual average plug-in success rate averaged 74 percent, with the highest plug-in rate in 2019 at 76 percent.[64] The COVID-19 pandemic negatively affected shore power usage starting in 2020, because shipping lines faced challenges in equipping their vessels to receive shore power due to supply chain problems for procuring equipment, difficulties scheduling retrofits and time in dry dock, and travel restrictions for technical personnel. These issues were compounded at the Port by coast-wide port congestion that resulted in many cancelled visits to the Port. In 2022, the average shore power plug-in rate was 62 percent, due primarily to overall reduced vessel calls and the higher fraction of unequipped vessels. CARB updated its At-Berth regulation with a new compliance target for container vessels of 100 percent of vessel visits except for allowed exemptions starting in 2023. Since this regulation has been in effect, the Port has seen a steady rise in shore power usage, reaching 93 percent for the month of July 2023, and an average of 83 percent for the calendar year.[65]

[64] These numbers include vessel calls that were exempt from the at-berth regulations, such as non-container vessels and vessel with a low number of fleet calls, as well as emergency exception events.

[65] This number includes vessel calls that would fall under exemptions. In 2023, CARB allowed facilities and vessels to transition from the old to the new at-berth regulation and can meet an overall compliance of 20 percent or start using the vessel incident event and terminal incident event exemptions with a limit on the percentage of calls that can be designated as incident events.

### Existing Site Emissions

The Proposed Project site on the Oakland side currently accommodates short-term tenants of the Port engaged in ancillary maritime support uses such as truck parking, storage and staging of loaded and empty containers, berthing vessels for maintenance and storage, and longshore training facilities that occupy a total of 4 acres. As discussed in Chapter 2, *Project Description*, the existing Port tenants and users of Howard Terminal are assumed to move to other locations within the Seaport or the region where their uses are permitted under applicable zoning and other regulations prior to construction of the Proposed Project. All trucks currently making trips in/out of Howard Terminal are expected to continue to make the same number of trips to and from the Seaport from their new locations. The Proposed Project site on the Alameda side of the Inner Harbor includes warehouses that would be partially demolished (a total of 5 bays out of 10 bays would be demolished), and it is assumed that the lost capacity would either be consolidated in the remaining warehouse space or in other existing warehouses. The location of other existing warehouses is currently too speculative to include in this analysis. In addition, both Bay Ship & Yacht and Swire sublease their waterside areas to harbor craft, and some land for storage. It is assumed that subtenants would potentially need to relocate or consolidate their operations to maintain their current operations; locations of relocation sites are currently too speculative to include in this analysis. There are existing ferries and vessels that use the current federally maintained channels and turning basins. Although there may be temporary disruption of these activities during construction of the Proposed Project, it is anticipated that these activities would continue to occur in the future. Therefore, GHG emissions from current uses at the Proposed Project site would still occur in the region and would not be eliminated with the Project.

## 3.8.2. Regulatory Setting

Federal and state agencies regulate GHG emissions through various programs. On the federal level, the United States Department of Transportation (USDOT) and United States Environmental Protection Agency (USEPA) (USEPA and USDOT 2010) influence GHG emissions policies and programs. Generally, federal agencies influence transportation-related GHG emissions through establishment and enforcement of fuel economy standards for automobiles and trucks, funding of research and development projects related to GHG emissions reduction, and funding for transportation infrastructure projects. At the state level, CARB is the agency with authority over different aspects of GHG such as electricity, industrial, and fuel supply emissions.

This section summarizes federal, state, and local laws, regulations, and policies pertinent to the evaluation of the Proposed Project's impacts on GHG emissions.

### *Federal*

At the federal level, the USEPA has developed regulations to reduce GHG emissions from motor vehicles and has developed permitting requirements for large stationary emitters of GHGs. For further information regarding the current USEPA and NHTSA joint rulemaking for vehicle standards, see Section 3.3.2, Air Quality Regulatory Setting.

### *State*

California regulates GHG emissions through legislation, rules, and executive orders, as described further below.

## State of California Executive Orders

***Executive Order S-3-05.*** In 2005, in recognition of California's vulnerability to the effects of climate change, then-Governor Schwarzenegger issued Executive Order (EO) S-3-05, which set forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

***Executive Order S-1-07.*** EO S-1-07, which was signed by then-Governor Schwarzenegger in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, generating more than 40 percent of statewide emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in California by at least 10 percent by 2020 and directed that a Low Carbon Fuel Standard (LCFS) be established for California. CARB approved the proposed regulation to implement the LCFS in 2009.

***Executive Order S-13-08.*** Then-Governor Schwarzenegger signed EO S-13-08 on November 14, 2008. The order called on state agencies to develop California's first strategy to identify and prepare for expected climate impacts. As a result, the *2009 California Climate Adaptation Strategy* (CAS) report was developed to summarize the best-known science on climate change impacts in the state, assess vulnerability, and outline possible solutions that can be implemented in and across state agencies to promote resiliency (CNRA 2009), and updated in 2014 (CNRA 2014). The state has also developed an Adaptation Planning Guide (California Emergency Management Agency [CEMA] 2012) to provide a decision-making framework intended for use by local and regional stakeholders to aid in the interpretation of climate science and develop a systematic rationale for reducing risks caused or exacerbated by climate change. The state's third major assessment (CNRA 2018) on climate change explores local and statewide vulnerabilities to climate change, highlighting opportunities for taking concrete actions to reduce climate-change impacts.

***Executive Order B-30-15.*** Then-Governor Brown signed EO-B-30-15 on April 29, 2015, which directed the following:

- Established a new interim statewide reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030;
- Ordered all state agencies with jurisdiction over sources of GHG emissions to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 (80 percent below 1990 levels) reduction targets; and
- Directed CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of $MMTCO_2e$.

***Executive Order B-55-18.*** On September 10, 2018, then-Governor Brown signed EO B-55-18, committing California to total, economy-wide carbon neutrality by 2045. EO B-55-18 directs CARB to work with relevant State agencies to develop a framework to implement these goals, and accounting that tracks progress toward this goal.

***Executive Order N-79-20.*** In EO N-79-20, Governor Newsom states that "clean renewable fuels play a role as California transitions to a decarbonized transportation sector." EO N-79-20 directs as follows:

"[T]o support the transition away from fossil fuels consistent with the goals established in this Order and California's goal to achieve carbon neutrality by no later than 2045, the California Environmental Protection Agency and the California Natural Resources Agency, in consultation with other State, local and federal agencies, shall expedite regulatory processes to repurpose and transition upstream and downstream oil production facilities...."

The Governor's Order also directs CARB to "develop and propose strategies to continue the State's current efforts to reduce the carbon intensity of fuels beyond 2030 with consideration of the full life cycle of carbon."

## State of California Policy and Legislation

### *Assembly Bill 32 and Senate Bill 32 – California Global Warming Solutions Act*

In September 2006, then-Governor Schwarzenegger signed the California Global Warming Solutions Act (Assembly Bill [AB] 32). AB 32 (California Health and Safety Code, Division 25.5) establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 required that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction was intended to be accomplished by enforcing a statewide cap on GHG emissions that was phased in starting in 2012. To effectively implement the cap, AB 32 directed CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources.

In 2016, Senate Bill (SB) 32 and its companion bill AB 197 amended California Health and Safety Code, Division 25.5 Section 38500 et seq. and established a new GHG reduction target of 40 percent below 1990 levels by 2030. The bills also include provisions to ensure the benefits of state climate policies reach into disadvantaged communities.

### *Scoping Plan*

A specific requirement of AB 32 was to prepare a Climate Change Scoping Plan for achieving the maximum technologically feasible and cost-effective GHG emission reduction by 2020. CARB developed and approved the initial Scoping Plan in 2008, outlining the regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs that would be needed to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the state's long-range climate objectives (CARB 2009).

Most recently, CARB approved the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) in December 2022. The 2022 Scoping Plan outlines the proposed framework of action for achieving the 2045 GHG target of an 85 percent reduction in GHG emissions relative to 1990 levels; the update also adds carbon neutrality as a science-based guide for California's climate work (CARB 2022). The 2022 Scoping Plan outlines how carbon neutrality can be achieved to reduce GHGs to meet the emission targets by reducing anthropogenic emissions and expanding actions to capture and store carbon. New to the 2022 Scoping Plan is a commitment to incorporate and quantify natural and working lands as a key component to GHG reductions and actions around capture and storage of carbon. The 2022 Scoping Plan strategy for meeting the state's 2030 GHG target incorporates the full range of legislative actions and state-developed plans that have relevance to the year 2030. The 2022 Scoping Plan is heading toward the 2045

target of 85 percent below 1990 levels and carbon neutrality, including the following reductions in key sectors:

- The transportation sector targets reductions based on the technology of vehicles and associated refueling infrastructure for those vehicles; the fuel used as the energy source to power vehicles and the facilities that produce them; and vehicle miles traveled (VMT), which relates to development patterns and available transportation options.
- Port-related targets in the transportation sector include full implementation of the Ocean-Going Vessels (OGV) At-Berth regulation (described in more detail below), 25 percent of OGVs utilizing hydrogen fuel cell electric technology by 2045, 100 percent of cargo handling equipment being zero emission by 2037, and 100 percent of drayage trucks being zero emission by 2035.
- The electricity grid sector has a target of 38 $MMTCO_2e$ in 2030 and 30 $MMTCO_2e$ in 2035, which includes a goal of generating 20 gigawatts of offshore wind by 2045 and specifies that the increased demand for electrification occurs without new fossil gas–fired resources.
- The manufacturing and building sector include increased electrification of energy demand for construction equipment, as well as across many manufacturing sectors and buildings.
- $CO_2$ removal and capture include carbon capture and storage facilities and mechanical systems to remove $CO_2$ from the ambient air.
- Short-lived climate pollutants, including non-combustion methane emissions, are reduced with various strategies.
- Natural and working lands sectors include targets to conserve natural working lands and coastal waters, and to implement actions to accelerate natural removal of carbon and improve resilience to climate change.

In the 2022 Scoping Plan, CARB recommends statewide targets of no more 226 $MMTCO_2e$ from AB 32 GHG inventory sector emissions and 7 $MMTCO_2e$ from natural and working lands, a reduction from carbon capture and sequestration due to avoided GHG emissions from industry and electric sectors of 13 $MMTCO_2e$, and a reduction of 7 $MMTCO_2e$ from $CO_2$ removal, including carbon sequestration on natural and working lands, as well as direct air capture and bio-energy with carbon capture and sequestration. The net 2030 GHG emissions, accounting for emissions and removal or sequestration, is 226 $MMTCO_2e$. For the 2045 scenario in the 2022 Scoping Plan, maximum GHG emissions from AB 32 inventory sector emissions are 65 $MMTCO_2e$, emissions from working lands are 7 $MMTCO_2e$, and reductions from carbon capture and sequestration and $CO_2$ removal are 100 $MMTCO_2e$. This is a net reduction of 3 $MMTCO_2e$ by 2045.

#### *Tractor-Trailer Greenhouse Gas Regulation*

CARB's Tractor-Trailer Greenhouse Gas regulation reduces the energy consumption of large trucks. CARB developed this regulation to make heavy-duty tractors more fuel efficient. Fuel efficiency is improved by requiring the use of aerodynamic tractors and trailers that are also equipped with tires that have a low rolling resistance. The tractors and trailers subject to this

regulation must either use USEPA SmartWay (SmartWay) certified tractors and trailers or retrofit their existing fleet with SmartWay-verified technologies. The SmartWay certification process is part of the broader voluntary program called the SmartWay Transport Partnership Program. The regulation applies primarily to owners of 53-foot or longer box-type trailers and owners of the heavy-duty tractors that pull them on California highways. These owners are responsible for replacing or retrofitting their affected vehicles with compliant aerodynamic technologies and low-rolling-resistance tires. All owners, regardless of where their vehicle is registered, must comply with the regulation when they operate their affected vehicles on California highways. Besides the owners of these vehicles, drivers, motor carriers, California-based brokers, and California-based shippers that operate or use them also share in the responsibility for compliance with the regulation.

#### Other State Regulations and Policies

For further information regarding the following regulations and policies, see Section 3.3.2, Air Quality Regulatory Setting.

- Advanced Clean Cars
- CARB's Mobile Source Strategy
- CARB's Commercial Harbor Craft Regulation
- CARB's At-Berth Regulation
- California Sustainable Freight Action Plan
- AB 617 and Community Air Protection Program

For further information regarding the following regulations and policies, see Section 3.6.2, Energy Regulatory Setting.

- Low Carbon Fuel Standard
- Renewable Portfolio Standard

### *Local*

#### BAAQMD Climate Protection Program

BAAQMD has established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the San Francisco Bay Area Air Basin. The climate protection program includes measures that promote energy efficiency, reduce VMT, and develop alternative sources of energy, all of which assist in reducing emissions of GHG and air pollutants that affect the health of residents. BAAQMD also seeks to support and stimulate climate protection programs in the region through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders.

#### BAAQMD CEQA Air Quality Guidelines

The BAAQMD CEQA Air Quality Guidelines originally were prepared in 1999 to assist in the evaluation of air quality impacts of projects and plans proposed in the San Francisco Bay Area. The guidelines provide nonbinding recommended procedures for evaluating potential air quality impacts during the environmental review process, consistent with CEQA requirements, including recommended thresholds of significance, mitigation measures, and background air quality information. The guidelines also include recommended assessment methodologies for air toxics, odors, and GHG emissions. In June 2010, the BAAQMD Board of Directors adopted CEQA

thresholds of significance and an update of the CEQA Air Quality Guidelines, which included significance thresholds for GHG emissions based on the emission reduction goals for 2020 articulated by the California State Legislature in AB 32. These thresholds were revised in 2022 for land use projects,[66] shifting from a "Brightline" threshold, which is a level of emissions not to exceed regardless of the size or scope of the project, to a threshold requiring either compliance with a prescriptive list of project design elements for buildings and transportation or consistency with a local GHG reduction strategy that meets the criteria cited in CEQA Guidelines Section 15183.5(b).

### City of Alameda GHG Reduction Targets and Climate Action and Resiliency Plan

In 2019, the City of Alameda adopted the Climate Action and Resiliency Plan (CARP; City of Alameda 2019). The plan uses an integrated approach that emphasizes reducing GHG emissions to achieve net-zero carbon emissions as soon as possible, as well as adapting the city to handle climate change impacts. The city has established a goal to reduce emissions by 50 percent below 2005 levels by 2030. To meet this goal, the city will continue to carry out already-committed actions in the Transportation Choices Plan and the Zero Waste Implementation Plan. New actions outlined in the CARP include the following:

- Transportation: Reduce the impacts of solo driving by encouraging mode shift (e.g., taking the bus, bicycling, walking, and avoiding trips altogether) and electric vehicle (EV) use.
- Buildings: Eliminate as much natural gas use as possible by fuel shifting—that is, converting natural gas use to electricity use. This can be accomplished by requiring new residential developments to be all-electric and replacing gas-powered appliances in existing buildings.
- Sequestration: Draw down carbon already in the atmosphere by applying compost (created from organic waste diverted from landfills) in parks and open areas and planting more trees. The city will begin its sequestration efforts with pilot projects and eventually expand them to larger areas.
- Waste: Reduce the amount of material sent to landfills by increasing composting and recycling, as laid out in the Zero Waste Implementation Plan Update. This will pave the way for reaching true sustainability by transitioning to a circular economy that keeps raw materials in a constant flow, rather than a linear economy that extracts raw materials and then disposes of them.

### Other Local Regulations and Policies

For further information regarding the following regulations and policies, see Section 3.3.2, Air Quality Regulatory Setting.

- Bay Area Air Quality Management District Clean Air Plan
- Port of Oakland Seaport Air Quality 2020 and Beyond Plan
- West Oakland Truck Management Plan
- West Oakland Community Action Plan

[66] Land use projects are typical projects that develop land into residential, commercial, and government uses such as buildings and traffic improvements.

## 3.8.3. Significance Criteria

Based on Appendix G of the CEQA Guidelines, the below questions (criteria) were analyzed and evaluated to determine whether the Proposed Project's impacts related to GHG emissions are significant. Would the Proposed Project:

A. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

B. Conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emission of GHGs?

### *BAAQMD CEQA Air Quality Guidelines*

The BAAQMD CEQA Air Quality Guidelines do not contain any quantitative significance thresholds for construction-related GHG emissions or prescriptive measures for infrastructure projects. Rather, BAAQMD recommends that lead agencies quantify and disclose GHG emissions that would occur during construction and operation of infrastructure projects. BAAQMD states that, even though the significance of construction-related GHG emissions is not determined, to minimize GHG emissions and emissions of other air quality pollutants, projects should incorporate the best management practices for reducing GHG emissions listed in the agency's CEQA guidance (BAAQMD 2023). BAAQMD does not have any guidance for projects that are not land use projects, stationary sources, or under a local GHG reduction strategy. BAAQMD notes that these guidelines are nonbinding recommendations intended to assist lead agencies, and they may be updated as needed in the future; any updates will likewise be nonbinding and advisory.

The impact analysis evaluates whether implementation of the Proposed Project would result in significant impacts related to GHG levels based on the anticipated construction, operation, and maintenance activities required for the Proposed Project. For purposes of significance determination, the GHG emissions are tied back to the goals set forth in SB 32 and applicable strategies outlined in the latest Scoping Plan.

### *Methodology for Analysis*

#### Construction

The analysis estimates the GHG emissions associated with the construction of the Proposed Project from the combustion of fossil fuel from off-road construction equipment such as loaders, dozers, excavators, drill rigs, generators, pile drivers, cranes, compressors, and concrete saws and in-water vessels, including dive boats, towboats, and scows; and from the combustion of fossil fuels from material hauling trips and worker commute trips. Below is a brief summary of the methods used. Further details can be found in Appendix B: *Air Quality, Greenhouse Gas, and Energy Technical Report*.

##### *On-Road Vehicles*

Based on the number of worker vehicles trips, which assumes each worker makes one trip to and from the site each working day and the CalEEMod default one-way trip length of 10.8 miles, an estimate of total worker VMT is determined. This VMT is multiplied by the emission factor of the GHG emissions of the vehicles based on EMFAC 2021 for light-duty autos and light-duty trucks, with all of the vehicles used by workers assumed to be gasoline fueled, even though other options

such as diesel, hybrid, electric, and other alternative fuels are possible. Similarly, the hauling trips for the Class I and Class II landfills, as well as the recycler and miscellaneous vendor trips, use the number of trips multiplied by their trip lengths to give the total VMT by these heavy heavy-duty trucks, which are all assumed to be diesel fueled. **Table 3.8-1** shows the one-way trip lengths for the Class I, Class II Landfills, Recycler, and other hauling vendor trips, which are conservatively based on the typical travel path from the construction area with the longest distance. Each truck is assumed to travel from the construction site to its destination for each load it carries, and then back to the construction site. The truck VMT is multiplied by the emission factor for the GHG emissions of the vehicles based on EMFAC 2021 for heavy, heavy-duty trucks.

**Table 3.8-1 On-Road Vehicle Trip Lengths**

| Trip Type | One-Way Trip Length (miles) |
|---|---|
| Class I (Hazardous) Landfill)[1] | 201 |
| Class II (non-hazardous) Landfill[2] | 32 |
| Recycler[3] | 10 |
| Other Hauling Vendor Trips[4] | 20 |
| Workers[4] | 10.8 |

Notes:

1 The Class I landfill location is assumed to be Kettleman Hills Landfill in Kettleman City, California.

2 The Class II landfill location is assumed to be Keller Canyon Landfill near Pittsburg, California

3 Material acceptable for recycling or reuse would be hauled to Argent Materials in Oakland, California or another local recycler.

4 The default CalEEMod trip lengths were used for vendor trips and workers.

### *Off-Road Equipment*

For off-road equipment, which consists of land-side and in-water equipment and vessels, the emission factors (or the emissions per horsepower-hour) were based on values used by CARB in its OFFROAD model and in the latest harbor craft emission inventory. The beneficial reuse conservatively assumed placement 50 miles away to estimate the tow boat travel emissions. These emission factors are multiplied by the horsepower, load factor, and hours of activity to determine the GHG emissions.

The Proposed Project would use electric dredging equipment that would plug into shore power, which results in indirect GHG emissions associated with the electricity. The electricity use was estimated by multiplying the number of dredging hours by the hourly power draw of 1,237 kilowatts of the electric dredgers and applying the CARB load factor of 0.44 for dredging based on their latest harbor craft emission inventory methodology. The total electricity is multiplied by the carbon content reported in AMP and Port Utilities respective Power Content Label from 2021 for the IHTB work and OHTB work, which is conservative because further implementation of the renewable portfolio standard will likely lower these values by the time construction starts.

## Carbon Sequestration of Beneficial Re-Use Sediment

Sediment from the dredging activities would be transported by scow and towboat to permitted beneficial reuse sites. The placement of sediment in wetland areas can result in increased carbon

sequestration compared to the existing amount of carbon sequestration. An estimate of the potential increased carbon sequestration based on the estimated volume of dredged sediment material is included in the analysis based on methods for carbon sequestration in tidal coastal wetlands (Charpentier et al. 2010). This estimate assumed that the sequestration rate would be 210 grams $CO_2$ per square meter per year over the 50-year life of the Proposed Project. To determine acreage of sediment material, the analysis assumed that the depth of wetlands was 5 feet.

### Operation and Maintenance

For operation GHG emissions as discussed in Chapter 2, the Proposed Project is not expected to increase cargo throughput or change landside operations at the Seaport, and there would be negligible changes in GHG emissions associated with landside operations as a result of the Proposed Project. The existing activities at the impacted land and waterside areas would be relocated or consolidated, and there would be negligible changes in GHG emissions associated with the relocation or consolidation of existing activities. The specific locations and extent of consolidation that would occur are unknown, which prevents a detailed analysis from occurring; but in general, any change due to differences in minor trip lengths and activity would be minimal overall, assuming no other changes to demand and growth.

The Proposed Project operation would have some changes associated with in-water operations compared to the future No Project baseline scenario. The use of the future operational baseline rather than the existing baseline is appropriate for this situation, and allowed under CEQA because the vessel fleet would likely change in the future as a result of other economic and global influences to the shipping industry, including growth, efficiency improvements, and vessel emission improvements, as well as the physical change to the turning basins. The difference between the Proposed Project and No Project future information is the physical changes to the size of the turning basins. With or without the Proposed Project, the Port anticipates a 2.1 percent growth in cargo annually. It also includes planned improvements that would be anticipated to occur under both the Proposed Project and No Project future scenarios. Most importantly for GHG emissions, the mix of OGVs and number of vessel calls are expected to change when compared to the future No Project baseline scenario and will be substantially different than the mix of OGVs and number of vessel calls existing currently. To evaluate the change in GHG emissions for the in-water operation, the vessel fleet mix and vessel calls as reported in **Table 3.1-1** were used. In addition to the vessel fleet mix and number of vessels calls per year, additional assumptions are required to estimate GHG emissions associated with vessels calling on the Seaport. Information from the 2020 Seaport Emission Inventory was used as a basis for establishing several key assumptions. The average vessel transit and maneuvering time per call were averaged over all vessel size classes, consistent with the assumption used in the 2020 Seaport Emission Inventory. The future fleet engine tier levels were determined based on carrying forward the 2020 vessel age distribution, which means that the number of vessels with a given age from the calendar year being analyzed was constant. For example, if the 2020 vessel fleet had a vessel that was 1, 5, and 10 years old in 2020, we would assume that the 2030 vessel fleet also had a vessel that was 1, 5, and 10 years old rather than a vessel that was 11, 15, and 20 years old. The load factors for the vessels and tugs were updated to reflect current CARB emission inventory methods (CARB 2021). Vessel engine sizes were determined for each vessel class using representative main and auxiliary engine sizes by vessel TEU capacity. Vessels were assumed to have 95 percent shore power utilization with 3 hours of auxiliary engine use allocated to account for connect and disconnect time, consistent with the CARB At-Berth

regulations. The remaining 5 percent of vessels were assumed to not use shore power.[67] Time at anchorage was not included in this analysis because anchorage events exhibited significant temporal variability that was impossible to determine if vessel size was a causative factor in making the decision to go to anchor, or in deciding how long to anchor. With these assumptions and GHG emission factors for the representative vessels based on the 2020 Seaport Emission Inventory, GHG emissions were developed for the Proposed Project and No-Project future baseline scenarios for the in-water operations.

All vessels require tugs to assist them when transiting and maneuvering; however, the number of tugs required for a vessel is related to the size of the vessel and varies based on the power of tugs available as well as if the vessel is traveling inbound or outbound. The average number of tugs for each vessel type was determined consistent with assumptions in the 2020 Seaport Emissions Inventory and ranged from an average of 3.5 tugs per call (e.g., 1 to 2 tugs for vessels in-bound and 1 to 2 tugs for vessels outbound) to 7.5 tugs per call (e.g., 3 to 4 tugs in-bound and 3 to 4 tugs outbound). The number of tugs needed depends on the power rating of the tugs, if the vessel is turning, and if the vessel is inbound or outbound, among other factors. All tugs were assumed to have 6,772 hp main engine power.

The engine and load factor in units of horsepower or kilowatts, the hours of transiting and maneuvering, and the emission factor used by CARB in its latest Harbor Craft and OGV emissions inventories were multiplied together to calculate the GHG emissions from in-water activities. Electricity consumption while at berth was estimated based on the total amount of time at-berth minus the three hours allowed to of auxiliary engine use allocated to account for connect and disconnect time, consistent with the CARB At-Berth regulations. The total amount of electricity was multiplied by the Port of Oakland's carbon intensity based on the 2021 Power Content label of 314 pounds of CO2e per megawatt hour.

Maintenance dredging is anticipated to require an annual increase of up to approximately 93,000 cubic yards of additional dredging of the turning basins. Emissions for this additional maintenance dredging were estimated assuming that 6,000 cubic yards of material are dredged a day using a diesel dredger that has an offroad engine. Maintenance dredging of Oakland Harbor by USACE has historically been completed with a diesel clamshell dredger. Electric dredging is not practicable due to the continued movement of the dredge and associated electrical cable during maintenance dredging throughout the active waterway, as opposed to the Proposed Project construction which would only occur outside of the existing federal navigation channel. Both a barge and a tow boat are assumed to be used to move the dredgers and barge. A second tow boat would be used to transport the filled barge to a disposal site similar to prior disposal, located approximately 50 miles away by barge. Twenty-six workers are assumed to be needed during dredging, and emission estimates include these worker trips using the same CalEEMod default trip length. The offroad and on-road emissions were estimated in a manner similar to the methods used for these categories described under construction. Full details of assumptions used to estimate criteria pollutant emissions from maintenance are provided in Appendix B. The GHG emissions are compared to appropriate significance thresholds.

[67] These 5 percent of vessels may not be able to use shore power due to reasons that may include being unequipped, the unavailability of equipment or staff, or other reasons.

## 3.8.4. Impact Analysis and Mitigation Measures

### *Impact GHG-1. Would the Proposed Project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment? (Criterion A) (Less than Significant with Mitigation)*

### *Impact Analysis*

#### Construction

The Proposed Project's construction activities would generate GHG emissions. As described above, the GHG emissions from construction were estimated for off-road equipment, in-water vessels, and on-road vehicles used during the construction of the Proposed Project. **Table 3.8-2** shows the GHG emissions in terms of $CO_2e$ for each year of the Proposed Project's construction. The total GHG emissions from Proposed Project construction is 14,090 metric tonnes $CO_2e$.

**Table 3.8-2 Proposed Project Construction GHG Emissions Unmitigated**

| Construction Year | Metric Tonnes $CO_2e$ |
|---|---|
| Year 1: 2027 | 718 |
| Year 2: 2028 | 7,271 |
| Year 3: 2029 | 6,101 |
| **Total** | **14,090** |

Notes:
Based on information provided in Appendix B
$CO_2e$ = carbon dioxide equivalent

The placement of dredged sediment for beneficial reuse would assist in carbon sequestration in wetlands by adding additional material for the restoration of wetlands, which increases the amount and quality of wetland vegetation that sequesters carbon. The amount of dredged sediment that could be placed for beneficial reuse is 2,249,302 cubic yards of material. Assuming the material is added at a depth of 5 feet, a total of 1,128,422 square meters, or 278 acres of wetland, would be created or enhanced. Assuming that 210 grams $CO_2$ per square meter per year (Charpentier et al. 2010) are sequestered over the 50-year Proposed Project life, the amount of carbon sequestered would be 237 metric tonnes $CO_2e$ per year, for a total of 11,848 metric tonnes $CO_2e$ over the life of the Proposed Project from placement of dredged sediment for beneficial reuse to enhance wetlands. The net result of the GHG emissions generated by Proposed Project construction when offset by the total lifetime benefit of the carbon sequestration for reuse of dredged material is a net increase of 2,242 metric tonnes $CO_2e$. However, the amount of sequestration potential is only an estimate, may be offset by sea level rise, and occurs over the life of the Proposed Project (which is longer than the construction period). Because the order of magnitude of the carbon sequestration is uncertain and there is a delay in time between GHG emissions from construction activities and

carbon sequestration offset, the Proposed Project's construction activities could result in a significant contribution to GHG emissions.

### Operation and Maintenance

For operation GHG emissions as discussed in Chapter 2, the Proposed Project is not expected to increase cargo throughput or change landside operations at the Seaport, and there would be negligible changes in GHG emissions associated with landside operations as a result of the Proposed Project. The existing activities at the impacted land and waterside areas would be relocated or consolidated, and there would be negligible changes in GHG emissions associated with the relocation of existing activities. It is unknown the specific locations or extent of consolidation that would occur which prevents a detailed analysis from occurring, but in general any change due to differences in minor trip lengths and activity would be minimal overall assuming no other changes to demand and growth.

The Proposed Project operation would have some changes associated with in-water operations compared to the future No Project baseline scenario. It is anticipated that the overall number of vessel calls would decrease under the Proposed Project in the future with an increase in the average size of vessels. There would be changes to the tug assists used since the larger vessels on average would require more assist tugs. The use of the future operational baseline rather than the existing baseline is appropriate for this situation, and allowed under CEQA because the vessel fleet would likely change in the future as a result of other economic and global influences to the shipping industry, including growth, efficiency improvements, and vessel emission improvements as well as the physical change to the turning basins. The difference between the Proposed Project and No Project future information is the physical changes to the size of the turning basins. With or without the Proposed Project, the Port anticipates a 2.1 percent growth in cargo annually. It also includes planned improvements that would be anticipated to occur under both the Proposed Project and No Project future scenarios. Most importantly for GHG emissions, the mix of OGVs and number of vessel calls are expected to change when compared to the future No Project baseline scenario and will be substantially different from the current mix of OGVs and number of vessel calls.

GHG emissions were estimated using the number of vessel calls for each vessel class in the future for 2030, 2040, and 2050 for the Proposed Project and No-Project future baseline scenarios, as described in Section 3.8.3 above. **Table 3.8-3** shows that in all cases, the GHG emissions from in-water vessel calls with the Proposed Project compared to the No-Project future baseline scenario will result in a decrease in emissions. In 2030, the GHG emissions from the Proposed Project in-water vessel fleet mix and calls are estimated to be 1,701 metric tonnes $CO_2e$ less than the No-Project scenario. In 2040 and 2050, the Proposed Project is estimated to be 9,168 and 15,226 metric tonnes $CO_2e$ less than the No-Project scenario, respectively. Because there is not anticipated to be substantial changes in landside operations, the operation of the Proposed Project would likely result in a reduction of GHG emissions.

**Table 3.8-3 In-Water Operational Including Indirect Electricity from at-Berth Shorepower GHG Emissions**

| Future Operational Year | Proposed Project (metric tonnes $CO_2e$ per year) | No-Project (metric tonnes $CO_2e$ per year) |
|---|---|---|
| 2030 | 123,998 | 125,699 |
| 2040 | 146,930 | 156,098 |
| 2050 | 170,300 | 185,526 |

Notes:

$CO_2e$ = carbon dioxide equivalent

Source: Appendix B

Maintenance dredging is anticipated to require an annual increase of up to 93,000 cubic yards of additional dredging of the turning basins. The increase in emissions from this additional maintenance dredging using diesel dredgers, barges, and towboats with disposal at a site 50 miles away is shown in **Table 3.8-4**. The increase in maintenance dredging would conservatively result in an additional 1,718 metric tonnes of $CO_2e$ emissions annually assuming the upper bound of the additional material that would be generated. The GHG emissions from additional maintenance dredging when combined with the reduction anticipated from in-water operations in the future Proposed Project baseline scenario would still result in an overall decrease in GHG emissions in the future when annual in-water and maintenance emissions are considered. In 2030, emissions are anticipated to be about the same when the additional maintenance dredging is included with only a negligible increase of 17 metric tonnes $CO_2e$ and a net reductio in all future years.

**Table 3.8-4 Additional Maintenance Dredging GHG Emissions**

| Source Category | Metric Tonnes $CO_2e$ |
|---|---|
| Diesel Dredging | 1,407 |
| Barges | 1 |
| Towboats | 17 |
| Towboat to disposal site | 291 |
| Worker Commute | 3 |
| **Total** | **1,718** |

Notes:

$CO_2e$ = carbon dioxide equivalent

Source: Appendix B

***Summary***

The Proposed Project's construction activities would result in an increase in GHG emissions, which may eventually be offset by the carbon sequestration facilitated by the dredged sediment reuse, and offset over the life of the Project by the reduction in emissions anticipated from changes in vessel calls and fleet mix compared to the future No Project baseline, resulting in an overall reduction in GHG emissions over the life of the Project. Because the order of magnitude of the carbon sequestration is uncertain and there is a delay in time between GHG emissions from construction activities and carbon sequestration offset, the GHG emissions from the Proposed Project's construction activities represent a **potentially significant impact.**

Post-construction, the Proposed Project is not anticipated to result in a substantial change in GHG emissions compared to existing use, and it is anticipated that there would be an overall reduction in GHG emissions from the changes in vessel fleet mix and number of calls when compared to the No-Project future baseline scenario. Maintenance dredging would increase GHG emissions, but when combined with the reduction in GHG emissions from the changes in vessel fleet mix and number of calls, the GHG emissions in the future would have a net decrease in emissions. Land-based operations are not anticipated to result in a substantial change in GHG emissions. Therefore, the GHG emissions from the Proposed Project's operation and maintenance activities represent a **less than significant impact**.

## Level of Significance Before Mitigation

*Potentially Significant Impact.*

## Mitigation Measure

### MM GHG-1: Construction GHG Mitigation

The Port shall require the contractor to implement construction-related GHG emission reduction measures. All requirements shall be included in applicable bid documents, purchase orders, and constructs, with the contractors demonstrating the ability to supply the compliant on- or off-road construction equipment for use prior to any ground-disturbing and construction activities. The measures to include are as follows:

- Use zero-emission and hybrid-powered equipment to the greatest extent possible. The performance criteria for meeting this standard are availability by at least two commercial rental facilities in the San Francisco Bay Area Air Basin.
- Require all on-road heavy-duty trucks to be the most stringent emissions standard as a condition of contract. This currently means a 2015 model year or newer truck.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than two minutes. Provide clear signage that posts this requirement for workers at the entrances to the site, and the Port will conduct random monthly surveys to check for compliance with idling times to ensure compliance with this measure.
- Use CARB-approved renewable diesel fuel R99 or R100 in off-road construction equipment and on-road trucks.

- Use USEPA SmartWay certified trucks for deliveries and equipment transport.
- Require all construction equipment be maintained and properly tuned in accordance with manufacturer's specifications. Equipment should be checked by a certified mechanic in accordance with the manufacturer's specifications, and determined to be running in proper condition prior to operation.
- Encourage and provide carpools, shuttle vans, transit passes, and/or secure bicycle parking to construction workers, and offer meal options on site or shuttles to nearby meal destinations for construction employees.
- Recycle or salvage nonhazardous construction and demolition debris.
- Develop a plan to efficiently use water for adequate dust control because substantial amounts of energy can be consumed during the pumping of water.

### Level of Significance After Mitigation

*Less than Significant with Mitigation.*

Implementation of Mitigation Measure GHG-1 would result in varied reductions in GHG emissions from the Proposed Project's construction, depending on the specific availability of zero-emission and hybrid equipment available at the time of Proposed Project construction. This cannot be quantified at this time because it is unknown specifically which equipment would be available, and by how much the amount of GHG emissions per equipment can be reduced. Mitigation Measure GHG-1 further implements best management practices to ensure that GHG emissions are minimized to the extent practicable in case the carbon sequestration estimates of the beneficial reuse of sediment is changed. The use of renewable diesel would reduce the life-cycle emissions of the fuel used compared to traditional diesel. Given these additional measures to reduce GHG emissions during the Proposed Project construction time frame, as well as the net reduction in GHG emissions resulting from carbon sequestration of the construction-generated dredged sediment and overall reduction in GHG emissions during operation compared to the future No Project baseline, the impact would be **less than significant with mitigation**.

Mitigation Measure ENE-1 may require the occasional use of diesel dredging during Proposed Project construction in the event of a call for electricity reductions to prevent potential brownouts. It was estimated that this could occur up to 10 days a year or 240 hours a year.[68] The additional GHG emissions associated with the use of these diesel dredgers is 201 metric tonnes $CO_2e$ and a decrease in electricity associated with GHG emissions of 34 metric tonnes $CO_2e$, for a net increase of 167 metric tonnes $CO_2e$ to use 240 hours of diesel dredging a year. The total construction GHG emissions would be 14,291 metric tonnes $CO_2e$. When combined with the reductions from beneficial reuse of dredged material to enhance wetlands, there is still a net increase in emissions of 2,443 metric tonnes $CO_2e$. When amortized over the life of the Project, there would be a net decrease in emissions when amortized construction emissions are combined with the reductions in Project operation compared to the No Project scenario. Therefore, even

[68] The number of hours and days assumed are conservative and are based on information on frequency of events called in the recent past.

with implementation of Mitigation Measure ENE-1, the Proposed Project would be a net decrease and the impact would be **less than significant with mitigation**.

Project operation, as discussed above, would not result in a significant change in GHG emissions, and would reduce GHG emissions for in-water operation due to changes in the fleet mix and number of annual calls when compared to the No-Project Future baseline scenario. There would be an increase in GHG emissions from maintenance dredging; but when combined with the in-water operation GHG emissions savings compared to the No-Project Future baseline scenario, it a net decrease in GHG emissions would still result when in-water operation and maintenance dredging are considered. In addition, improved efficiencies and general fleet improvements for both in-water and land-based operation in the future would decrease GHG emissions with implementation of existing regulations and policies. The impact to operation would remain **less than significant**.

### *Impact GHG-2. Would the Proposed Project conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs? (Criterion B) (Less than Significant)*

#### Impact Analysis

Implementation of the Proposed Project would result in GHG emissions, but these would not impede the achievement of statewide GHG goals and policies specifically outlined in AB 32 and SB 32, which codify the goals of EOs S-3-05 and B-30-15. GHG emissions from construction equipment use are one-time emissions and would cease once construction of the Proposed Project is complete. As shown in **Table 3.8-1**, GHG emissions from the Proposed Project's construction would be 14,090 metric tonnes $CO_2e$; when taking into consideration the carbon sequestered by beneficial reuse of dredged sediment and reduction in emissions during operations compared to the No Project future baseline, there would be a net reduction in GHG emissions when amortized over the life of the Project. Operational GHG emissions from in-water vessels are estimated to result in a reduction of GHG emissions when compared to the No-Project Future scenario based on changes to the vessel fleet mix and number of calls as a result of the Proposed Project. Therefore, the Proposed Project would not conflict with the state goal of reducing GHG emissions and would not conflict with the updated Scoping Plan. Transportation sector regulations and future measures designed to achieve the emission reductions assumed as part of the Scoping Plan are applicable to the Proposed Project operations, as described above, including truck efficiency, low-carbon fuel standard, at-berth regulation, commercial harbor craft regulations, transition to ZEV and vessels, transitioning and enhancing electrical and alternative fuel infrastructure, and decarbonization of the electricity supply. These measures would result in reduction of operational GHG emissions associated with the Proposed Project. These regulations would reduce GHG emissions for both the Proposed Project and No-Project scenarios.

The Port continues to plan for reducing the GHG emissions of Seaport activities that are in line with the goals of AB 32 and SB 32 and the policies for zero-emissions transportation and electricity supply. The Board of Port Commissioners has approved GHG emission reduction programs via the 2020 and Beyond Plan. Post-construction, the operation of the Seaport will be improved with more efficient vessel fleet mix and number of calls in the future compared to the No-Project future scenario. The Proposed Project would allow for proper orientation of vessels to

better utilize shore power while at-berth. The Proposed Project would add electrical infrastructure that enhances the available electricity at Berth 26 and Howard Terminal and allows for construction of the Proposed Project to use electric dredgers. Overall, Seaport operations in-water and land side would result in GHG emission reductions with implementation of the 2020 and Beyond Plan, and the Proposed Project would not interfere or conflict with implementing these strategies. The Port continues to implement the strategies contained in the 2020 and Beyond Plan.

Therefore, the Proposed Project would not conflict with any applicable plan, policy, or regulation for the purpose of reducing GHG emissions. The impact is **less than significant**.

# 3.9. HAZARDS AND HAZARDOUS MATERIALS

This section presents hazards and hazardous materials conditions in the Proposed Project vicinity and evaluates the potential for implementation of the Proposed Project to result in significant impacts related to exposing people or the environment to adverse hazards and hazardous materials conditions, and impairment of emergency response and access plans. Other types of hazards are addressed in the appropriate resource sections of this Draft EIR. Health impacts related to air quality are analyzed in Section 3.3, Air Quality; impacts related to water quality degradation are analyzed in Section 3.10, Hydrology and Water Quality; and impacts related to exposure of people or structures to wildland fires are addressed in Section 3.1.3.5, Wildfire.

A hazardous material is defined as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released (California Health and Safety Code Chapter 6.95, Section 25501(n)). The term "hazardous materials" refers to both hazardous substances and hazardous wastes. Under federal and state laws, any material, including wastes, may be considered hazardous if it is specifically listed by statute as such, or if it is toxic (causes adverse human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases).

Hazardous wastes are hazardous substances that no longer have practical use, such as materials that have been spent, discarded, discharged, spilled, contaminated, or are being stored until they can be disposed of properly (Title 22 California Code of Regulations [CCR] Section 66261.10). Material that is excavated from uplands (e.g., fill and soil) or dredged from submerged lands (e.g., sediment) from a site containing hazardous materials is a hazardous waste if it exceeds specific criteria established in Sections 66261.20 through 66261.24 of the CCR Title 22. Hazardous substances are regulated by multiple agencies, as described below in Section 3.9.2, Regulatory Setting, and cleanup requirements of hazardous material releases are determined on a case-by-case basis according to the regulatory agency (e.g., Department of Toxic Substances Control [DTSC] or Regional Water Quality Control Board (RWQCB) or a local environmental agency [e.g., Alameda County Department of Environmental Health]) with lead jurisdiction over a contaminated site.

## 3.9.1. Environmental Setting

### *Analysis Area and Background*

The analysis area for hazards and hazardous materials impacts consists of the Inner and Outer Harbor Channels and Turning Basins, landside portions of Howard Terminal and the Alameda Site, and Berths 10 and 26, as shown on **Figure 2.5-1** through **Figure 2.5-3**, along with the immediately adjacent areas and anticipated staging areas, with the following two study area exceptions: schools and airports. The analysis area for proximity to schools and airports extends to 0.25 mile and 2 miles, respectively, beyond the borders of the Proposed Project sites. These distances are specified in the CEQA Guidelines Appendix G significance criteria (refer to Section 3.9.3, below). The distance for proximity to schools is because children are sensitive receptors. The distance for airports is to analyze for constructed structures that might interfere with navigable airspace.

Much of the environmental setting description below is based on information and data acquired during the -50-Foot Oakland Harbor Navigation Project (-50-Foot Project; Port of Oakland 1998; Apex 2021). The -50-Foot Project, which concluded in 2009, was conducted to deepen Oakland Harbor to -50 feet MLLW and widened turning basins at Oakland Harbor. The geologic units and sediment quality were studied during the process of planning for and conducting the -50-Foot Project, as well as previous maintenance projects. The geologic horizons that would be encountered as a result of the Proposed Project consist of the following from shallow to deep, and are described in further detail in Section 3.7, Geology/Soils:

- ***Artificial Fill*** used to create new land, which may be from a variety of sources, but is most typically marine in origin (i.e., dredged from the Bay).
- ***Young Bay Mud (YBM)***, which despite the name can be very old sedimentary fine-grained sediment. YBM is close to the surface—and although unlikely—may have been exposed to anthropogenic contaminants.
- ***Merritt Sand (MS) and Posey Sand (PS) Formations***, which are part of the San Antonio Formation, can be found at various depths in the Proposed Project area. These fine-grained sands, which were deposited more than 10,000 years ago, are easily distinguished from fill and other units in this area.
- ***The Old Bay Mud (OBM)*** lies atop the Alameda Formation and is the deepest layer that could be encountered during construction of the Proposed Project. OBM was deposited approximately 115,000 years ago and consists of very hard, consolidated muds that are difficult to dredge and easily identifiable.

For the purposes of describing existing conditions in the sections below, the analysis area is also subdivided by depth and media from shallow to deep, as listed below. The depth to groundwater is about 8 feet below the ground surface (bgs) at Howard Terminal; about 11 feet bgs at the Alameda Site; and varies with tidal fluctuations. Excavation is considered removal of fill and soil to a depth of approximately -5 feet MLLW (regardless of the source of the fill), whereas dredging is defined as fill and sediment removal below -5 feet MLLW. The soil and sediment layers vary with location depending on previous dredging and filling activities.

To organize the discussions relative to hazardous materials or contamination, if any, the sections below are organized as follows:

- Inner Harbor Channel and Turning Basin Widening Area
  - Alameda Site warehouses
  - Fill from surface to groundwater at Howard Terminal
  - Fill from surface to groundwater at the Alameda Site
  - Fill from groundwater to OBM/MS/PS Formation at Howard Terminal
  - Fill from groundwater to OBM/MS/PS Formation at the Alameda Site
  - Submerged marine sediment in Inner Harbor waterway
- Outer Harbor Channel and Turning Basin Widening Area
- Berth 26

Previous dredging projects and various subsurface investigations included chemical testing of soil and sediment to quantify the concentrations of chemicals and determine the appropriate options for disposal or reuse of the excavated and dredged materials, including disposal at landfills or placement at beneficial reuse sites. Existing previously collected chemical data from within the analysis area informed assumptions regarding the estimated amounts of excavated and dredged material for each placement location, as presented in Chapter 2, **Table 2.5-3**. Consequently, the soil and sediment quality in each of the subareas discussed further below are characterized in terms of the end destination of the excavated and dredged materials.

Nonetheless, additional testing would be conducted during the Proposed Project pre-construction engineering and design phase to make the final determination of the appropriate disposal or reuse location. The Port, in coordination with USACE, would develop and implement a sampling and analysis plan. The sampling and analysis plan would identify sampling locations within the areas to be excavated and dredged, sampling protocols, and the physical and chemical parameters for laboratory analysis of collected samples. The results of the laboratory analysis would be compared to specific acceptance criteria for a given beneficial reuse site or landfill to determine where the material may be placed.

## *Definitions for Beneficial Reuse Sites, Landfill Disposal, and Recyclers*

As discussed in Chapter 2, Proposed Project Description, the excavated soil and dredged sediment would either be reused at a beneficial reuse material site or disposed of at a landfill. Each of these sites has specific acceptance criteria that are based on chemical testing of the materials, and promulgated in the Waste Discharge Requirements (WDR, described below) permit and associated planning documents for each site. The sections below briefly summarize the potential sites from most to least stringent acceptance criteria.

### Beneficial Reuse Material Sites

The excavated and dredged sediment would be transported to a wetland beneficial reuse site, providing the concentrations of chemicals in the materials are within the acceptance criteria range for the given site.

Candidate wetland beneficial reuse sites include the Montezuma Wetlands Restoration Project (MWRP) site in Solano County at the eastern edge of the Suisun March near the town of Collinsville (about 50 miles by barge), and the Cullinan Ranch Restoration Project (CRRP) site in Napa and Solano Counties in the San Pablo Bay National Wildlife Refuge (about 25 miles by barge). Dredged sediment with chemical concentrations that exceed the acceptance criteria of the beneficial reuse sites would be disposed of in a landfill, as described further below.

Both MWRP and CRRP have specific acceptance criteria that are described in the WDR permits for each site. The WDR permits are issued by the RWQCB, along with input from the San Francisco Bay Conservation and Development Commission (BCDC), the United States Fish and Wildlife Service (USFWS), and other entities. The acceptance criteria for the MWRP site are promulgated in WDR Order No. R2-2012-0087 (SFRWQCB 2012a). The acceptance criteria for the CRRP site are promulgated in WDR Order No. R2-2010-0108 (SFRWQCB 2010).

Wetland beneficial reuse sites typically have different acceptance criteria for “surface materials” and “foundation materials.” Surface or cover materials include material that can be placed on the top 3 feet of habitat because the concentrations of chemicals in the materials, if any, are low enough to not pose a risk to biota (i.e., animal and plant life) exposed to the materials.

Foundation or non-cover materials have higher concentrations of chemicals, but can still be safely placed in a habitat, providing the foundation materials are covered by at least 3 feet of surface material to prevent exposure to biota to the placed material.

For the purpose of the analysis in this Draft EIR, it has been assumed that suitable material (meeting site acceptance criteria) would be placed at a wetland beneficial reuse site. However, upland (non-wetland) beneficial reuse is another option that could be considered at the time of construction, depending on the results of the pre-construction sediment characterization. Similar to the wetland beneficial reuse sites, relatively dry fill and sediment excavated from above groundwater could be sent to upland beneficial reuse sites, depending on the concentrations of chemicals in the material. The nearest candidate upland beneficial reuse site is the Eden Landing Ecological Reserve (ELER) on the Hayward/Union City shoreline, about 17 miles south of the Proposed Project by truck. The acceptance criteria for the ELER is promulgated in WDR R2-2008-0078 (SFRWQCB 2012b) and described in more detail in the Quality Assurance Project Plan for ELER (ESA 2021).

### Landfills

There are three classes of landfills in the State of California: Class III non-hazardous waste, Class II designated waste, and Class I hazardous waste. Landfills are regulated under Resource Conservation and Recovery Act (RCRA) Subtitle D (solid waste) and Subtitle C (hazardous waste), or under the Toxic Substances Control Act (TSCA) (refer to Section 3.9.2 for discussion of regulations).

- ***Class III non-hazardous waste landfills*** are specifically designed to accept household waste, as well as other types of nonhazardous waste. Nearby Class III landfills include Potrero Hills Landfill in Suisun City, Kirby Canyon in Morgan Hill, and Vasco Road Landfill and Altamont Landfill in Livermore.
- ***Class II designated waste landfills*** are specifically designed to accept hazardous waste that has been granted a variance from hazardous waste management requirements, or non-hazardous waste that consists of—or contains—pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives, or that could reasonably be expected to affect beneficial uses of the waters of the State. Keller Canyon Landfill near Pittsburg is the only active Class II landfill in the San Francisco Bay region. Some other operating Class III landfills (specifically, Altamont, Potrero Hills, Kirby Canyon, Vasco Road) have specific disposal cells that have been designed and constructed to meet the requirements for disposal of certain Class II designated wastes.
- ***Class I hazardous waste landfills*** are specifically designed to accept hazardous waste, as defined below. Kettleman Hills Landfill near Kettleman City and Clean Harbors Buttonwillow near Buttonwillow are Class I hazardous waste landfills.

For Howard Terminal and the Alameda Site, it is assumed that landside excavation of sediment would occur to a depth of approximately -5 feet MLLW, which is approximately 15 feet bgs. Due to the historical industrial use of these sites and the documented presence of contaminants underlying portions of Howard Terminal, as further described below, it is assumed that some excavated materials from the ground surface to a depth of approximately 15 feet bgs at both

Howard Terminal and the Alameda Site would be disposed at a Class I (hazardous) landfill, in addition to a Class II (non-hazardous) landfill.

### Recycling of Concrete, Asphalt, and Metals

Structural materials (e.g., concrete, asphalt pavement, metal) would be sent to recyclers permitted to accept the recycled materials. An example recycler would be Argent Materials at 8300 Baldwin Street, Oakland.

## *Inner Harbor Channel and Turning Basin Widening Area*

The following sections describe the existing conditions in subareas in the IHTB, with a focus on the levels of chemical contamination, if any, and which beneficial reuse site or landfill could accept the materials.

### Alameda Site Warehouses

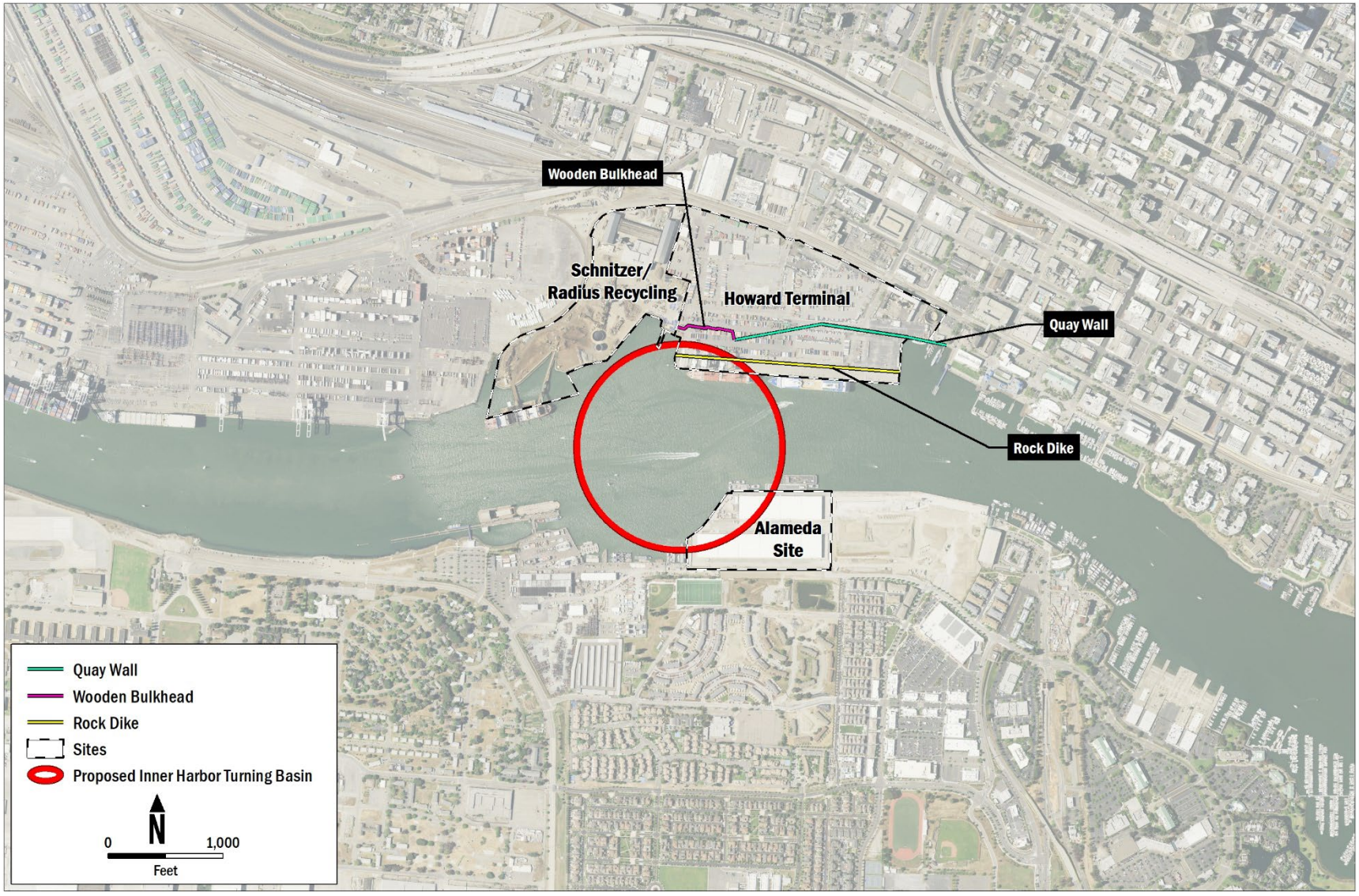
Widening of the IHTB would require removal of land from the Alameda Site on the southeastern side of the IHTB, as shown on **Figure 3.9-1**. The Alameda Site consists of approximately 19 acres developed with two warehouse buildings. The warehouse on the northern side of the property is approximately 140,000 square feet and contains four warehouse bays. The warehouse on the southern side of the property is approximately 210,000 square feet and contains six warehouse bays. The -50-Foot Project (completed circa 2009) removed the northwestern corner of the Alameda Site, including portions of the northern warehouse, to expand the IHTB to its current dimension in the early 2000s (Port of Oakland 1998; Apex 2021; and imagery obtained from Google Earth between 2000 and 2002).

Both existing warehouses date to at least 1946 (NETR 2023), which predates the 1970s bans on the use of asbestos-containing materials (ACM), lead-based paint (LBP), and PCBs in building materials. Mercury may be also present in mercury switches and compact fluorescent light bulbs. Therefore, certain materials in or on the existing warehouses may contain hazardous building materials.

### Fill from Surface to Groundwater at Howard Terminal

Howard Terminal consists of approximately 50 acres of paved area, situated between Embarcadero West Street and the Inner Harbor Channel, as shown on **Figure 3.9-1**. Historically, the Howard Company operated a commercial transport and shipping terminal from the 1900s to the mid-1970s on the western portion of the terminal (ENGEO 2020a). As shown on **Figure 3.9-1**, the still-existing wooden bulkhead/concrete quay wall defined the waterside edge at that time. Howard Terminal was constructed and expanded into the present-day configuration as a marine container terminal by the Port in 1980. Rock fill was imported to create a rock dike, and sand dredged from San Francisco Bay, along with sand and soil from other sources, was hydraulically placed between the rock dike and wooden bulkhead/concrete quay wall, shown on **Figure 3.9-1**. The terminal is currently not an active terminal for offloading cargo from vessels, but serves a variety of marine shipping support uses, including truck parking, container storage and staging, vessel lay berthing (docking) for maintenance and storage, and training of longshore workers and other logistics services that support Seaport operations. The portion of Howard Terminal to be removed to widen the IHTB is outside of and does not include the existing wooden bulkhead/concrete quay wall, as shown in **Figure 3.9-1**. Only the rock dike and some of the fill and sediment materials between the rock dike and the wooden bulkhead/concrete quay wall would be removed.

**Figure 3.9-1 Inner Harbor Turning Basin Details**



The Howard Terminal area has a long history of industrial uses resulting in various areas of contaminated fill and groundwater (ENGEO 2020a, 2020b). However, most of the documented contamination is on the landward side of the concrete quay wall, steel sheet pile, and wooden bulkhead. In the footprint of the proposed excavation, there are a few general types of material (Apex 2021). An approximately 1.5-foot-thick asphaltic-concrete (AC) cap over the fill supports containerized cargo operations. Compacted marine-derived fill primarily consisting of fine sands with some fine-grained material extends from below the AC cap to groundwater (8 feet bgs) and deeper. The concrete wharf cantilevers over the rock dike to contain the fill. The concrete wharf is supported by numerous steel-reinforced concrete piles. The top of the rock dike is at the most inshore edge of the concrete wharf and extends down 50 feet with a 1.5:1 slope on either side forming a large triangular wedge that contains the fill. The dike is constructed from graded rock with a riprap constructed of 3- to 6-inch-diameter rock covering the Bay-facing side of the dike. The base of the dike extends to -42 feet MLLW and is over 150 feet wide at the base. The structure sits on firm sands that were dredged to the OBM/MS formation for construction.

The materials (AC, concrete wharf, steel crane rails, piles, dike material, and riprap), to be removed as part of the Proposed Project consist generally of stone, steel, concrete, or asphalt, can be recycled, or disposed of, as is typically done with these types of materials. Steel, stone, and concrete are solid and non-porous, and would not allow contaminants to attach to the structures beyond residual concentrations. Asphalt, mostly consisting of heavy petroleum hydrocarbons, would likely be suitable for recycling to create new asphalt.

The source of the marine-derived fill is unknown but has typically been mined from sandy areas of San Francisco Bay. Local sand, such as the MS/PS formation, is derived from serpentinite and has naturally occurring elevated concentrations of metals such as lead, nickel, and chromium. Elevated concentrations of metals are anticipated to be present but are not in biologically available forms.[69] For example, chromium can exist in several states, including elemental chromium, trivalent chromium, and hexavalent chromium, with hexavalent chromium being the most biologically active and potentially toxic at lower concentrations than trivalent chromium. Agency-derived general reuse criteria assume that all chromium is hexavalent. The MS/PS sand formation contains no hexavalent chromium, and little to no trivalent chromium. Regular sampling has been conducted of the top layer of fill to a depth of approximately 10 feet bgs. As discussed above, some heavy metals, specifically the ones typically elevated in MS, are slightly elevated; however, the concentrations of metals in the fill are consistent with MS/PS formation sands that were likely mined for fill.

In 1999, an underground diesel fuel storage tank was removed near the general area currently proposed for excavation for the IHTB expansion; post-removal sampling indicated the tank had not leaked (Baseline 1999). Monitoring of various hydrocarbons through the fill is ongoing. The most likely source of site contamination is movement of liquid contaminants from historical site uses through the fill into groundwater. Petroleum hydrocarbons—being lighter than water—tend to float on the surface of the water. Fill and sediment in the depth range of

[69] Bioavailability is the proportion of total metals that are available for incorporation into biota (bioaccumulation). Total metal concentrations do not necessarily correspond with metal bioavailability, and associated environmental effects may be low.

the top of the groundwater level (which is tidally influenced and therefore rises and falls with the tide) can become impacted with waterborne contaminants to a greater or lesser degree based on the type of fill or sediment and their ability to absorb contaminants—specifically, petroleum hydrocarbons. Some very heavy, weathered petroleum hydrocarbons can "sink" into the groundwater, but this is also limited by groundwater flow (downwelling through the soil) and the porosity of the fill and sediment. Ongoing data collections indicate low levels of hydrocarbons in the fill at or near the range of groundwater tidal movement (ENGEO 2019). Low concentrations of total petroleum hydrocarbons (TPH) in the diesel range, TPH in the motor oil range, and benzene were detected, but met the criteria for regional beneficial reuse as non-residential fill or as wetland foundation material. Various PAHs were also detected, but at generally low concentrations (ENGEO 2019).

The entire 50-acre Howard Terminal site is under regulatory oversight of the DTSC, which has promulgated land use restrictions applied to the entire site (DTSC 2003, 2004). Although the restrictions apply to the entire site, most of the areas of concern are on the landward side of the wooden bulkhead/concrete quay wall and are largely attached to historic lands where industrial activities such as coal gasification occurred. The area proposed for removal under the Proposed Project would be on land created through dredging and filling in the 1980s. The wooden bulkhead/concrete quay wall north of the Proposed Project excavation area retains contaminated groundwater and would not be removed or disturbed as part of the Proposed Project. The results of groundwater monitoring indicate that the wooden bulkhead/concrete quay wall contain and prevent movement of the impacted groundwater toward the Inner Harbor (ENGEO 2020a). Note that the Land Use Restrictions require notice and prior approval from the DTSC before any excavation or changes in land use (DTSC 2003, 2004).

### Fill from Surface to Groundwater at Alameda Site

The -50-Foot Project previously removed the northwestern corner of the Alameda Site property to expand the IHTB to its current dimension. Sampling conducted for the -50-Foot Project is directly relevant to the current Proposed Project, with samples collected very near the Proposed Project landside excavation area. The description below is based on data collected during the -50-Foot Project.

The current ground elevation at the Alameda Site is approximately 9.5 feet MLLW, and groundwater was encountered at approximately 11 feet bgs. YBM was encountered at approximately 4 feet MLLW (5.5 feet bgs). This indicates that the marshland was not dredged prior to the placement of fill. The OBM/MS interface is encountered at approximately 29.3 feet bgs (approximately -20 feet MLLW). The surface is covered with asphalt and concrete. A sheet pile wall contains the fill to the west of the proposed excavation. This wall was installed to support the widening of the IHTB for the -50-Foot Project and should be suitable for recycling or disposal as construction waste.

Testing of the material for the -50-Foot Project indicated that fill material from ground surface to 3 feet bgs contained elevated levels of PAHs (EVS 1998). The fill appeared to be sandy, marine-derived material. There were no known sources of PAH-generating industrial uses in the area. It is possible that sediment from the estuary was directly pumped into this location to create new land. The material in the estuary may have contained PAH contamination from the coal gasification operation previously situated at the Howard Terminal across the estuary. Based on sampling conducted for the –50-Foot Project, there is no indication of elevated levels of

contaminants in material between 3 feet bgs and groundwater (approximately 11 feet bgs). This interval of soil material has no known additional or new sources of contamination, and therefore should be similar to the material removed for the –50-Foot Project. There is no indication of elevated levels of contaminants in groundwater.

### Fill from Groundwater to OBM/MS Formation at Howard Terminal

OBM/MS Formation material is likely present in fills below the groundwater at Howard Terminal. Although there are no specific data regarding the fill quality between groundwater and the underlying OBM/MS interface where dredging would occur as part of the Proposed Project, it is unlikely that the deeper fill is contaminated because the fill is marine-derived (i.e., sourced from areas not expected to have been exposed to potential contaminant sources). Therefore, sediment below the groundwater table assumed to be suitable for beneficial reuse at a wetland site.

### Fill from Groundwater to OBM/MS Formation at the Alameda Site

Testing conducted for the -50-Foot Project indicated that the material between groundwater and OBM/MS was suitable for any reuse (Apex 2021). The material that would be removed for the Proposed Project is adjacent to the material removed for the -50-Foot Project, and there have been no additional or new sources of contamination since the -50-Foot Project. Therefore, it is assumed to be similar to the material removed for the -50-Foot Project. Based on the previous -50-Foot Project testing results, it is assumed that the material below groundwater would be suitable for beneficial reuse (Apex 2021).

### Submerged Sediment in Inner Harbor Waterway

Areas of existing sediment within the Inner Harbor waterway that would be dredged for the proposed IHTB expansion include a portion of the current Port Berth 67 at Howard Terminal and the basin area between Howard Terminal and Schnitzer/Radius Recycling.

During the -50-Foot Project, the Port investigated deepening their berths. Berth 67 was tested to allow deepening from the currently maintained depth of -42 feet MLLW with 2 feet of overdepth allowance to -50 feet MLLW, with 2 feet of overdepth allowance; however, the dredging was not completed by the Port. The material from the sample representing Berth 67 was approved by regulatory agencies for beneficial reuse as wetland foundation material. Because the material has not been exposed to any new contaminant sources since the testing was completed, it is assumed that the material from Berth 67 would still be suitable for wetland beneficial reuse as foundation material (Apex 2021).

There is a lack of site-specific information about the quality of the sediment in the basin between Howard Terminal and Schnitzer/Radius Recycling. Recent investigation results demonstrated that groundwater discharge from the Schnitzer/Radius Recycling site to downgradient sediment pore water in this basin has not resulted in concentrations of contaminants of concern in pore water above hazardous waste levels; samples were collected 0 to 3 feet below the sediment surface (Terraphase Engineering 2022). Additionally, a few things can be assumed from the site history and the stratigraphy. First, as with other areas of the Inner Harbor, the OBM/MS formation underlying the basin should be suitable for beneficial reuse as either cover or foundation material. This was true for the -50-Foot Project even in areas that contained significant contamination in the overlying areas such as the former drydock pits on the Alameda side of the channel, which were removed for the -50-Foot Project.

Material above OBM/MS may contain contaminants that would preclude open-water disposal or beneficial reuse as cover. If the material is similar to the former drydock pits area, it would also not be suitable for use as wetland foundation material. Based on available data, it is assumed that a portion of the material above OBM/MS would require landfill disposal in a Class II (non-hazardous) landfill (Apex 2021), but some sediment may be suitable for beneficial reuse as foundation material.

### *Outer Harbor Turning Basin Widening Area*

The Outer Harbor Turning Basin expansion area is divided into two definable units: a YBM layer, and an underlying OBM/MS layer. The OHTB expansion is not proximate to any known sources of contamination. Data from samples collected for the -50-Foot Project close to the proposed OHTB expansion area suggest that the YBM layer sediment would be suitable for beneficial reuse as foundation material; and the OBM/MS strata should be considered clean and suitable for beneficial reuse as either cover or foundation material (Apex 2021).

### *Berth 26*

The Proposed Project would require electrical infrastructure installation in the area of an existing electrical substation near Berth 26; this area is in TraPac's container handling and storage yard and is paved. Minor subsurface work, to a depth of 4 feet bgs, would be required for the installation of the electrical switchgear. There are no known elevated contaminant levels in the soils at the proposed location of the switchgear improvements.

### *Existing Seaport Operations*

Hazardous materials are present at the Seaport as part of normal operations. Shipping and maritime-related operations use large equipment that is fueled and maintained using common hazardous materials (e.g., fuels, oils and lubricants, solvents, and cleaners). Further, infrastructure maintenance and construction activities at the Seaport may also use or generate small quantities of hazardous materials or waste. As part of shipping operations, cargo containing hazardous materials may be shipped into and out of the Seaport. The Port requires shippers to follow applicable laws and regulations in shipping their cargo, including hazardous materials. Various vessels may also use or generate small quantities of hazardous materials as part of their routine operations (e.g., on-board maintenance). A material can be classified as a hazardous waste only after it is generated, i.e., after it has been designated as a waste by its owner. Any materials that meet the statutory definition of hazardous wastes generated at the Port are taken off Port property for treatment or disposal, in accordance with all applicable federal, state, and local regulations.

### *Proximity to Schools*

CEQA Guidelines Appendix G significance criteria recommend considering potential impacts within 0.25 mile of a school (see Section 3.9.3, *Significance Criteria*). There are no schools within 0.25 mile of Howard Terminal; the school in Oakland closest to the IHTB is Lincoln Elementary, about 0.74 mile to the east of Howard Terminal.

There are no schools within 0.25 mile of the Alameda Site; the school in Alameda closest to the IHTB is Ruby Bridges Elementary School, about 0.5 mile to the south.

There are no schools within 0.25 mile of the Berths 26 and 10; the closest school is Prescott School, about 1.5 and 1 mile to the east, respectively. The OHTB is even further from a school at about 1.6 miles.

### *Proximity to Airports*

CEQA Guidelines Appendix G significance criteria recommend considering potential impacts within 2 miles of an airport (see Section 3.9.3, *Significance Criteria*). There are no airports within 2 miles of any of the Proposed Project components. Oakland International Airport is approximately 5 miles southeast of the Alameda Site.

### *Wildfires*

As discussed in Section 3.1.3.5, Wildfire, the Proposed Project is not in a designated wildland area that would contain substantial forest fire risks or hazards. The Proposed Project sites are currently developed in a highly urbanized area of the cities of Oakland and Alameda. The Proposed Project area does not contain dense vegetation, and is surrounded by other developed properties, freeways, other roadways, and the San Francisco Bay estuary. Wildfire was added to the CEQA Guidelines as an environmental topic for consideration with regard to impacts that could occur in areas in or near State Responsibility Areas or lands classified as very high fire hazard severity zones. The Proposed Project is not in or near a State Responsibility Area or lands classified as very high fire severity zones.

## 3.9.2. Regulatory Setting

### *Federal*

The primary federal agencies with responsibility for hazardous materials management include the United States Environmental Protection Agency (USEPA), United States Department of Labor Occupational Safety and Health Administration (Fed/OSHA), and the United States Department of Transportation (USDOT). Federal laws, regulations, and responsible agencies are summarized in **Table 3.9-1**.

State and local agencies often have either parallel or more stringent rules than federal agencies. In most cases, state law mirrors or overlaps federal law, and enforcement of these laws is the responsibility of the state or of a local agency to which enforcement powers are delegated.

### *State*

The primary state agencies with responsibility for hazardous materials management in the region include DTSC and the RWQCB in the California Environmental Protection Agency (Cal/EPA), California Occupational Safety and Health Administration (Cal/OSHA), California Department of Health Services, California Highway Patrol (CHP), and the California Department of Transportation (Caltrans). State laws, regulations, and responsible agencies are summarized in **Table 3.9-2**.

**Table 3.9-1 Federal Laws and Regulations Related to Hazardous Materials Management**

| Classification | Law or Responsible Agency | Classification |
|---|---|---|
| Rivers and Harbors Act | 33 United States Code Section 403 et sec. | Pursuant to Section 10 of the Rivers and Harbors Appropriation Act of 1899, the United States Army Corps of Engineers (USACE) regulates the construction of structures in, over, or under, excavation of material from, or deposition of material into navigable waters. In tidal areas, the limit of navigable water under Section 10 is the elevation of mean high water mark; in nontidal waters it is the ordinary high water mark. Larger streams, rivers, lakes, bays, and oceans are examples of navigable waters regulated under Section 10. The Act prohibits the unauthorized obstruction or alteration of any navigable water. Navigable waters under the act are those "subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce" (33 Code of Federal Regulations [CFR] Section 3294). Typical activities requiring Section 10 permits are construction of or modifications to piers, wharves, bulkheads, marinas, ramps, floats, intake structures, cable or pipeline crossings, and dredging and excavation. In practice, permitting is combined with Clean Water Act (CWA) Section 404 permitting, summarized further below. |
| Oil Pollution Act | 33 United States Code Section 2701 et sec, and Part 155 | The Oil Pollution Act establishes a liability system for oil spills into navigable waters or adjacent shorelines that injure or are likely to injure natural resources, and/or the services that those resources provide to the ecosystem or humans. Pursuant to this act, federal and state agencies and Indian tribes may act as Trustees on behalf of the public to assess the injuries, scale restoration to compensate for those injuries, and implement restoration. |
| Oil or Hazardous Material Pollution Prevention Regulations for Vessels | 33 United States Code Part 155 | To operate in U.S. waters and ports, applicable vessels regulated by U.S. Coast Guard are required to provide a Vessel Response Plan to the USCG for review and approval. A Vessel Response Plan serves as an oil spill response plan for vessels and would include, at a minimum, a contact list, including the spill removal contractor and contacts for spill notifications; procedures for spill notifications; shipboard spill mitigation procedures to mitigate or prevent discharge or threat of discharge resulting from operations, accidents, or emergencies; and shore-based response activities, including notification, coordination actions, and organization structure for response. A Vessel Response Plan would be consistent with both the National Oil and Hazardous Substances Pollution Contingency Plan and the California Office of Spill Prevention and Response (OSPR) Area Contingency Plan. |

| Classification | Law or Responsible Agency | Classification |
|---|---|---|
| United States Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), Office of Response and Restoration (OR&R) | United States Department of Commerce, National Oceanic and Atmospheric Administration, Office of Response and Restoration | The NOAA OR&R is charged with responding to oil spills, chemical accidents, and other emergencies in coastal areas. Under the National Contingency Plan, NOAA is responsible for providing scientific support to the Federal On-Scene Coordinator for oil and hazardous material spills. To support this mandate, OR&R provides 24-hour, 7-day-a-week response to spills. During an oil spill in coastal waters, OR&R's role is to provide scientific support to the United States Coast Guard officers in charge of response operations. In addition to spill response software and mapping tools, OR&R provides standard techniques and publishes guidelines for observing oil, assessing shoreline impact, and evaluating accepted cleanup technologies. |
| Clean Water Act (CWA) | 33 United States Code Section 1257 et sec | The federal CWA and subsequent amendments, under the enforcement authority of the USEPA, was enacted "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The CWA gave the USEPA the authority to implement pollution control programs such as setting wastewater standards for industry. In California, implementation and enforcement of the National Pollutant Discharge Elimination System (NPDES) program is conducted through the California State Water Resources Control Board (SWRCB) and the nine RWQCBs. The CWA also sets water quality standards for surface waters and established the NPDES program to protect water quality. Several sections of the CWA pertain to regulating impacts on waters of the United States, as summarized below. |
| | Section 303(d) – Impaired Waters and Total Maximum Daily Loads (TMDLs) | Water quality objectives for all waters of the United States are established under applicable provisions of Section 303. The State of California adopts water quality standards to protect beneficial uses of State waters as required by Section 303 of the CWA and the Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne). Section 303(d) of the CWA established the TMDL process to guide the application of state water quality standards (see discussion of state water quality standards below). To identify candidate water bodies for TMDL analysis, a list of water quality–limited streams and other water bodies was generated. These water bodies are impaired by the presence of pollutants, including sediment, and are more sensitive to disturbance. The Section 303(d) listing associated with water bodies in the East Bay are included in the Water Board's Water Quality Control Plan, described further under state regulations. The over-water portions of the Proposed Project are listed as an impaired water body (San Francisco Bay, Central). |

| Classification | Law or Responsible Agency | Classification |
|---|---|---|
| Clean Water Act (CWA) (Cont'd) | Section 401 – Water Quality Certification and Waste Discharge Requirements | Section 401 requires an applicant pursuing a federal permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States obtain a water quality certification (or waiver). Water quality certifications are issued by the Water Boards in California. Under the CWA, the Water Boards must issue or waive Section 401 water quality certification for the project to be permitted under Section 404. Water quality certification requires the evaluation of water quality considerations associated with dredging or placement of fill materials into waters of the United States and imposes project-specific conditions on development. |
| | Section 402 – National Pollutant Discharge Elimination System (NPDES) | The 1972 amendments to the CWA established the NPDES permit program to control discharges of pollutants from point sources. The 1987 amendments to the CWA created a new section of the CWA devoted to stormwater permitting (Section 402[p]). The USEPA has delegated administering and enforcing the provisions of CWA and NPDES to the State of California. NPDES is the primary federal program that regulates point-source and non-point-source discharges to waters of the United States. Projects disturbing areas 1 acre or greater in size are effectively prohibited unless the discharge complies with an NPDES Permit. SWRCB Order No. 2022-0057, NPDES General Permit No. CAS000002, *General Permit for Stormwater Discharges Associated with Construction Activity* (Construction General Permit), is the active general stormwater construction activity permit for the State of California and RWQCB. |
| | Section 404 – Discharge of Dredge or Fill Material (33 United States Code 1251–1376) | Section 404 prohibits the discharge of dredged or fill material into waters of the US, including wetlands, without a permit from the USACE. The jurisdiction of the USACE in tidal waters under Section 404 extends to the high tide line or high tide mark, simply indicating a point on the shore where water reaches a peak height at some point each year. The CWA prohibits the discharge of any pollutant into jurisdictional waters without a permit. Implicit in the CWA definition of pollutant is the inclusion of dredged or fill material regulated by Section 404 (22 United States Code 1362). The discharge of dredged or fill material typically means adding into waters of the United States materials such as concrete, dirt, rock, pilings, or side-cast material for the purpose of replacing an aquatic area with dry land or raising the elevation of an aquatic area. Activities typically regulated under Section 404 include the use of construction equipment such as bulldozers, and the leveling or grading of sites where jurisdictional waters occur. |

| Classification | Law or Responsible Agency | Classification |
|---|---|---|
| Hazardous Materials Management | Community Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act [SARA]) | This Act imposes requirements to ensure that hazardous materials are properly handled, used, stored, and disposed of and to prevent or mitigate injury to human health or the environment in the event that such materials are accidentally released. |
| Hazardous Waste Handling | Resource Conservation and Recovery Act of 1976 (RCRA) | Under RCRA, the USEPA regulates the generation, transportation, treatment, storage, and disposal of hazardous waste from "cradle to grave." |
| | Hazardous and Solid Waste Act | Amended RCRA in 1984, affirming and extending the "cradle to grave" system of regulating hazardous wastes. The amendments specifically prohibit the use of certain techniques for the disposal of some hazardous wastes. |
| Hazardous Materials Transportation | United States Department of Transportation (USDOT) | USDOT has the regulatory responsibility for the safe transportation of hazardous materials. The USDOT regulations govern all means of transportation except packages shipped by mail (49 CFR). |
| | United States Postal Service (USPS) | USPS regulations govern the transportation of hazardous materials shipped by mail. |
| Occupational Safety | Occupational Safety and Health Act of 1970 | Fed/OSHA sets standards for safe workplaces and work practices, including the reporting of accidents and occupational injuries (29 CFR 1910). |
| Structural and Building Components (Lead-based paint, polychlorinated biphenyls, and asbestos) | Toxic Substances Control Act (TSCA) | Regulates the use and management of polychlorinated biphenyls in electrical equipment and sets forth detailed safeguards to be followed during the disposal of such items. |
| | U. S. Environmental Protection Agency (USEPA) | The USEPA monitors and regulates hazardous materials used in structural and building components and their effects on human health. |

**Table 3.9-2 State Laws and Regulations Related to Hazardous Materials Management**

| Classification | Law or Responsible Agency | Classification |
|---|---|---|
| Oil Spill Prevention and Response | Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (California Government Code 8670.1 et seq., California Public Resources Code 8750 et seq.) | California has developed a comprehensive oil spill prevention and response program that requires all marine facilities and vessels to comply with an integrated system of statewide regulations, operation manuals, inspections, training, and drill programs to provide the "best achievable protection" of the state's coastal and marine resources through the use of "best achievable technologies" and practices.<br>The California Coastal Commission (CCC) staff works in partnership with seven other California state agencies and five federal agencies to ensure that California and federal regulations and programs for safe oil and gas exploration and development operations, and for oil spill prevention and response, are consistent with California Coastal Act policies.<br>The California Office of Spill Prevention and Response (OSPR) is the state's lead agency for oil spill prevention, preparedness, response, and natural resource damage assessment. The OSPR responsibilities include development and enforcement of California's regulations and programs for oil spill prevention and response planning requirements for marine facilities; identification of sensitive shoreline areas and response strategies; oil spill drill and training requirements for vessels and marine facilities; and natural resource damage assessment requirements for the restoration of ecological and human use losses caused by an oil spill.<br>The CCC Oil Spill Program is part of the Energy, Ocean Resources, and Federal Consistency Division of the CCC. Under this program, the CCC reviews regulations for oil spill prevention and response and provides input on these regulations' consistency with California Coastal Act regulations and policies; reviews oil spill contingency plans for marine facilities in the coastal zone, and oil spill response plans for facilities on the outer continental shelf; and participates in the State Interagency Oil Spill Committee.<br>BCDC has responsibilities for oil spill prevention and response in San Francisco Bay. The Lempert-Keene-Seastrand Oil Spill Prevention and Response Act specified that BCDC must carry out certain responsibilities critical to the achievement of the goals of the state oil spill act. BCDC actively participates in planning to reduce the risk of oil spills in California waters through its membership on the San Francisco Bay Harbor Safety Committee (navigation safety), and to better respond if a spill does occur by its participation on the San Francisco Bay Delta Area Committee (contingency planning). Through its statutory permit authority, BCDC can condition a project in its jurisdiction to meet the objectives of the McAteer-Petris Act and policies of the San Francisco Bay Plan equivalent to achieving "best achievable protection" against an oil spill for San Francisco Bay. During a spill event, BCDC assists the response by monitoring activities and providing technical expertise. When required, BCDC can authorize emergency response activities that meet its laws and policies. |

| Classification | Law or Responsible Agency | Classification |
|---|---|---|
| Hazardous Materials Management | Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program); Certified Unified Program Agency (CUPA; Health and Safety Code Sections 25404 et seq.) | In January 1996, Cal EPA adopted regulations that implemented a Unified Program at the local level. The agency responsible for implementation of the Unified Program is called the CUPA, which for the Cities of Oakland and Alameda, is the Alameda County Department of Health Services (ACDEH), discussed further below. |
| | State Hazardous Waste and Substances List (Cortese List); DTSC, RWQCB, Alameda County Environmental Health Department. | The Howard Terminal is listed on the "Cortese List" compiled pursuant to Government Code Section 65962.5 and referenced in Public Resources Code Section 21092.6. The oversight of hazardous materials sites often involves several different agencies that may have overlapping authority and jurisdiction. DTSC is the lead agency. |
| Hazardous Waste Handling | California Hazardous Materials Release Response Plan and Inventory Law of 1985; CUPA | The California Hazardous Materials Release Response Plan and Inventory Law of 1985 (Business Plan Act) requires that businesses that store hazardous materials on site prepare a Hazardous Materials Business Plan (HMBP) and submit it to the local CUPA, which in this case is the ACDEH. |
| | California Hazardous Waste Control Act; DTSC | Under the California Hazardous Waste Control Act, California Health and Safety Code, Division 20, Chapter 6.5, Article 2, Section 25100 et seq., DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste in California. The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; dictate the management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills. DTSC is also the administering agency for the California Hazardous Substance Account Act. California Health and Safety Code, Division 20, Chapter 6.8, Section 25300 et seq., also known as the State Superfund law, provides for the investigation and remediation of hazardous substances pursuant to state law. |
| | California Fire Code | The California Fire Code regulates the storage and handling of hazardous materials, including the requirement for secondary containment, separation of incompatible materials, and preparation of spill response procedures. In addition, the Fire Code includes designing structures to enable ingress and egress during emergencies such as fires and other emergencies. The code includes designing for ingress and egress, emergency escape routes, exit design requirements, and lighting. |

| Classification | Law or Responsible Agency | Classification |
|---|---|---|
| Hazardous Materials Transportation | Titles 13, 22, and 26 of the California Code of Regulations | Regulates the transportation of hazardous waste originating in and passing through the state, including requirements for shipping, containers, and labeling. |
| | CHP and Caltrans | These two State agencies have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies. |
| Occupational Safety | Cal/OSHA | Cal/OSHA has primary responsibility for developing and enforcing workplace safety regulations in California. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in Title 29 of the CFR. Cal/OSHA standards are generally more stringent than federal regulations. |
| | Cal/OSHA regulations (Title 8 California Code of Regulations) | The use of hazardous materials in the workplace requires employee safety training, safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. |
| Construction Storm Water General Permit (Construction General Permit; Order 2022-0057-DWQ, NPDES No. CAS000002) | RWQCB | Dischargers whose project disturbs 1 or more acres of soil or where projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the Construction General Permit. Construction activity subject to this permit includes clearing, grading, grubbing, and other disturbances to the ground such as excavation and stockpiling but does not include regular maintenance activities performed to restore the original line, grade, or capacity of a facility. The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes specific Best Management Practices designed to prevent sediment and pollutants from contacting stormwater from moving off site into receiving waters. The Best Management Practices fall into several categories, including erosion control, sediment control, waste management, and good housekeeping, and are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. |
| Emergency Response | California Office of Emergency Services (OES) and local government partners | The State of California and local governments throughout the Bay Area, including Alameda County, have made investments in the planning and resources necessary to respond to natural and human-caused emergencies and disasters. Cal OES and its local government partners developed the Bay Area Regional Emergency Coordination Plan with support from the Department of Homeland Security to provide a framework for collaboration and coordination during regional events. The Regional Emergency Coordination Plan (RECP) has been prepared in accordance with national and state emergency management systems and plans. The RECP provides an all-hazards framework for collaboration among responsible entities, and coordination during emergencies in the San Francisco Bay Area. The RECP defines procedures for regional coordination, collaboration, decision-making, and resource sharing among emergency response agencies in the Bay Area. |

## *Regional*

### Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

The Unified Program, codified in Health and Safety Code Sections 25404 et seq., requires the administrative consolidation of six hazardous materials and waste programs under one agency, a Certified Unified Program Agency (CUPA). The following programs are consolidated under the unified program:

- Hazardous Materials Release Response Plans, and Inventory (also referred to as HMBPs)
- California Accidental Release Program
- Underground Storage Tanks
- Aboveground Petroleum Storage Spill Prevention Control and Countermeasures
- Hazardous Waste Generation and Onsite Treatment
- Uniform Fire Code Plans and Inventory Requirements

The State Secretary for Environmental Protection designated the Alameda County Department of Environmental Health (ACDEH) as the local CUPA. The CUPA is charged with the responsibility of conducting compliance inspections of hazardous materials facilities in Alameda County, including the City of Oakland and the City of Alameda. These include facilities that handle hazardous materials, generate or treat hazardous waste, and/or operate underground storage tanks. The CUPA uses education and enforcement to minimize the risk of chemical exposure to human health and the environment. The CUPA forwards important facility information to local fire prevention agencies that enables them to take appropriate protective action in the event of an emergency at regulated facilities. To legally store and use hazardous materials above the trigger quantities, users must apply for permits and demonstrate satisfactory compliance with regulations.

### Alameda County Sheriff's Office – Office of Emergency Services

The Alameda County Sheriff's Office – Office of Emergency Services (County OES) is the lead agency for Alameda County under the Standardized Emergency Management System (see Emergency Response discussion above under State regulations), the purpose of which is to prepare the County to respond efficiently and effectively to emergencies that threaten life, property, or the environment. The County OES administers and operates the Emergency Operations Center (EOC), from which centralized emergency management can be conducted. The EOC is activated by an on-call County OES Coordinator in the event of an emergency. Under such condition, the EOC supports and coordinates emergency response and recovery operations; coordinates and works with other appropriate federal, state, and other local government agencies; and prepares and disseminates emergency public information, among other responsibilities.

The Alameda County Board of Supervisors adopted the current Emergency Operations Plan (EOP) in 2012. The EOP is an extension of the State's California Emergency Plan, and provides tasks, policies, and procedures for managing multi-agency and multi-jurisdictional emergency operations, public information functions, and resource management. The EOP identifies several potential threats based on a hazard analysis, including earthquakes, wildland urban/interface fire, extreme weather, public health emergency, technological and resource emergency, hazardous material incident, terrorism, floods, and landslides.

In addition, in 2011, the County OES, with participation by 12 of the incorporated cities in Alameda County, including Oakland and Alameda, committed to participating in the 2010 Association of Bay Area Governments Local Hazard Mitigation Plan, Taming Natural Disasters, Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area. This serves as the County's Local Hazard Mitigation Plan, pursuant to the State Disaster Mitigation Act of 2000. The document identifies the County-wide mitigation strategies to be implemented by the participating agencies to reduce hazard risk and increase resiliency throughout Alameda County.

## *Local Plans, Ordinances and Policies*

### Port of Oakland Administrative Code, Chapter 9.01 (Environmental Provisions)

Chapter 9.01 of the Port of Oakland Administrative Code establishes environmental requirements that apply to all entities that access or use Port property. The requirements cover, among other matters, storage tanks, compliance with environmental laws, hazardous materials management and cleanup, imported fill, reuse of excavated materials, asbestos, permits, and reporting.

### Port Hazardous Materials Management Guide

The Port's Hazardous Materials Management Guide (HMMG) identifies requirements for the storage, use, generation, and disposal of hazardous materials and waste on Port property. The HMMG identifies individuals responsible for hazardous materials management at the Port; describes typical hazardous materials/wastes stored, generated, and handled; provides management procedures; and provides information on regulatory requirements, training requirements, and recordkeeping procedures, including inspection checklists.

### Port Soil Management Plan

The Port's Soil Management Plan provides protocols for characterization of soil excavated from Port-owned properties, soil storage, soil reuse in Port-owned properties, and handling and disposal of soils found to exceed applicable regulatory hazardous waste thresholds.

### City of Oakland General Plan

The *Public Safety Element* of the Oakland General Plan describes the following policies regarding hazards and hazardous materials, adopted for the purpose of avoiding or mitigating an environmental effect, and that apply to the Proposed Project.

- Policy HM-1: Minimize the potential risks to human and environmental health and safety associated with the past and present use, handling, storage, and disposal of hazardous materials.
    - Action HM-1.1: Continue to exercise unified-program responsibilities, including the issuance of permits for and inspection of certain industrial facilities, monitoring the filing of disclosure forms and risk-management plans, hazardous-materials assessment reports and remediation plans, and closure plans by such facilities.
    - Action HM-1.6: Through the Urban Land Redevelopment program, and along with other participating agencies, continue to assist developers in the environmental clean-up of contaminated properties.
- Policy HM-2: Reduce the public's exposure to toxic air contaminants through appropriate land use and transportation strategies.

  - *Action HM-2.1*: Continue to enforce performance standards controlling the emission of air contaminants, particulate matter, smoke and unpleasant odors.

- Policy HM-3: Seek to prevent industrial and transportation accidents involving hazardous materials, and enhance the city's capacity to respond to such incidents.
  - Action HM-3.1: Continue to enforce regulations limiting truck travel through certain areas of the city to designated routes, and consider establishing time-based restrictions on truck travel on certain routes to reduce the risk and potential impact of accidents during peak traffic hours.

### Oakland Municipal Code

Under Oakland Municipal Code, Title 8 Section 12.010, the City of Oakland assumes the authority and responsibility for the implementation of Chapter 6.95 of the California Health and Safety Code (Health and Safety Code Section 25500 et seq.), as to the handling of the hazardous materials in the city. Pursuant to Section 25502 of Chapter 6.95, the City shall have exclusive jurisdiction within its boundaries for the purposes of carrying out Chapter 6.95.

Oakland Municipal Code, Title 8 Section 42 previously described the City as the local CUPA. However, that role has been transferred to the Alameda County Department of Environmental Health, as previously noted.

### City of Alameda General Plan

The *Safety and Noise Element, Section 8.5, Hazardous Materials and Waste,* of the City of Alameda General Plan describes the following policy regarding hazards and hazardous materials, adopted for the purpose of avoiding or mitigating an environmental effect, and that apply to the Proposed Project.

- Policy SN-32. Work with county, regional, state, and federal agencies and private property owners to ensure that the necessary steps are taken to clean up residual hazardous waste on any contaminated sites.
  - a. Require that all new construction, including construction on former industrial sites, has been cleared for residential, commercial or industrial uses from the appropriate federal, state and local agencies and acts, including the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Program, the Resource Conservation and Recovery Act (RCRA), the California Department of Toxic Substances Control (DTSC), the Regional Water Quality Control Board (RWQCB) and the Alameda County Department of Environmental Health (ACDEH),which is the Certified Unified Program Agency (CUPA) responsible for implementing state environmental regulations related to hazardous waste and hazardous materials.
- Policy SN-35: Require adequate and safe separation between areas and uses with hazardous materials and sensitive uses such as schools, residences and public community facilities.

## *Existing Howard Terminal Regulatory Documents*

The DTSC is the regulatory agency overseeing investigation, cleanup, and maintenance of the cap for Howard Terminal. Howard Terminal is regulated by the DTSC under a Land Use

Covenant (LUC), which restricts the use of Howard Terminal for certain land uses and activities. The site-specific LUC and associated governing documents are summarized below.

### Howard Terminal Land Use Covenant

The LUC is summarized as follows:

- **Prohibited Uses**. The Property shall not be used for any of the following:
  a) A residence, including any mobile home or factory-built housing, constructed or installed for use as residential human habitation.
  b) A hospital for humans.
  c) A public or private school for persons under 21 years of age.
  d) A day care center for children.
  e) Un-capped park or un-capped open space that exposes contaminated soil.
- **Prohibited Activities.**
  a) Except as otherwise provided… the Property shall not be used in such a way that will disturb or interfere with the integrity of the existing cap.
  b) The Property shall be used and developed in a way that preserves the integrity of the cap installed on the Property. The capped soil shall not be disturbed without a Risk Management Plan, a Health Safety Plan, and a Soil Management Plan submitted to the Department for review and approval.
  c) The Owner shall provide the [DTSC] written notice at least 30 days prior to any activities, which will disturb the cap and underlying soils.
  d) The owner shall inspect and maintain improvements constructed on the Property as provided in the Risk Management Plan.
  e) The owner shall notify the [DTSC] of each of the following:
    i) The type, cause, location and date of any damage to the cap and
    ii) The type and date of repair of such damage. Notification to the Department shall be made as provided below within 10 working days of both the discovery of any such disturbance and the completion of any repairs.
  f) The Owner shall not extract the groundwater for purposes other than site remediation or construction dewatering.

### Howard Terminal Operations and Maintenance Plan

The LUC also requires the implementation of an Operations and Maintenance Plan (O&M Plan; available on the DTSC EnviroStor website at: https://www.envirostor.dtsc.ca.gov/public/). The O&M Plan includes components describing how soil and groundwater must be managed during future maintenance activities, utility installations, and other activities. For Howard Terminal, the soil and groundwater plan is titled the *Soil and Groundwater Risk Management Plan* (RMP).

The O&M Plan describes monitoring requirements and procedures to ensure maintenance of the integrity of the site cap over time, so that impacted soil and groundwater are properly characterized and handled when cap disturbance activities occur. The O&M Plan requires a

biennial groundwater monitoring program, annual and 5-year reporting obligations, a health and safety plan, notification requirements, and cap maintenance obligations; and for more involved construction projects, project-specific soil and groundwater management plans must be approved by DTSC before work can begin. The construction plans must describe site management measures for:

- Handling impacted soil
- Minimizing dust
- Preventing access to excavated or exposed soil
- Managing stormwater
- Equipment decontamination measures
- Control of construction dewatering water
- Proper characterization of soil and groundwater
- Disposal of impacted soil and groundwater in accordance with applicable laws and notification requirements
- Restoration of the cap to match the existing pavement.

A detailed summary of the Howard Terminal RMP is provided below.

### Howard Terminal RMP Summary

The existing RMP contains the following risk management measures that would be implemented during any construction activity at the Howard Terminal site that would involve breaching the existing cap:

- **Construction Risk Management Measures**
  - ***Dust Management***
    - Basic Control Measures for all Construction Sites
      - Water all active construction areas at least twice daily.
      - Cover all trucks hauling soil, sand, and other loose materials, or require all trucks to maintain at least 2 feet of free board.
      - Pave, apply water three times daily, or apply non-toxic soil stabilizers on all unpaved and staging areas at construction sites.
      - Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.
      - Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
    - Enhanced Control Measures: for Construction Sites Greater than Four Acres
      - Enclose, cover, water twice daily, or apply non-toxic soil binders to exposed stockpiles.
      - Limit traffic speeds on unpaved roads to 15 mph.
      - Install sandbags or other erosion control measures to prevent silt runoff to public roadway.

- Optional Control Measures
  - Install wheel washers for all exiting trucks or wash off the tires or tracks of all trucks and equipment leaving the site; install wind breaks, or plant trees/ vegetative wind breaks at windward side(s) of construction areas; suspend excavation and grading when winds (instantaneous gusts) exceed 25 mph, and/or limit the area subject to excavation, grading, and other construction activity at any one time.

- **Soil Management**
  - ***Excavated Soil***
    - All excavated soils will be stockpiled onsite and isolated from the public by fencing or other means of site control. Control measures (i.e., water spraying, cover) for the stockpiles will be implemented to minimize dust plumes. In the event that excavated soils were stockpiled during the rainy season, typically from October to April, the stockpiles will be covered with anchored plastic sheeting, or an equivalent cover, to minimize erosion of the stockpiled soil and mixing with store water runoff.
    - All excess excavated soil will be disposed of offsite in accordance with all applicable federal and state regulations; non-excess soil will be placed back into excavations. Prior to offsite disposal, the excavated soil will first be appropriately classified to determine whether the waste will constitute a hazardous or non-hazardous waste. Waste characterization will include waste stream delineation, representative sampling, analysis, and statistical evaluation in accordance with the guidelines contained in USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Method, SW-846, Third Edition. If the soil is found to be non-hazardous, then further evaluation may be needed to determine which non-hazardous waste landfills may be able to accept the waste.
  - ***Imported Soil***
    - All imported soil will consist of clean fill that meets import criteria. A certificate will be obtained from the supplier of the soil regarding the chemical composition of the soil to ensure it is free of contamination.

- **Dewatered Groundwater Management –** Appropriate engineering techniques will be employed to minimize the amount of dewatering necessary during construction activities. All dewatered groundwater will be contained (e.g., Baker tanks). During the rainy season, the containment may be covered to prevent the accumulation of rainwater. Dewatered groundwater will be transported off site for disposal or treated and discharged to the sanitary sewer with approval from overseeing agencies. The groundwater would be first characterized to determine appropriate disposal options.

- **Storm Water Management –** An SWPPP will be required for all construction activities that involve breaching the cap, in accordance with the requirements of the National Pollutant Discharge Elimination System, General Permit for Discharges of Storm Water Associated with Construction Activities, Water Quality Order 99-08-DWQ, adopted by SWRCB. The purpose of the SWPPP is to minimize the potential for soil erosion and for

discharge of pollutants during construction activities. The SWPPP will be consistent with guidance from the San Francisco Bay RWQCB (e.g., Best Management Practices) and the Manual of Standards for Erosion and Sedimentation Control Measures established by the Association of Bay Area Governments.

- **Site Health and Safety –** During construction activities, construction workers that may directly or indirectly be exposed to onsite soil or groundwater would perform work in accordance with Cal/OSHA regulations. All site construction activities associated with exposure to onsite soil or groundwater will be conducted in compliance with a site-specific health and safety plan (HSP) to protect workers and the environment from site contaminants. The site specific HSP will be prepared according to Title 8. California Code of Regulations, Section 5192 and Title 29 Code of Federal Regulations 1910.120. The HSP will include provisions for air monitoring and personal protective equipment to be worn by workers during site redevelopment activities.
- **Cap Maintenance and Inspection –** The RMP requires that the asphaltic concrete cap over the site must be maintained to ensure that there is no exposure to site users from residual contamination present in the subsurface. The RMP requires that the Port or its contractor inspect the site semi-annually to check for cap deterioration. The inspection will consist of visual inspections along longitudinal (north to south) traverses every 100 feet. The inspection will consist of observations regarding cap cracking, erosional damage, settlement, sloughing, seepage, or other damage to the cap. The inspection will be documented and kept in the Port files for the project site and submitted to DTSC. If damage is detected in the cap, routine maintenance will be performed to correct cap damage.

  The cap may be disturbed and reworked with DTSC approval providing that "the Property shall be used and developed in a way that preserves the integrity of the cap installed on the Property." This would allow replacement of the cap with other equivalent engineering solutions (e.g., adding additional fill constructing drainage systems), so long as the engineered solution preserves the integrity of the cap and is acceptable to DTSC.
- **Groundwater Monitoring Program –** The RMP required that groundwater monitoring will occur for five years to assess the future groundwater quality and to confirm the conclusions of the ecological risk assessment. Monitoring was to occur semi-annually for one year and then annually for the following four years. Monitoring was updated in 2018 to biennially for two wells and every five years for the other seven wells.
- **Future Construction/Utility Maintenance Risk Management Measures –** The RMP requires that utility and construction workers will be required to conduct work in accordance with risk management measures specified above, as deemed applicable. These risk management measures will be included in an O&M Plan. The O&M Plan will be prepared by the Port (or its contractors) and referenced in the deed restriction established for the site.
- **Implementation Evaluation –** The RMP requires that the Port will reevaluate periodically to ensure that the risk management measures in the RMP are appropriate and effective.

### *Dredged Material Management Office*

The DMMO reviews and approves sediment testing programs and suitability determinations for dredge projects and supports dredging and dredged sediment placement in the region. The DMMO is an interagency virtual office composed of representatives of BCDC, RWQCB, USACE, California State Lands Commission (CSLC), and USEPA. It was created to facilitate coordinated review of sediment quality data of dredge projects and to increase efficiencies for each permit or authorization decision in the region. The DMMO agencies review and approve sediment sampling and analysis plans, test results, and placement alternatives, and make suitability determinations. The DMMO also jointly reviews permit applications.

Sediment proposed to be dredged, placed, or beneficially reused must be characterized to determine whether the sediment is suitable for the proposed placement location, or has elevated levels of contaminants that may be acutely toxic or bioaccumulate in species that live in the Bay, ocean, or in tidal marshes (when placed at restoration sites). If testing is required for a dredging project, a Sampling and Analysis Plan (SAP), which outlines sampling locations and procedures, would be submitted by the project proponent and implemented following DMMO approval prior to dredging. Sediment testing protocols follow procedures set forth by USACE and USEPA in the Inland Testing Manual (ITM; USEPA and USACE 1998) and further refined by Public Notice (PN) 01-01 (USACE 2001) for use in San Francisco Bay for in-Bay placement, and the Ocean Testing Manual (OTM; USEPA and USACE 1991) for ocean placement. Screening guidance for beneficial reuse is provided in RWQCB's May 2000 staff summary report, *Beneficial Reuse of Dredged Materials: Sediment Screening and Testing Guidelines* (SFRWQCB 2000).

When the test results are complete, a Sampling and Analysis Report of the testing data is developed and submitted to the DMMO for review and a suitability determination prior to dredging. Suitability determinations are made using a weight-of-evidence approach, taking into consideration the physical, chemical, and biological findings of the testing program. As previously discussed, sediment proposed for beneficial reuse sites or landfills must also meet the site acceptance criteria of the receiving site(s) in the WDR permit for the proposed receiving site.

### *Regulations Applicable to Hazardous Building Materials*

From the above-listed regulations, the use and removal of hazardous building materials is subject to the following regulations specific to the demolition and renovation of structures.

#### Asbestos-Containing Material

Asbestos, a naturally occurring fibrous material, was used as a fireproofing and insulating agent in building construction before such uses were terminated due to liability concerns in the late 1970s. State-level agencies, in conjunction with the USEPA and OSHA, regulate removal, abatement, and transport procedures for ACM. Releases of asbestos from industrial, demolition, or construction activities are prohibited by these regulations, and monitoring is required for employees performing activities that could expose them to asbestos. Additionally, the regulations include warnings that must be heeded and practices that must be followed to reduce the risk for asbestos emissions and exposure. Finally, the Bay Area Air Quality Management District (BAAQMD) must be notified prior to the onset of demolition or construction activities with the potential to release asbestos. The following regulations apply to the removal and disposal of ACM: Code of Federal Regulations (CFR) Title 40, Part 61, Subpart M (Asbestos National

Emission Standards for Hazardous Air Pollutants [NESHAP]); California Code of Regulations (CCR) Title 8, Sections 1529 and 5208; and BAAQMD Regulation 11, Rule 2. BAAQMD Rule 2 provides detailed requirements for the definition of materials that qualify as ACM, qualifications for ACM contractors, and procedures for testing, containment, removal, and disposal.

### Lead-Based Paint

Among its numerous uses and sources, lead can be found in paint, water pipes, solder in plumbing systems, and in soils around buildings and structures painted with LBP. Old, peeling paint can contaminate near-surface soil, and exposure to residual lead can have adverse health effects, especially in children. Cal/OSHA's Lead in Construction Standard is contained in CCR Title 8, Section 1532.1. The regulations address the following areas: permissible exposure limits; exposure assessment; compliance methods; respiratory protection; protective clothing and equipment; housekeeping; medical surveillance; medical removal protection; employee information, training, and certification; signage; record keeping; monitoring; and agency notification. The following regulations apply to the removal and disposal of LBP: Title IV, Toxic Substances Control Act, Sections 402, 403, and 404; Title 8 CCR Section 1532.1; and BAAQMD Regulation 11, Rule 1. In addition, the California Department of Public Health (CDPH) requires that LBP removal actions prepare and submit CDPH Form 8551: Abatement of Lead Hazards Notification, and CDPH Form 8552: Lead Hazard Evaluation Report to the CDPH.

### Polychlorinated Biphenyls

PCBs are mixtures of 200-plus individual chlorinated compounds (known as congeners). PCBs were used in many applications such as coolants and lubricants in transformers, capacitors, and other electrical equipment. The manufacture of PCBs ended in the United States in the late 1970s because they can cause harmful effects to human health and the environment. PCBs can be found in sources such as electrical transformers, fluorescent light ballasts and electrical devices with PCB capacitors, hydraulic oils, and building materials. PCBs are toxic, highly persistent in the environment, and bioaccumulate. There are no known natural sources of PCBs.

USEPA prohibited the use of PCBs in the majority of new electrical equipment and fluorescent light ballasts starting in 1979 and initiated a phase-out for much of the existing PCB-containing equipment. The inclusion of PCBs in electrical equipment and the handling of those PCBs are regulated by the provisions of the Toxic Substances Control Act, 15 United States Code Section 2601 et seq. Relevant regulations include labeling and periodic inspection requirements for certain types of PCB-containing equipment and outline highly specific safety procedures for their disposal. The State of California likewise regulates PCB-laden electrical equipment and materials contaminated above a certain threshold as hazardous waste; these regulations require that such materials be treated, transported, and disposed accordingly. At lower concentrations for non-liquids, the RWQCB may exercise discretion over the classification of such wastes. The following regulations apply to the removal and disposal of PCBs: RCRA: 4 CFR 761; Toxic Substances Control Act: United States Code Title 15, Section 2695; and 22 CCR Section 66261.24.

### Mercury

Mercury may be present in mercury switches and compact fluorescent light bulbs (CFLs) and other tubes. A mercury switch is an electrical switch that opens and closes a circuit when a small amount of the liquid metal mercury connects metal electrodes to close the circuit. Because mercury is a toxic heavy metal, devices containing mercury switches must be treated as

hazardous waste for disposal. Because of current regulations, most modern applications have eliminated mercury in switches. In the United States, the USEPA regulates the disposition and release of mercury. Individual states and localities may enact further regulations on the use or disposition of mercury. The following regulations apply to the removal and disposal of mercury switches: 22 CCR Sections 66262.11, 66273 et seq., and 67426.1 through 67428.1.

## 3.9.3. Significance Criteria

Based on Appendix G of the CEQA Guidelines, the following questions (criteria) were analyzed and evaluated to determine whether impacts related to hazards and hazardous materials are significant. Would the Proposed Project:

A. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

B. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

C. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

D. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment?

E. If located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area?

F. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

G. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

### *Methodology for Analysis*

#### General

This environmental analysis of the potential impacts related to hazards and hazardous materials is based on a review of the results of the site-specific investigations, a review of literature and database research, and the general plans for the Cities of Oakland and Alameda; information regarding Proposed Project construction details; and the potential uses associated with implementation of the Proposed Project.

The Proposed Project would be regulated by the various laws, regulations, and policies summarized above in Section 3.9.2. Compliance by the Proposed Project with applicable federal, state, and local laws and regulations is assumed in this analysis; and local, state, and federal agencies would be expected to continue to enforce applicable requirements to the extent that they do so now. Compliance with many of the regulations would be a condition of permit approvals.

A significant impact would occur if, after considering the features described in Chapter 2, Proposed Project Description, and the required compliance with regulatory requirements, a significant impact would still occur. For those impacts considered to be significant, mitigation measures are proposed to reduce the identified impacts.

### Chemical Testing of Excavated and Dredged Materials

The analysis includes assumptions pertaining to placement destination based on previously collected data. Although previous dredging events and landside cleanup and investigations provide extensive fill and sediment chemical testing results for much of the area proposed to be excavated or dredged, existing data are limited for some locations (e.g., the submerged land between Howard Terminal and Schnitzer/Radius Recycling), and the excavated and dredged materials would still be required to be chemically analyzed to determine the appropriate beneficial reuse or disposal site prior to construction. Each beneficial reuse (wetland or upland beneficial reuse site as cover or foundation material) and each landfill (non-hazardous, designated, or hazardous waste) has specific acceptance criteria promulgated in their WDR permit. At a minimum, the excavated or dredged materials would be tested for metals, volatile organic compounds, semivolatile organic compounds including PAHs, organochlorine pesticides and PCBs, and TPH as gasoline, diesel, and motor oil. Specific refuse or disposal sites may require additional tests. Testing would be conducted during the Proposed Project pre-construction engineering and design phase.

## *Topics Considered and Determined to Have No Impact*

The following topics are considered to have no impact related to the Proposed Project based on its geographical location. Therefore, these topics are not addressed further in this document for the following reasons:

- ***Proximity to schools*** (Criterion C). There are no schools within 0.25 mile of the Proposed Project. The nearest school is Ruby Bridges Elementary School, about 0.5 mile south of the Alameda Site. Therefore, there would be no impact relative to the Proposed Project emitting hazardous emissions or handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of a school.
- ***Proximity to airports*** (Criterion E). There are no airports within 2 miles of the Proposed Project. The nearest airport is Oakland International Airport, about 5 miles south of the Alameda Site. Therefore, there would be no impact relative to the Proposed Project being within 2 miles of an airport.
- ***Risk involving wildland fire*** (Criterion G). The Proposed Project is not in a designated wildland area that would contain substantial forest fire risks or hazards. The Proposed Project sites consist mostly of open water with some developed highly urbanized areas in the cities of Oakland and Alameda. The Proposed Project is not in or near a State Responsibility Area or lands classified as very high fire severity zones. Therefore, there would be no impact relative to the Proposed Project exposing people or structures to risks involving wildland fires.

## 3.9.4. Impacts and Mitigation Measures

### Impact HAZ-*1. Would the Proposed Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or through reasonably foreseeable upset and accidental conditions involving the release of hazardous materials? (Criteria A and B) (Less than Significant)*

#### Impact Analysis

Once constructed, the shipping channels and turning basins would continue their current use. No new equipment or chemical uses would be conducted. Therefore, the impact analysis for these criteria addresses potential impacts during construction from the routine use or an accidental spill of hazardous materials used in construction. The potential impacts from encountering hazardous materials associated with encountering contamination from prior uses at Howard Terminal during construction are analyzed in Impact HAZ-2.

***All Locations – General Construction Activities***

Construction equipment and materials would include fuels, oils and lubricants, solvents and cleaners, cements and adhesives, paints and thinners, degreasers, cement and concrete, and asphalt mixtures, which are all commonly used in construction. The routine use or an accidental spill of hazardous materials used in construction could result in inadvertent releases, which could adversely affect construction workers, the public, and the environment.

Construction activities would be required to comply with the numerous federal, state, and local (Port and City) hazardous materials regulations, summarized in Section 3.9.2, designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner to protect worker safety, and to reduce the potential for a release of construction-related fuels or other hazardous materials into the environment, including stormwater and downstream receiving water bodies, including San Francisco Bay. Contractors would be required to prepare and implement HMBPs that would require that hazardous materials used for construction would be used properly and stored in appropriate containers with secondary containment, as needed, to contain a potential release. The California Fire Code would also require measures for the safe storage and handling of hazardous materials.

Similarly, the dredging activities would be conducted in compliance with existing dredging regulations designed to ensure that dredging operations do not result in the release of sediment and other pollutants into the environment. A sampling and analysis plan would be developed and implemented prior to construction to characterize soils and sediment to be removed or exposed to inform proper management and dispose of such material during construction. All dredging equipment and barges would be required to maintain equipment in good working order, with written spill response plans in the event of a release. Dredged sediment would be dredged, contained, transported, and disposed of in a manner that does not result in sediment and other pollutants adversely affecting the environment. This includes use of an environmental bucket (a bucket equipped with rubber seals to minimize release of sediment during dredging), restrictions on excess water discharges from barges, and not overfilling transport barges.

As described in Section 2.5.3, Detailed Construction Activities, and as also required by law, construction contractors would be required to prepare an SWPPP. These plans would list the hazardous materials (including petroleum products) proposed for use during construction; describe spill prevention measures, equipment inspections, equipment and fuel storage; protocols for responding immediately to spills; and describe measures for controlling site run-on and run-off.

In addition, the transportation of hazardous materials would be regulated by the USDOT, Caltrans, and the CHP. Together, federal and state agencies determine driver-training requirements, load labeling procedures, and container specifications designed to minimize the risk of an accidental release.

Finally, in the event of a large (emergency) spill that releases hazardous materials, a coordinated response would occur at the local and state levels as appropriate for the size of the release. For spills on land, the response would include the Port and the Cities of Oakland and Alameda. The local fire departments are the local hazardous materials response team. In the event of a hazardous materials spill, the local police and fire departments would be simultaneously notified and sent to the scene to respond to and assess the situation. For spills over or impacting water, a coordinated response would be conducted by the USCG and Office of Spill Prevention and Response (OSPR). For minor/incidental spills that may occur during construction (i.e., spills not requiring response support from emergency responders), the contractor would respond following protocols outlined in the SWPPP.

Required compliance with the numerous laws and regulatory oversight discussed above that govern the dredging activities, and the transportation, use, handling, and disposal of hazardous materials, would limit the potential for creation of hazardous conditions due to the routine use or accidental release of hazardous materials during construction to the extent that the Proposed Project would not create a significant hazard to the public or the environment.

#### *Alameda Site – Hazardous Building Materials*

The Proposed Project includes the demolition and removal of western portions of the two existing buildings on the Alameda Site. The existing buildings predate the late 1970s regulatory bans on the use of hazardous building materials, such as ACM, LBP, PCBs, and mercury. As a result, the existing buildings and utilities may contain hazardous building materials. Demolition of the existing buildings, structures, and utilities could expose construction workers and the environment to hazardous building materials if not managed appropriately. As described in Section 3.9.2, the testing, handling, removal, and disposal of hazardous building materials would be conducted in accordance with existing federal, state, and local regulations. Demolition activities that may disturb or require the removal of hazardous building materials are required to be inspected and/or tested for the presence of hazardous building materials. If present at concentrations above regulatory action levels, hazardous building materials must be managed and disposed of in accordance with the existing laws and regulations described in Section 3.9.2. The required compliance with the numerous laws and regulations, summarized in Section 3.9.2, that govern the transportation, use, handling, and disposal of hazardous building materials would reduce the potential to create hazardous conditions due to the routine use or accidental release of hazardous materials to the extent that the Proposed Project would not create a significant hazard to the public or the environment.

### *Excavated Shallow Fill*

At the proposed location of electrical improvements at Berth 26, there are no known elevated contaminant levels in the surficial soils that would be disturbed during installation of the switchgear improvements, and work would be conducted in accordance with the Port's Soil Management Plan, which provides protocols for characterization, storage, reuse, and handling and disposal of soil excavated from non–deed-restricted Port-owned properties.

As described in Section 3.9.1, the soil and groundwater beneath Howard Terminal have been impacted by historic industrial uses of the site. Most of the documented contamination is on the landward side of the wooden bulkhead/concrete quay wall; the Proposed Project does not involve ground disturbance in this area. Only materials waterward (south) of the wooden bulkhead/concrete quay wall would be removed as part of implementation of the Proposed Project. As described above in Sections 3.9.1 and 3.9.2, Howard Terminal is subject to existing LUCs, with their associated plans (O&M Plan and RMP) enforced by the DTSC. These LUCs and their associated plans include specific requirements for activities that would disturb the cap, and contaminated materials beneath the cap. The Proposed Project plans for removing a portion of the Howard Terminal would require review and approval by the DTSC because the Proposed Project would remove a portion of the cap, and the underlying fill and sediment. The role of DTSC is to protect Californians and their environment from exposure to hazardous wastes by enforcing hazardous waste laws and regulations. Therefore, with DTSC oversight of plans for removal of a portion of Howard Terminal, the Proposed Project would not result in reasonably foreseeable upset and accidental conditions involving the release of hazardous materials.

As described in Section 3.9.1, it is assumed that some excavated materials from the ground surface to a depth of approximately 15 feet bgs at both Howard Terminal and the Alameda Site would require disposal at a Class I (hazardous) landfill, in addition to a Class II (non-hazardous) landfill. A sampling and analysis plan would be developed and implemented prior to construction to characterize soils and sediment to be removed or exposed to inform proper management and dispose of such material during construction. The handling, removal, and disposal of any materials found to be hazardous would be conducted in accordance with existing federal, state, and local regulations. The required compliance with the regulatory acceptance criteria for each site would ensure that the excavated materials are managed in accordance with applicable federal, state, and local laws and regulations to the extent that the Proposed Project would not create a significant hazard to the public or the environment.

### *Dredged Fill and Sediment*

Based on existing sampling and analysis from prior projects and investigations in the immediate vicinity, as summarized in Section 3.9.1, most of the Proposed Project's dredged material is not expected to contain elevated contaminant levels that would preclude beneficial reuse. The exception is the basin between Howard Terminal and Schnitzer/Radius Recycling, where sediment may contain contaminants at levels that would require landfill disposal in a Class II (non-hazardous) landfill. Sediment testing would be conducted during the Proposed Project pre-construction engineering and design phase. The results would be reviewed by the DMMO to identify appropriate placement site options based on the characteristics of the sediment and criteria for each placement location. Dredged sediment that does not meet the criteria for placement at a permitted beneficial reuse site would be hauled to an appropriate landfill. In all cases and as described above, the testing, handling, removal, and disposal of the dredged sediment would be conducted in accordance with existing federal, state, and local regulations.

The required compliance with the regulatory acceptance criteria for each site would ensure that the dredged material is managed in accordance with applicable federal, state, and local laws and regulations to the extent that the Proposed Project would not create a significant hazard to the public or the environment.

Future maintenance dredging of the widened areas of the turning basins would be confined to the removal of sediment accumulated since the last dredging event. Sediment deposited since the previous dredging activities would not be expected to contain elevated levels of contaminants because sediment testing results for previous USACE maintenance dredging episodes indicate that, in general, dredged materials are suitable for aquatic disposal and do not require disposal at a landfill (USACE and RWQCB 2015). Future maintenance dredging events would be subject to sediment characterization and DMMO approval, as described above for the Proposed Project construction, and the testing, handling, removal, and disposal of the dredged sediment would be conducted in accordance with existing federal, state, and local regulations such that future maintenance dredging of the widened areas of the turning basins would not create a significant hazard to the public or the environment.

***Summary***

With required compliance with the numerous laws and regulatory oversight discussed above that govern the dredging activities, and the transportation, use, handling, and disposal of hazardous materials, the Proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or through reasonably foreseeable upset and accidental conditions involving the release of hazardous materials; this impact would be **less than significant**.

## Impact HAZ-*2. Would the Proposed Project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code* Section *65962.5 (i.e., the "Cortese List") and could create a significant hazard to the public or the environment? (*Criterion D*) (Less than Significant)*

### Impact Analysis

Howard Terminal is the only portion of the Proposed Project listed as a hazardous materials site on the Cortese List. However, only materials waterward (south) of the wooden bulkhead/concrete quay wall would be removed as part of implementation of the Proposed Project. Most of the documented contamination is on the landward side of the wooden bulkhead/concrete quay wall; the Proposed Project does not involve ground disturbance in this area. As described above in Sections 3.9.1 and 3.9.2, Howard Terminal is subject to existing LUCs, with their associated plans (O&M Plan and RMP) enforced by the DTSC. These LUCs and their associated plans include specific requirements for activities that would disturb the cap, and contaminated materials beneath the cap. The Proposed Project plans for removing a portion of the Howard Terminal would require review and approval by the DTSC because the Proposed Project would remove a portion of the cap, and the underlying fill and sediment. As described under Impact HAZ-1, the handling, removal, and disposal of any materials found to be hazardous would be conducted in accordance with existing federal, state, and local regulations. Once constructed, the shipping channels and turning basins would continue their current use, and there would be no further disturbance of

Howard Terminal related to the Proposed Project. Therefore, required compliance with numerous laws and regulations and the LUC enforced by the DTSC would ensure impacts relative to being on the Cortese List would be **less than significant**.

## Impact HAZ-*3.* *Would the Proposed Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? (*Criterion F*) (Less than Significant with Mitigation)*

### Impact Analysis

The removal of portions of Howard Terminal and the Alameda Site would occur entirely within these their respective property boundaries and would not occur on public roadways. Equipment and materials would be staged and used in the facilities and would not require restrictions or closures of any public roads. Similarly, construction activities at Berths 10 and 26 would be contained on Port property. Construction equipment and materials would enter and exit each site through existing roadways. However, the temporary increases in construction traffic in the immediate vicinity of the Proposed Project sites could interfere with emergency vehicle access or traffic movement in the event of an emergency evacuation, resulting in a potentially significant impact.

### Level of Significance Before Mitigation

*Potentially Significant Impact.*

### Mitigation Measure

#### MM TRA-1: Traffic Control Plan (refer to Section 3.14)

### Level of Significance After Mitigation

*Less than Significant Impact with Mitigation.*

As discussed in Section 3.14, Transportation, the construction contractor would be required to develop a comprehensive construction traffic control plan (TCP) that includes measures to minimize the effects of the Proposed Project's construction traffic on overall circulation, including emergency access. With the implementation of the required construction traffic plan, the volume and timing of construction traffic would be managed to avoid adversely affecting the level of service on nearby roads, and the impact relative to emergency response or evacuation plans would be **less than significant**.

# 3.10. HYDROLOGY/WATER QUALITY

This section describes the existing hydrologic setting, which includes the physical and chemical characteristics, hydrodynamics (water exchange or flushing), contaminants, and flooding hazards pertaining to surface and groundwater; presents regulatory framework pertaining to surface water, groundwater, flooding, and water quality; and evaluates potential Proposed Project impacts, and when necessary, provides appropriate mitigation. The primary geographic focus of this section is the Central San Francisco Bay (Central Bay), with added focus on the IHTB and OHTB and other areas where the Proposed Project's construction and staging activities would occur. Upland (landside areas) hydrologic conditions and potential Proposed Project impacts along the Port shoreline are also described, such as those related to groundwater and flood susceptibility.

## 3.10.1. Environmental Setting

The analysis area for surface waters includes the IHTB and OHTB proposed widening areas and adjoining waters, which occur in the Central Bay. Conditions for the broader San Francisco Bay are also considered and analyzed where environmental setting information specific to the Central Bay, IHTB, or OHTB is not available. The Central Bay generally consists of the San Francisco Bay waters south of the Interstate 580 Richmond-San Rafael Bridge, and north of the State Route 92 San-Mateo Hayward Bridge. San Francisco Bay is an estuary.[70] Like all estuaries, San Francisco Bay has a wide river mouth flooded by the sea, which flows on ocean tides east through the Golden Gate Bridge. Central Bay hydrology is most strongly influenced by tidal currents because of its proximity to the Pacific Ocean. The Central Bay is characterized by Pacific Ocean waters that are cold, saline, and low in total suspended sediment. Net circulation patterns in the larger San Francisco Bay are influenced by Sacramento-San Joaquin Delta (Delta) inflows from the northeast, gravitational currents, and by tide- and wind-induced horizontal circulation (LTMS 1998). The turning basin widening footprints do not include wetlands or non-Bay water features (e.g., streams, drainages), although upland stormwater drainage patterns and infrastructure likely to affect surface waters are in the Proposed Project area.

The Oakland Outer Harbor Channel, including the OHTB, is situated west of the Port's Outer Harbor Terminal marine wharf, and is exposed to the open Central Bay.

The Oakland-Alameda estuary is the strait separating the cities of Oakland and Alameda, and Alameda from the East Bay mainland. It includes the Inner and Middle Harbors of the Seaport, including the IHTB. Freshwater inflow to the Oakland-Alameda estuary is provided from natural creeks, human-made stormwater drainage facilities, and direct surface runoff. Tidal and wind-driven currents also influence the estuary. Sediment to the Oakland-Alameda estuary is contributed from other portions of San Francisco Bay, as well as vicinity shorelines and creeks, which causes siltation of the existing turning basins and shipping channels.

Vessel traffic, industrial activity, and annual dredging activities are some of the factors that may affect surface water conditions in the Proposed Project area, such as water quality, turbidity, and potential pollutant inputs. Propeller wash (the force in the water column behind the propeller) from container vessels contributes to the redistribution of sediment in Oakland Harbor. Most of the uplands adjacent to the turning basins are surfaced in concrete, asphalt, or other impermeable

[70] An estuary is a partially enclosed, coastal water body where freshwater from rivers and streams mixes with salt water from the ocean.

surfaces associated with industrial and maritime-related developments. Operations at these facilities are subject to applicable regulatory oversight for stormwater conveyance, treatment, and discharge.

## *Physical and Chemical Characteristics*

### Temperature

Temperature affects water chemistry and exerts a major influence on biological activity and growth in San Francisco Bay. Seasonally, water temperatures in San Francisco Bay range from about 8 degrees Celsius (46 degrees Fahrenheit) to about 23 degrees Celsius (73 degrees Fahrenheit). Water depths also influence small, irregular temperature changes.

### Salinity

The salinity of San Francisco Bay varies considerably by location and is most strongly influenced by river (freshwater) inflow and ocean tides. In Suisun Bay, located in the northern extents of San Francisco Bay (east of San Pablo Bay) and closer to the Delta inflows, salinity averages about 7 parts per thousand; at the Presidio in San Francisco near the Golden Gate Bridge and entrance to the ocean, it averages about 30 parts per thousand; and in the southern extents of San Francisco Bay, salinities remain at near-ocean concentrations (32 parts per thousand) during much of the year. In winter, high flows of freshwater from the Delta lower the salinity throughout the San Francisco Bay's northern extents. In contrast, during the summer, when freshwater inflow is low, saline water from San Francisco Bay intrudes into its northern extents and the Delta (USACE et al. 2009).

### pH

The pH[71] of waters in San Francisco Bay is relatively constant and typically ranges from 7.8 to 8.2 (LTMS 1998). As reported by the San Francisco Bay LTMS agencies who oversee dredging activities in San Francisco Bay, pH has remained relatively constant throughout San Francisco Bay regardless of maintenance dredging projects that have occurred (USACE et al. 2009).

### Dissolved Oxygen

Dissolved oxygen is one of the most important indicators of water quality. It is essential for the survival of fish and other aquatic organisms. The water in the Central Bay, in the vicinity of the Seaport, is considered to be generally well-oxygenated. Typical concentrations of dissolved oxygen in most of San Francisco Bay range from 9 to 10 milligrams per liter (mg/L) during high periods of river flow, 7 to 9 mg/L during moderate river flow, and 6 to 9 mg/L during the late summer months, when flows are lowest (SFEI 2008). River flows directly affect the amount of oxygen dissolved in water. Higher volumes of faster moving water increase the turbulent diffusion (or mixing) of atmospheric oxygen (air including oxygen) into the water.

Environmental factors other than river flows can also affect dissolved oxygen concentrations. This includes increases in dissolved oxygen by the mixing action of wind, waves, and tides; photosynthesis of phytoplankton and other aquatic plants; and high dissolved oxygen levels in freshwater inflow. Dissolved oxygen concentrations are lowered by plant and animal respiration, chemical oxidation, and bacterial decomposition of organic matter (USACE et al. 2009).

[71] pH is the measure of the acidity or basicity of an aqueous solution on a scale of 0 to 14, with 7 being neutral; pHs less than 7 are acidic, while pHs greater than 7 are basic (alkaline).

### *Hydrodynamics and Flushing*

Hydrodynamics in the southern central San Francisco Bay, including the Proposed Project area, are dominated by tidal currents. Currents in the western half of the Outer Harbor are organized during ebb (outflowing tide)/flood (inflowing tide) conditions and can exceed a velocity or speed of 1 foot per second (comparable to a low velocity or mild rip current), while currents in the interior of the Outer Harbor, including the OHTB, are dominated by weak, disorganized eddies (circular water currents) with velocities generally below 0.2 foot per second (Mott MacDonald 2023; Appendix E). Flow in the Inner Harbor is typically aligned with the navigation channel, having typical peak ebb and flood currents that both range from 0.5 to 1.0 foot per second. In the IHTB, localized movements of eddies regularly occur during transitions between ebb and flood tide.

### *Suspended Sediment/Turbidity*

Turbidity is an optical property related to clarity of water; it causes light to be scattered and absorbed rather than transmitted in straight lines. Turbidity is caused by the presence of suspended and dissolved matter such as clay, silt, finely divided organic matter, plankton, other microscopic organisms, organic acids, and dyes. Factors affecting turbidity include shape, size, refractive index, color, and absorption spectra of particles. Turbidity is expressed in NTUs. Total suspended solids (TSS), on the other hand, are a measure of the amount of dry-weight mass of undissolved solids suspended per unit of water (often measured in mg/L). TSS include inorganic solids (clay, silt, and sand) and organic solids (algae and detritus). Increased suspended solids increase turbidity and affect aquatic ecosystems in several ways, such as reduced light transmission, exposure to chemicals in suspended solids, and resettling effects.

Sources of new sediment into San Francisco Bay include the Sacramento River, which flows through the Carquinez Strait into the northeastern end of San Pablo Bay (a northern branch of San Francisco Bay, west of Suisun Bay); the Napa, Sonoma, and Petaluma Rivers; and a variety of smaller streams and other drainages (including storm drains and flood control channels) that discharge at various locations throughout San Francisco Bay. As observed in a study from 1995-2010, small tributaries within the nine counties adjacent to San Francisco Bay supply 61 percent of the new suspended sediment to San Francisco Bay (McKee et al. 2013). Recent research also reinforces that episodic sediment loads, primarily during storm events, dominate the sediment supply to San Francisco Bay (Barnard et al. 2013). In the Oakland Harbor, sediment is contributed from vicinity shorelines and creeks, and carried via tidal currents, which causes siltation of the existing turning basins and shipping channels.

Aside from new sediment, existing deposits of typical fine-grained surface sediment in the extensive shallow areas of San Francisco Bay are subject to hydraulic movement (resuspension) by riverine, tidal, and wind-driven currents, and are the primary source of suspended particulate matter and turbidity throughout San Francisco Bay. In Oakland Harbor, propeller wash from container vessels is also a primary source of suspended particulate matter and turbidity.

TSS levels in San Francisco Bay vary greatly, typically ranging from 10 mg/L to over 100 mg/L, and as high as 200 mg/L (SFEI 2011). In general, higher TSS results indicate more turbid water. The Central Bay generally has the lowest TSS concentrations due to its greater depth compared to other parts of San Francisco Bay, increased tidal exchange, and sediment type (LTMS 1998). However, the navigation channel and turning basins waters themselves are naturally turbid from resuspension of sediment from wind, waves, and tides. In addition, suspended sediment is

generated by vessel movement that contributes to these turbid ambient (i.e., background) conditions. Seasons also play an important role in suspended sediment loads, with generally higher TSS levels in the summer, and lower levels in the winter. During the winter, although river flows and corresponding new sediment loads are high, the winds are generally weak, and sediment tends to be deposited on the mudflats of the northern extents of San Francisco Bay, and specifically northern San Pablo Bay. In the summer, when river flows and new sediment loads decrease dramatically, strong, frequent westerly winds over the shallow mudflats resuspend sediment, and in conjunction with tidal currents, transport them throughout the system (USACE et al. 2009).

Sediment quality, including the potential for contaminants in dredged material, is described in Section 3.9, Hazards and Hazardous Materials.

## *Contaminants*

### Water Quality and Total Maximum Daily Loads

Oakland Harbor is in San Francisco Bay, Central waterbody, as included in the 2020 California 303(d) list of water quality limited segments (State Water Resource Control Board 2022). The San Francisco Bay, Central is a Category 5 waterbody, which includes water segments where standards are not met for one or more pollutants, and a total maximum daily load (TMDL)[72] is required, but not yet completed. Pollutants identified for San Francisco Bay, Central include the following:

- Chlordane
- dichloro-diphenyl-trichloroethane
- Dieldrin
- Dioxin compounds
- Furan compounds
- Invasive species
- Mercury
- Polychlorinated biphenyls (PCBs)
- Selenium
- Trash

Per the 2020 California 303(d) list, the Oakland Inner Harbor area also includes indicator bacteria as a pollutant source.

### Regional Monitoring Program

Since 1993, the San Francisco Estuary Institute (SFEI) has administered a Regional Monitoring Program (RMP) for the San Francisco Bay RWQCB and major San Francisco Bay dischargers. To comply with the receiving water monitoring requirements of their permits, most dredgers and other dischargers to San Francisco Bay choose to participate in the RMP, including the Port. SFEI conducts monitoring to assess spatial patterns and long-term trends in contamination. The RMP measures concentrations of various constituents through long-term monitoring of nutrients (monthly), water (every two years), bird eggs (every three years), sediment (every four years),

[72] A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive daily and still safely meet water quality standards.

and sport fish (every 5 years). Bivalves monitoring formerly occurred every two years but was discontinued in 2020 (SFEI 2021).

SFEI issues a report each year through the RMP. Select findings relevant to water quality from the recent RMP Updates (SFEI 2019, 2020, and 2021) include the following:

- Polychlorinated biphenyls (PCBs), mercury, and other contaminants are present in sediment at the margin areas (mudflats and adjacent shallow areas) of San Francisco Bay.
- As observed in DMMO studies, PCB concentrations in dredged sediment monitoring tended to be higher than deep subtidal areas in San Francisco Bay but were similar to samples taken from San Francisco Bay margins.
- Nutrient loads from treated wastewater discharged to San Francisco Bay are increasing. Combined nitrogen loads from the region's five largest wastewater treatment plants increased 25 to 30 percent between 2000 and 2018.
- Quaternary ammonium compounds (used in sanitizing wipes and sprays) were detected in San Francisco Bay sediment, possibly affected by antimicrobial use associated with the COVID-19 pandemic.
- Harmful algal bloom–forming phytoplankton species are commonly detected throughout San Francisco Bay, and multiple harmful algal bloom toxins occur in water samples, anchovies, and mussels.

As noted above, water quality in the Inner and Outer Harbor areas is influenced by industrial waste discharges and urban stormwater runoff from past and present uses in the vicinity, vessel traffic, and maintenance dredging activities. Pollutant sources include both point and nonpoint discharges into San Francisco Bay, as described below.

### Point Sources

A point source is any discernible, confined, and discrete conveyance (e.g., a pipe discharge) of pollutants to a waterbody from sources such as industrial facilities or wastewater treatment plants. Point-source discharges into San Francisco Bay are regulated by the RWQCB under the NPDES program, as detailed in Section 3.10.2, Regulatory Setting. These permitted discharges are subject to prohibitions, water quality requirements, periodic monitoring, annual reporting, and other requirements designed to protect the overall water quality of San Francisco Bay.

### Nonpoint Sources

Nonpoint pollutant sources are those that do not have a single, identifiable discharge point, but are rather a combination of many sources. This includes stormwater runoff caused by rainfall moving over the ground, potentially conveying pollutants and depositing them into waterbodies. Other nonpoint sources include dredging activities, marine vessel waste, accidental spills or leaching of hazardous materials, and construction activities. These sources are also subject to regulation to protect water quality through federal, state, and local regulations, and ongoing programs that are being implemented to improve and protect water quality of vicinity waters, as detailed in Section 3.10.2, Regulatory Setting.

## *Groundwater*

The California Department of Water Resources considers the East Bay Plain, extending from Richmond to Hayward, an important and beneficial groundwater basin underlying the East Bay. This deep (more than 500 feet bgs) basin provides municipal, industrial, and agricultural water supply. However, water supply for the study area is not provided by groundwater sources in this basin, but rather from surface water sources maintained and distributed by East Bay Municipal Utility District. Per the East Bay Plain Subbasin Groundwater Sustainability Plan, the East Bay Plain is not known to be the sole or primary source of drinking water for any residents, and groundwater levels are stable, and the basin is sustainable (East Bay Municipal Utility District and City of Hayward 2022). Further, groundwater beneath the landside Proposed Project sites (up to at least 5 feet above mean sea level) is brackish[73] due to the adjacent Oakland Harbor and San Francisco Bay waters (i.e., from seawater intrusion), and therefore is not suitable for beneficial use as drinking water (East Bay Municipal Utility District and City of Hayward 2022).

Groundwater is generally encountered at Howard Terminal at a depth of approximately 8 feet below ground surface (bgs; Apex 2021), although groundwater has been observed at approximately 5 to 9 feet bgs during recent investigations completed in support of the Oakland Athletics Ballpark Development (ENGEO 2019). Groundwater is generally encountered at the Alameda sites at a depth of approximately 11 feet bgs (Apex 2021). The past industrial and maritime support land uses in the Proposed Project vicinity have impacted groundwater conditions at Howard Terminal, as described below, and potentially at the Alameda Site. Groundwater sampling and monitoring data (in addition to soil and soil gas data) are available on EnviroStor and GeoTracker, online data management systems maintained by the DTSC and the State Water Resources Control Board (SWRCB), respectively, for known contaminated sites. Groundwater conditions at the proposed landside excavation areas are described below. The proposed construction activity at Howard Terminal and the Alameda Site would involve work below the groundwater elevation.

Minor subsurface work, to a depth of 4 feet bgs, would be required for the installation of electrical switchgear near Berth 26 and at the eastern end of Howard Terminal. This depth of excavation would not be expected to reach groundwater.

### Howard Terminal

As described, groundwater at Howard Terminal is generally encountered at a depth of approximately 8 feet (Apex 2021), and groundwater depths are subject to tidal fluctuation of several feet daily (ENGEO 2019). Groundwater flow at Howard Terminal is diverted by a concrete quay (retaining) wall that bisects the southern portion of the parcel, which directs flows generally to the southwest, where the quay wall connects to a historic wooden bulkhead where three groundwater monitoring wells are situated—one inland (or north) of the bulkhead, and two on the harbor side (or south) of the bulkhead.

Numerous investigations and cleanup actions pertaining to site contamination, including impacts to groundwater, have been performed at the 50-acre Howard Terminal (refer to Section 3.9, Hazards and Hazardous Materials, for additional background information). In 2019, a site investigation was conducted in support of the proposed Oakland Waterfront Ballpark District at Howard Terminal that included grab groundwater samples collected at nine boring locations and

[73] Brackish water is water with salinity levels between fresh water and seawater and generally occurs where freshwater sources meet saltwater water bodies such as a river flowing directly into the ocean.

an additional four groundwater samples at newly constructed groundwater wells, for a total of thirteen groundwater samples collected (ENGEO 2020). During the biannual groundwater monitoring event conducted in 2020, two groundwater monitoring wells north of the wooden bulkhead were observed to contain petroleum hydrocarbon product floating in groundwater, consistent with past observations (Baseline 2020). These two groundwater monitoring wells and wood bulkhead are outside of the footprint of the proposed IHTB widening area (Baseline 2020).

Recent ecological risk assessment and fate and transport modeling indicate that aquatic receptors in the Oakland Inner Harbor are not being adversely affected by the contaminants identified in the groundwater currently underlying Howard Terminal. This has been demonstrated through data collected from the three groundwater monitoring wells near the wood bulkhead, located north and outside of the proposed IHTB widening area. The monitoring results indicate that contaminants in groundwater inland of the wooden bulkhead/concrete quay wall are not migrating to the Inner Harbor at detectable concentrations (Baseline 2020), further supporting the findings from the fate and transport modeling.

As further described in Section 3.9, Hazards and Hazardous Materials, the 50-acre Howard Terminal site is under the regulatory jurisdiction of the DTSC and has land use restrictions applied to the entire site, some of which include groundwater management. In compliance with these restrictions, appropriate engineering techniques must be employed to minimize the amount of dewatering necessary during construction activities, and all dewatered groundwater must be contained (e.g., Baker tanks). Dewatered groundwater may be transported off site for disposal, or treated and discharged to the sanitary sewer with approval from overseeing agencies. The groundwater would first be characterized to determine appropriate disposal.

#### Alameda Site

Widening of the IHTB would require removal of land from the Alameda Site on the southeastern side of the IHTB. The -50-Foot Oakland Harbor Navigation Project (-50-Foot Project) previously removed a corner of the same Alameda property to expand the IHTB to its current dimension. Current ground elevation is approximately 9.5 feet MLLW; and based on sampling conducted for the -50-Foot Project, groundwater was encountered at approximately 11 feet bgs. There is no indication of elevated levels of contaminants in groundwater(Apex 2021).

### *Flooding Hazards*

#### Storm-Induced Flooding

The Federal Emergency Management Agency (FEMA), through its Flood Insurance Rate Mapping (FIRM) program, designates areas where flooding could occur during 100-year and 500-year flood events. The FEMA FIRM identifies portions of the Inner Harbor area as within Zone AE (Elevation 10) coastal flood hazard area, which has a base flood elevation of 10 feet North American Vertical Datum (FEMA 2018) as shown in **Figure 3.10-1**. Proposed Project areas in the mapped Inner Harbor Zone AE area include the entire Inner Harbor Channel, including IHTB and a small portion of the Alameda Site upland area that is proposed to be excavated and converted to open water. Portions of the upland construction staging areas near the Alameda Site would also be in Zone AE (Elevation 10). Portions of the proposed OHTB widening footprint are mapped as within Zone VE special flood hazard area, without defined base flood elevation. Remaining portions of the Proposed Project footprint are outside of any FEMA mapped special flood hazard areas (i.e., Howard Terminal, Berths 10 and 26, and the area of the Alameda Site not mapped as Zone AE).

**Figure 3.10-1 FEMA Designated Flood Hazard Zones**



### Tsunami and Seiche

The entirety of the Proposed Project footprint, including the turning basins and proposed landside construction and staging areas, are in the Alameda County Tsunami Hazard Area (California Governor's Office of Emergency Services et al. 2023). Seiche[74] risk at areas along Oakland's shoreline, including the Inner and Outer Harbor areas, is minimal because there are no large, confined bodies of water with depths that would cause this hazard (City of Oakland 2016). Tsunami hazards in Oakland are described and assessed in the Oakland 2045 Oakland Safety Element Public Review Draft (Safety Element; City of Oakland 2023). Per the Safety Element, the Inner Harbor area would be sheltered from tsunamis by the island of Alameda, although the Outer Harbor area could be flooded. The overall risk from tsunamis in Oakland appears to be small, especially as there would usually be several hours to evacuate residents and undertake other emergency preparations for most tsunamis approaching the coast. The 2016 Alameda County Local Hazard Mitigation Plan further substantiates that tsunamis have not been a major problem in Alameda County or most of the Bay Area and have not resulted in significant damage (Alameda County 2016).

### Sea-Level Rise

The Port has developed a Sea-Level Rise Assessment that includes an assessment of sea-level rise impacts, maps, and descriptions of areas that may be affected (for years 2030, 2050, and 2100), and potential mitigation strategies for consideration and further evaluation (Port of Oakland 2019).

The Port's Sea-Level Rise Assessment identifies and evaluates four representative sea-level rise scenarios (1, 2, 3, and 5.5 feet) corresponding to planning time horizons of 2030, 2050, and 2100. The sea-level rise scenarios were obtained from the California Coastal Commission Sea-Level Rise Policy Guidance (Guidance) document and the Bay Conservation and Development Commission (BCDC) Adapting to Rising Tides program. These scenarios are presented in **Table 3.10-1**.

**Table 3.10-1 Port of Oakland Sea-Level Rise Assessment Scenarios**

| Planning Time Horizon | California Coastal Commission Guidance Projections | Port Assessment Mapping (Closest to Adapting to Rising Tides Sea-Level Rise Maps) |
|---|---|---|
| 2030 | 0.8 foot Med-High Risk Aversion 0.5% Probability of Exceedance | 1 foot |
| 2050 | 1.9 feet Med-High Risk Aversion 0.5% Probability of Exceedance | 2 feet |
| 2100 | 3.4 to 6.9 feet Low to Med-High Risk Aversion 66% to 0.5% Probability of Exceedance | 3 and 5.5 feet |

Source: Port of Oakland 2019

[74] Seiches are water level oscillations in an enclosed or semi-enclosed body of water such as a lake, reservoir, or harbor.

The Port's Sea-Level Rise Assessment includes maps depicting the Adapting to Rising Tides sea-level rise scenarios presented in **Table 3.10-1**. The maps identify the northeastern and southeastern corners of the Port maritime area as most exposed to extreme storm flooding. With 1 foot of sea-level rise (year 2030 scenario), extreme storm flooding overtops low-lying stretches of shoreline along the Bay Bridge touchdown and Jack London Square area, providing a flood pathway to low-lying areas of the Seaport. Daily tidal inundation is not of concern until 5.5 feet of sea-level rise (year 2100 scenarios), when nearly all areas of the shoreline are overtopped by high tides.

Potential strategies to address sea-level rise presented in the Port's Sea-Level Rise Assessment that are relevant to the Proposed Project include:

- **M.2 Maritime Terminal Shorelines.** Raise seawall along low-lying areas of Maritime area and elevate footpath between the south side of Ben E. Nutter Terminal and TraPac Terminal.
- **M.3 Maritime Terminals.** Raise grade of the shipping berths as a long-term solution when the terminals reach the end of their useful life to provide long-term flood protection once sea-level rise exceeds 3 feet (year 2100 scenarios).

Alameda is not included in the Port's Sea-Level Rise Assessment inundation maps, although inundation in this area is assessed in the City of Oakland 2021-2026 Hazard Mitigation Plan (City of Oakland and Tetra Tech 2021). Under the conservative Adapting to Rising Tides scenarios for 2050 (4 feet of total rise), immediate coastal and low-lying portions of the island of Alameda would be inundated. Under the Adapting to Rising Tides scenario for 2100 (9 feet of total rise), nearly the entire western half of the island of Alameda would be inundated.

Alameda's Climate Adaptation and Mitigation Plan also provides a description of potential sea level rise impacts to Alameda Island (City of Alameda 2022b). The plan evaluates the effects of coastal flooding at the current 100-year storm event, a future 36-inch sea level rise scenario, and a combined 100-year storm plus 36-inch sea level rise scenario. Per the plan, flooding under a 36-inch sea level rise scenario is limited to 0.5 foot in most of the evaluated shoreline locations on the main island, except for Alameda Point's Southern Shoreline on federal property, which would be flooded to 3 feet. During a 100-year storm event and 36-inch sea level rise scenario, flooding depths at evaluated shoreline locations would vary from 3.5 to 6 feet.

## 3.10.2. Regulatory Setting

### *Federal*

#### Clean Water Act (33 United States Code [USC] 1257 et seq.)

The Clean Water Act (CWA) established the federal structure for regulating surface water quality standards and discharges of pollutants into waters of the United States. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The genesis of the CWA, enacted in 1948, was the Federal Water Pollution Control Act. It was significantly reorganized and expanded in 1972 by the CWA. The CWA requires states to set standards to protect water quality. Specific sections of the CWA control discharge of pollutants and wastes into marine and aquatic environments, as discussed below.

### Section 303 – Water Quality Standards and Implementation Plans (Title 40 Code of Federal Regulations [CFR] Part 131.2)

This section of the CWA describes water quality standards as the water quality goals for a particular water body. The water quality goals are the designated uses for the water, and the criteria to protect those uses. A water quality standard defines the water quality goals for a water body, or portion thereof, by designating the use or uses to be made of the water, and by setting criteria necessary to protect those uses.

States adopt water quality standards that are approved by United States Environmental Protection Agency (USEPA) to protect public health or welfare, enhance the quality of water, and serve the purposes of the CWA. To serve the purposes of the CWA, as defined in Sections 101(a)(2) and 303(c), means that water quality standards should, wherever attainable, provide water quality for the protection and propagation of fish, shellfish, and wildlife, and provide water quality for recreation in and on the water. The standards should consider the use and value of public water supplies, propagation of fish, shellfish, and wildlife, recreation in and on the water, and agricultural, industrial, and other uses, including navigation.

The SWRCB administers the water quality standards developed under the CWA and the California Water Code. The SWRCB is required to routinely monitor the condition of water bodies in the state, and maintain a list of impaired water bodies having water quality concerns, in accordance with Section 303(d) of CWA. The Regional Water Quality Control Boards (RWQCBs) are required to develop measures to restore impaired water bodies.

### Section 303(d) – Impaired Water Bodies and Total Maximum Daily Loads

Under this section of the CWA, each state is required to identify those waters within its boundaries that do not meet water quality standards. The state must establish priority rankings for these waters and develop TMDLs to maintain beneficial uses and improve water quality. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive daily and still safely meet water quality standards. Seasonal variations in loading and a margin of safety are considered when TMDLs are established. In California, the SWRCB and RWQCBs prepare the CWA Section 303(d) List of Water Quality Limited Segments Requiring TMDLs.

### Section 401 – Water Quality Certification

Under Section 401 of the CWA, Water Quality Certification is required for any activity that requires a federal permit or license, and that may result in discharge into navigable waters. To receive certification under Section 401, an application must demonstrate that activities or discharges into waters are consistent with state effluent limitations (CWA Section 301), water quality effluent limitations (CWA Section 302), water quality standards and implementation plans (CWA Section 303), national standards of performance (CWA Section 306), toxic and pretreatment effluent standards (CWA Section 307), and "any other appropriate requirements of State law set forth in such certification" (CWA Section 401).

In California, the authority to grant water quality certification is delegated to the SWRCB, and in the San Francisco Bay Area, applications for certification under CWA Section 401 are processed by San Francisco Bay RWQCB. The CWA and United States Army Corps of Engineers (USACE) regulations (33 CFR Section 336.1[a][1]) require USACE to seek state Water Quality Certification for discharges of dredged or fill material into waters of the United States.

### Section 402 – National Pollutant Discharge Elimination System Permitting

Under Section 402 of the CWA, discharge of pollutants to navigable waters is prohibited unless the discharge complies with general or individual NPDES permits. This includes both point-source and nonpoint-source (i.e., stormwater) discharges. NPDES stormwater regulations are intended to improve the quality of stormwater discharged to receiving waters to the "maximum extent practicable" through the use of structural and nonstructural best management practices (BMPs). BMPs can include educational measures, regulatory measures, public policy measures, or structural measures. Implementation and enforcement of the NPDES program is conducted through the SWRCB and the nine RWQCBs.

### Section 404 – Discharge of Dredged or Fill Material

Section 404 of the CWA regulates the discharge of dredged or fill material (e.g., fill, pier supports, and piles) into waters and wetlands of the United States, which includes San Francisco Bay. The USACE implements Section 404 of the CWA, and USEPA has oversight authority. Section 404(b)(1) of the CWA establishes procedures for the evaluation of permits for discharge of dredged or fill material into waters of the United States. In situations where the USACE proposes work that involves discharge of dredged or fill material into waters of the United States, the USACE must comply with the requirements of the Section 404(b)(1) Guidelines, although the USACE would not issue a permit for its own activities. Any discharge under Section 404 must also obtain a Section 401 Water Quality Certification.

### Rivers and Harbors Act of 1899

The Rivers and Harbors Act (RHA) of 1899 was the first federal water pollution act in the United States that focused on protecting navigation, protecting waters from pollution, and acted as a precursor to the CWA of 1972. Section 10 of the RHA regulates alteration of, and prohibits unauthorized obstruction of, navigable waters of the United States. The RHA covers construction, excavation, or deposition of materials in, over, or under navigable waters, or any work that would affect the course, location, condition, or capacity of those waters unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army. Original construction of the Oakland Harbor channels was authorized under the RHA and by other Congressional authorities. The USACE maintains the navigability of the channels in accordance with their authorized dimensions. The USACE, as the implementing authority of Section 10 of RHA, ensures its work or structures do not impede navigation in waters of the United States, and, therefore, does not need to issue itself a permit pursuant to Section 10.

### Coastal Zone Management Act

The CZMA, established in 1972 and administered by the NOAA's Office of Ocean and Coastal Resource Management, provides for management of the nation's coastal resources, including water quality. The overall purpose of the act is to balance competing land and water issues in the coastal zone. The BCDC is the regional coastal zone management agency, and is responsible for issuing concurrence with consistency determinations under the CZMA. The San Francisco Bay Plan (Bay Plan) is BCDC's policy document specifying goals, objectives, and policies for BCDC jurisdictional areas.

## *State*

### Porter-Cologne Act

The California Legislature enacted the Porter-Cologne Water Quality Control Act (Porter-Cologne) in 1969 to preserve, enhance, and restore the quality of the state's water resources. Porter-Cologne established the SWRCB and nine RWQCBs. These agencies are responsible for setting the state's water quality policy and enforcing ground- and surface-water quality standards. The Porter-Cologne Act provides for the adoption of water quality control plans to designate beneficial uses of water, set water quality objectives to protect beneficial uses, and provide for a program to achieve those objectives. The plans may include prohibitions against the discharges of waste, or certain types of waste, in specified areas or under specified conditions. The RWQCBs are authorized to issue waste discharge requirements (WDRs) and Water Quality Certifications for activities that may affect water quality. Dredging and discharge of dredged material would require WDRs under Porter-Cologne, which would be issued by the San Francisco Bay RWQCB. The Port also maintains a WDR for drying and short-term storage of dredged sediments at Berth 10 (Order No. R2-2013-0019).

### McAteer-Petris Act

The McAteer-Petris Act (California Government Code Section 66000 et seq.), first enacted in 1965, created BCDC to prepare a plan to protect the San Francisco Bay and shoreline, and provide for appropriate development and public access. The act directs BCDC to exercise its authority to issue or deny permit applications for placing fill, dredging, or changing the use of any land, water, or structure in the area of its jurisdiction (i.e., San Francisco Bay waters and within 100 feet of the shoreline). The BCDC also carries out determinations of consistency with the CZMA for federally sponsored projects. The Bay Plan is BCDC's policy document specifying goals, objectives, and policies for BCDC jurisdictional areas.

### Construction Stormwater General Permit

The California Construction Stormwater Permit (Construction General Permit), adopted by the SWRCB, regulates construction activities, including clearing, grading, and excavation resulting in soil disturbance of at least 1 acre of total land area. The Construction General Permit authorizes the discharge of stormwater to surface waters from construction activities. It prohibits the discharge of materials other than stormwater and authorized nonstormwater discharges, and all discharges that contain a hazardous substance in excess of reportable quantities established at 40 CFR 117.3 or 40 CFR 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

The Construction General Permit requires that where construction activities will occur over more than 1 acre, landowners or legally responsible persons do the following:

- Complete a Risk Assessment to determine pollution prevention requirements pursuant to the three risk levels established in the Construction General Permit;
- Eliminate or reduce non-stormwater discharges to stormwater systems and other waters of the United States;
- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP) that specifies BMPs that will reduce pollution in stormwater discharges to the Best Available

Technology Economically Achievable/Best Conventional Pollutant Control Technology standards; and

- Perform inspections and maintenance of all BMPs.

Typical BMPs contained in SWPPPs are designed to minimize erosion during construction, stabilize construction areas, control sediment, control pollutants from construction materials, and address runoff quantity (volume) and quality (treatment) during construction.

### Industrial General Permit

The Industrial General Permit, adopted by the SWRCB, regulates industrial stormwater discharges and authorized non-stormwater discharges from industrial facilities in California. The Industrial General Permit requires dischargers to:

- Eliminate unauthorized non-stormwater discharges;
- Develop and implement SWPPPs that include BMPs;
- Implement minimum BMPs, and advanced BMPs as necessary, to achieve compliance with the effluent and receiving water limitations of the Industrial General Permit;
- Conduct monitoring, including visual observations and analytical stormwater monitoring for indicator parameters;
- Compare monitoring results for monitored parameters to applicable numeric action levels derived from the U.S. EPA 2008 Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity and other industrial storm water discharge monitoring data collected in California;
- Perform the appropriate Exceedance Response Actions when there are exceedances of the applicable numeric action levels; and
- Certify and submit all permit-related compliance documents via the Storm Water Multiple Application and Report Tracking System.

The Industrial General Permit was amended by the SWRCB in 2018 to additionally incorporate the following requirements:

- Federal Sufficiently Sensitive Test Method Ruling;
- Total Maximum Daily Load (TMDL) Implementation Requirements; and
- Statewide Compliance Options incentivizing on-site or regional stormwater capture and use.

### Municipal Storm Water Program

Stormwater discharges from municipal separate storm sewer systems (MS4s) are regulated through the Municipal Storm Water Program. Municipalities with a population of 100,000 or more are covered by the Phase I Permit Program, while municipalities with less than 100,000 population and nontraditional municipalities designated by the state are covered by the Phase II Permit Program. The SWRCB and the individual RWQCBs implement and enforce the Municipal Storm Water Program. The Small MS4 permit (MS4 NPDES Permit No. CAS000004 and Order No. 2013-0001-DWQ) issued by the SWRCB designates the Port as a Non-Traditional Small MS4. The RWQCB also issued a Municipal Regional Permit (MRP; Permit

No. CAS612008 and Order No. R2-2015-0049) that contains comprehensive administrative and physical requirements to reduce the discharge of pollutants to the "maximum extent practicable" (e.g., BMPs, water quality monitoring), which applies to Alameda.

#### Dewatering Activities

Construction activities such as excavation in areas with shallow groundwater may require dewatering, which would be subject to the RWQCB construction dewatering permit requirements, in addition to dewatering requirements in the SWRCB Construction General Permit. Dewatering operations are regulated under state requirements for stormwater pollution prevention and control. Discharge of non-stormwater from an excavation that contains sediment or other pollutants to receiving waters is prohibited without prior approval. Prior approval for discharge of water resulting from dewatering operations would include either an NPDES permit or waiver from the RWQCB, which would establish stormwater discharge limitations for specific chemicals as applicable. The RWQCB also requires non-stormwater discharge controls specifically for dewatering operations. For discharges to the sanitary sewer, a Wastewater Discharge Permit from East Bay Municipal Utility District would also be required.

#### California Environmental Protection Agency

Under the authority of the California Environmental Protection Agency, the DTSC and the San Francisco Bay RWQCB are responsible for overseeing the cleanup of contaminated sites in the San Francisco Bay Area. The DTSC also regulates disposal of hazardous wastes under California's Hazardous Waste Control Law. This law requires the filing of a Hazardous Waste Manifest detailing the hauling and disposal of the hazardous waste materials.

### *Regional*

#### Dredged Material Management Office

The DMMO reviews and approves sediment testing programs and suitability determinations for dredge projects, and supports dredging and dredged sediment placement in the region. The DMMO is an interagency virtual office composed of representatives of BCDC, RWQCB, USACE, California State Lands Commission, and USEPA. It was created to facilitate coordinated review of sediment quality data of dredge projects and to increase efficiencies for each permit or authorization decision in the region. The DMMO agencies review and approve sediment sampling and analysis plans, test results, and placement alternatives, and make suitability determinations. The DMMO also jointly reviews permit applications.

Sediment proposed to be dredged, placed, or beneficially reused must be characterized to determine whether the sediment is suitable for the proposed placement location, or has elevated levels of contaminants that may be acutely toxic or bioaccumulate in species that live in the Bay, ocean, or in tidal marshes (when placed at restoration sites). If testing is required for a dredging project, a Sampling and Analysis Plan (SAP), which outlines sampling locations and procedures, would be submitted by the project proponent, and implemented following DMMO approval prior to dredging. Sediment testing protocols follow procedures set forth by USACE and USEPA in the Inland Testing Manual (ITM; USEPA and USACE 1998) and further refined by Public Notice (PN) 01-01 (USACE 2001) for use in San Francisco Bay for in-Bay placement, and the Ocean Testing Manual (OTM; USEPA and USACE 1991) for ocean placement. Screening guidance for beneficial reuse is provided in RWQCB's May 2000 staff summary report, *Beneficial Reuse of Dredged Materials: Sediment Screening and Testing Guidelines* (SFRWQCB 2000).

When the test results are complete, a Sampling and Analysis Report of the testing data is developed and submitted to the DMMO for review and a suitability determination prior to dredging. Suitability determinations are made using a weight-of-evidence approach, taking into consideration the physical, chemical, and biological findings of the testing program.

Although the DMMO provides initial review of permit applications and suitability recommendations, applicants must obtain separate approval from the appropriate DMMO member agencies (such as a CWA Act Section 401 Water Quality Certification from the RWQCB); each agency issues permit conditions and specific requirements associated with how the project is to be performed.

### San Francisco Bay Basin Plan

Each RWQCB is required to develop, adopt, and implement a Basin Plan for the region. The Basin Plan is the master policy document that contains descriptions of the legal, technical, and programmatic bases of water quality regulation in the region. Water quality objectives specific to San Francisco Bay are contained in RWQCB's Water Quality Control Plan for the San Francisco Bay Basin (San Francisco Bay Basin Plan or Basin Plan). The San Francisco Bay Basin Plan identifies measures for protecting beneficial uses of the Bay, water quality objectives, and implementation plans. It also identifies the LTMS strategy as the key process for addressing dredging operations in San Francisco Bay, and for achieving the LTMS goals. Primary goals of the LTMS are to maintain in an economically and environmentally sound manner those channels necessary for navigation; conduct dredged material disposal in the most environmentally sound manner; maximize the use of dredged material as a resource; and establish a cooperative permitting framework for dredging and dredged material disposal applications.

### Total Maximum Daily Loads

As described above under Section 303(d) of the CWA, states must present the USEPA with a list of "impaired water bodies," defined as those water bodies that do not meet water quality standards. The Inner and Outer Harbor areas are in the "San Francisco Bay, Central" waterbody as included in the 2020 California 303(d) list of water quality limited segments (State Water Resource Control Board 2022). The San Francisco Bay, Central is a Category 5 waterbody, which includes water segments where standards are not met for one or more pollutants, and a TMDL is required, but not yet completed. The Oakland Inner Harbor area also includes indicator bacteria as a pollutant source (State Water Resource Control Board 2022). TMDLs have been approved by the USEPA and officially incorporated into the Basin Plan for pesticide-related toxicity in urban creeks, as well as PCBs and mercury in San Francisco Bay (SFRWQCB 2023). However, the RWQCB recognized that dredging projects managed under the LTMS program were "net removers" of mercury and PCBs from San Francisco Bay. As a result, dredging does not have a waste load allocation for these pollutants; rather, dredged material containing mercury and PCBs is regulated based on current "ambient" levels in San Francisco Bay sediment (LTMS 2013).

## *Local*

### City of Alameda General Plan

The following implementing policies contained in the City of Alameda General Plan (City of Alameda 2022a) are relevant to the Proposed Project:

- Policy 5.1.x: Prevent migration of runoff off-site or into wetland areas and water-related habitat by requiring that proposed projects include design features ensuring detention of

sediment and contaminants. Project design should specify techniques to be used to detain runoff. On-site inspection during construction may be necessary to ensure that designs are realized.

- Policy 8.3j: Require shoreline owners to maintain perimeter dikes to applicable standards.
- Policy 8.3.k: Leave adequate setbacks along waterfront areas for the expansion of seawalls and levees.
- Policy 8.3l: Regularly inspect and maintain seawalls around the City.

### City of Oakland General Plan

The Open Space, Conservation, and Recreation Element of the Oakland General Plan (City of Oakland 1996) describes the following policies adopted for the purpose of protecting water resources that are relevant to the Proposed Project:

- Policy CO 5.1: Encourage groundwater recharge by protecting large open space areas, maintaining setbacks along creeks and other recharge features, limiting impervious surfaces where appropriate, and retaining natural drainage patterns within newly developing areas.
- Policy CO 5.3: Employ a broad range of strategies, compatible with Alameda Countywide Clean Water Program, to: (a) reduce water pollution associated with stormwater runoff; (b) reduce water pollution associated with hazardous spills, runoff from hazardous material areas, improper disposal of household hazardous wastes, illicit dumping, and marina "live-aboards"; and (c) improve water quality in Lake Merritt to enhance the lake's aesthetic, recreational, and ecological functions.
- Policy CO 6.5: Protect the surface waters of the San Francisco Estuary system, including San Francisco Bay, San Leandro Bay, and the Oakland Estuary. Discourage shoreline activities which negatively impact marine life in the water and marshland areas.

## 3.10.3. Significance Criteria

Based on Appendix G of the CEQA Guidelines, the below questions (criteria) were analyzed and evaluated to determine whether impacts related to hydrology and water quality are significant. Would the Proposed Project:

A. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

B. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

C. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

   1. Result in a substantial erosion or siltation on- or off-site?
   2. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

3. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?
4. Impede or redirect flood flows?

D. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?
E. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

### *Methodology for Analysis*

The analysis in this section is based on the potential effects of Proposed Project implementation on hydrology and water quality, as compared to existing surface and groundwater conditions in the Inner and Outer harbor areas, including the shoreline, as described above in Section 3.10.1. The Proposed Project would be regulated by the various laws, regulations, and policies summarized in Section 3.10.2. In most cases, compliance with existing laws, regulations, and standards is sufficient to minimize risks related to water quality resources and hydrology. The impact analysis herein focuses on potential adverse effects related to hydrology and water quality that are not already addressed through permitting or another regulatory framework. If, after considering the Proposed Project construction methodology and the required compliance with regulatory requirements, potential impacts are not reduced to less-than-significant levels, a significant impact would occur without mitigation. For those impacts, mitigation measures are proposed to reduce the impacts to less than significant with mitigation.

## 3.10.4. Impact Analysis and Mitigation Measures

### *Impact HYD-1. Would the Proposed Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality? (Criterion A) (Less than Significant with Mitigation)*

#### Impact Analysis

##### *Physical and Chemical Characteristics*

The Proposed Project would involve both landside construction activities such as demolition, utility abandonment and relocation, landside excavation, sheet pile and pile installation and removal, as well as in-water construction activities such as dredging, sheet pile and pile installation, and rock placement. Eroded soils, if generated from landside excavation activities, and construction-related wastes from upland construction have the potential to degrade water quality if they enter runoff and flow into waterways, potentially altering the temperature, salinity, pH, and dissolved oxygen content. Landside construction would be managed to avoid adverse effects to waterbodies through compliance with applicable regulations. As stated in Section 2.5.3, Detailed Construction Activities, and as also required by the SWRCB to comply with the NPDES Construction General Permit, construction contractors would be required to prepare an SWPPP. The SWPPP would list the hazardous materials (including petroleum products) proposed for use during construction; describe spill prevention measures, equipment inspections, equipment and fuel storage; protocols for responding immediately to spills; erosion and sedimentation controls;

and good housekeeping measures, such as protocols for site cleanup and disposal of trash and debris. Implementation of these measures and adherence to the NPDES Construction General Permit would minimize erosion and sedimentation and prevent releases of construction wastes and hazardous materials into surface waters during construction.

Dredged material rehandling at Berth 10 is conducted in accordance with the Port's Berth 10 Dredge Material Re-handling Facility Maintenance and Operations Plan and is authorized by San Francisco Bay Conservation and Development Commission Permit No. M1992.041.13, the SFRWQCB Water Quality Certification for the Port's maintenance dredging program, and SFRWQCB WDR Order No. R2-2013-0019. These plans and permits include measures to avoid adverse water quality impacts during dredged material rehandling at Berth 10, such as containing dredged material within the designated rehandling containment area, notifying the RWQCB of forthcoming dredging events, implementing corrective measures if needed, and requiring that no hazardous dredged sediment be stored at Berth 10.

The proposed dredging to widen the turning basins also has the potential to temporarily alter physical and chemical characteristics in the Inner Harbor and Outer Harbor waters. The USACE (1976) found that changes in temperature, salinity, or pH were localized to the immediate dredging area and short in duration during all types of dredging (hydraulic and mechanical); ambient concentrations of these parameters were usually regained within 10 minutes following material disturbance (USACE 1998). Dredging may temporarily change the pH of waters because excavated material is typically more acidic, due to anaerobic conditions, than the surrounding waters; however, pH has been shown to remain relatively constant throughout San Francisco Bay regardless of maintenance dredging projects that have occurred (USACE et al. 2009).

Dredging activities can resuspend sediment and expose anoxic material to the water column, both of which can temporarily reduce dissolved oxygen concentrations in the immediate vicinity on the order of 1 to 2 mg/L. However, ambient dissolved oxygen conditions are shortly regained (typically within several minutes) following settlement of the suspended sediment (USACE 1976). In areas of San Francisco Bay that are more tidally influenced (such as the Oakland Harbor), resuspended sediments or materials that can reduce dissolved oxygen concentrations would be diluted and flushed out of the dredging area by tidal currents and freshwater flow (USACE et al. 2009). Hydroplan et al. (2015) also indicated that there is no risk to the ecosystem due to increased nutrient loading caused by dredging activities, and that sediment disruption caused by dredging activities does not pose an environmental risk related to decreased dissolved oxygen concentrations.

#### *Suspended Sediment/Turbidity*

Eroded soils, if generated from landside construction, could degrade water quality if they enter waterways, increasing suspended sediment and turbidity levels. As described above, adherence to the NPDES Construction General Permit would minimize the erosion and sedimentation impacts during construction.

During dredging operations, the interaction of the dredge equipment with submerged material would resuspend sediment into the water column via the impact and withdrawal of the clamshell bucket from the sediment, washing of material out of the bucket as it moves through the water column, and loss of water as the sediment is loaded onto the barge (Hayes et al. 1984; Nightingale and Simenstad 2001).

Effects on turbidity from suspended sediment levels during dredging to widen the turning basins are anticipated to be similar to those from existing annual maintenance dredging. The degree of

sediment re-suspension depends on the physical composition of the material, with fine-grained material remaining suspended longer, and sandy material resettling much faster. Sediment in the Oakland Harbor is predominately fine-grained (USACE 2019), although coarser sand substrates may be present in areas 25 feet deep or shallower. Dredging fine silt or clay material typically results in suspended sediment (solids) levels of less than 700 mg/L at the surface, and less than 1,100 mg/L at the bottom adjacent to a dredge source (within approximately 300 feet) (LaSalle 1988). Much lower concentrations (50 to 150 mg/L at 150 feet) are expected at locations with coarser sediment. These concentrations would decrease rapidly with distance due to settling, mixing, and dispersion from tides, wind, and waves.

USACE monitored turbidity plumes 500 feet downstream of dredging during clamshell maintenance dredging operations in Oakland Harbor in 2016 and 2017 (USACE 2019). During monitoring, periodic temporary exceedances of the applicable turbidity standard (50 NTU, or no greater than 10 percent of the baseline NTU if the baseline NTU is greater than 50) were observed. Turbidity plumes from the Proposed Project construction dredging would likely be similarly localized and affect a relatively small area in relation to surrounding San Francisco Bay waters. In the Inner Harbor and Outer Harbor, where ambient turbidity is elevated from natural conditions and vessel traffic, turbidity plumes would be quickly diluted to near or within ambient particulate concentrations (USACE and RWQCB 2015). Although widening the turning basins would increase the amount of material maintenance dredged annually by up to 93,000 cubic yards, the volume of material dredged from Oakland Harbor varies annually and this potential incremental increase would not be expected to substantially increase the severity of suspended sediment impacts that currently occur from annual maintenance dredging, as described above.

As described under Dredging in Section 2.5.3, dredging and dredged material transport over water would be conducted in a manner to minimize effects from suspended sediment and turbidity from dredging operations. During dredging, this includes use of an environmental bucket, not overfilling the dredge bucket, increasing cycle times as needed to reduce the time that a load bucket travels through the water column, and restrictions on excess water discharges from barges. In addition, any turbidity monitoring or other associated measures included as conditions of applicable regulatory permits that would be obtained for implementation of the Proposed Project, such as a Water Quality Certification from the RWQCB, would be conducted as required for permit compliance.

Potential turbidity impacts during vessel transport would be minimized by establishing load lines on barges, requiring barges not be filled above the load line, and having fill levels inspected prior to transport to confirm the load line is not exceeded. Therefore, movement of vessels transporting sediment would not be expected to increase turbidity above ambient ranges generated by natural hydrologic processes, weather, and existing vessel traffic.

Removal and installation of piles and sheet piles in the water, and other bottom-disturbing activities such as rock placement, may temporarily disturb sediment and increase turbidity and suspended sediment levels in the immediate vicinity of the activity. However, increases in turbidity from suspended sediment levels during removal and installation of piles or other in-water infrastructure would be substantially less than similar effects from dredging because they involve less sediment disturbance, and do not involve transporting sediment through the water column.

#### *Contaminants*

In-water construction activities associated with the Proposed Project and land-based activities associated with IHTB widening have the potential to result in accidental discharge of

contaminants into San Francisco Bay. Various contaminants, such as fuel oils, grease, and other petroleum products used in construction activities, could be released into waters directly during dredging and nearshore construction. Shoreline construction, including demolition, excavation, and sheet pile or pile removal and installation, could also result in increased contaminant loading to San Francisco Bay waters via surface run-off. Excavated landside material, removed piles, and debris from warehouse demolition at the Alameda Site would be hauled off site for disposal at a landfill or recycling facility as required. Adherence to the NPDES Construction General Permit and applicable permits from the RWQCB would prevent releases of construction wastes and hazardous materials from reaching storm drains or being directly discharged into Bay waters.

Dredging may resuspend contaminants in the water column if they are present in submerged sediment. As detailed in Section 3.9, Hazards and Hazardous Materials, most of the Proposed Project's dredged material is not expected to contain elevated contaminant levels that would preclude beneficial reuse. The exception is the basin between Howard Terminal and Schnitzer/ Radius Recycling, where sediment may contain contaminants at levels that would require landfill disposal in a Class II (non-hazardous) landfill. An SAP would be developed and implemented to characterize soils and sediment during the Proposed Project pre-construction engineering and design phase. The purpose of an SAP is to ensure adequate sediment characterization through implementation of a sampling plan specific to the project, and typically includes sampling and laboratory testing of sediments (e.g., evaluating grain size or presence of contaminants) to the proposed dredge depth, with sampling completed no greater than 3 years before dredging. The results of the SAP would be reviewed by the DMMO to identify appropriate placement site options, based on the characteristics of the sediment and criteria for each placement location. If dredged sediment does not meet the criteria for placement at a permitted beneficial reuse site and would need to be off-hauled and disposed of at a landfill, they would be removed and appropriately rehandled at Berth 10, which is a permitted rehandling location for non-hazardous (Class II), before being hauled to an appropriate landfill.

Potential effects resulting from release of contaminants could occur if dredging occurs where sediment is found to have elevated levels of chemical contaminants. However, the types of chemical contaminants that may be present in sediment proposed for dredging are tightly bound to sediment and are not easily released during short-term resuspension (e.g., metals), or are generally not very soluble in water (e.g., pesticides, PCBs, and polyaromatic hydrocarbons). For example, recent investigation results demonstrated that groundwater discharge from the Schnitzer/Radius Recycling site to downgradient sediment pore water in the basin between Howard Terminal and Schnitzer/Radius Recycling has not resulted in concentrations of contaminants of concern in pore water above hazardous waste levels; samples were collected 0 to 3 feet below the sediment surface (Terraphase Engineering 2022). The potential for the presence of elevated contaminant levels would generally decrease with sediment depth because deeper sediments are farther removed from historic contaminant sources. Generally, plumes created during dredging and disposal activities are short-lived; and given the tight bonding of contaminants to sediment, the potential for release of contaminants into the water column is expected to be minor (USACE et al. 2009). Conditions required by applicable regulatory permits that would be obtained for implementation of the Proposed Project, such as a Water Quality Certification from the RWQCB, would be followed to minimize the potential for water quality degradation. The Water Quality Certification may include turbidity or contaminant thresholds

and water quality monitoring requirements, which would be integrated into a water quality monitoring plan developed for the Proposed Project.

Future maintenance dredging of the widened areas of the turning basins would be confined to the removal of sediment accumulated since the last dredging event. Sediment deposited since the previous dredging activities would not be expected to contain elevated levels of contaminants because sediment testing results for previous USACE maintenance dredging episodes indicate that, in general, dredged materials are suitable for aquatic disposal and do not require disposal at a landfill (USACE and RWQCB 2015). Future maintenance dredging events would be subject to sediment characterization and DMMO approval, as described above for the Proposed Project construction, and the testing, handling, removal, and disposal of the dredged sediment would be conducted in accordance with existing federal, state, and local regulations.

Vessels would be operated in compliance with all applicable regulations related to the prevention of water pollution by fuel, harmful substances, and garbage, as well as from accidental discharges. To operate in U.S. waters and ports, applicable vessels regulated by USCG under Code of Federal Regulations, Title 33, are required to provide a variety of plans—including a Vessel Response Plan—to the USCG for review and approval. A Vessel Response Plan serves as an oil spill response plan for vessels. A Vessel Response Plan would include, at a minimum, a contact list, including the spill removal contractor and contacts for spill notifications; procedures for spill notifications; shipboard spill mitigation procedures to mitigate or prevent discharge or threat of discharge resulting from operations, accidents, or emergencies; and shore-based response activities, including notification, coordination actions, and organization structure for response. These measures would minimize the potential for the accidental release of hazardous substances from vessel operations during Proposed Project implementation to substantially degrade water quality.

#### *Hydrodynamic Changes*

Potential changes in hydrodynamics caused by the Proposed Project were evaluated using numerical modeling (Mott MacDonald 2023, Appendix E). Analysis of numerical modeling results indicate that the Proposed Project would result in minor changes in current velocities and negligible changes in water exchange (flushing). These effects would contribute to negligible changes in water quality throughout the Inner and Outer Harbors. As described throughout, water quality impacts would be avoided or minimized through adherence to regulatory permits and requirements, including any negligible contributions related to Proposed Project–induced hydrodynamic changes.

#### *Groundwater*

As described in Section 3.10.1, the Howard Terminal portion of the proposed IHTB widening area is in an active DTSC-regulated site, and all cap disturbance and ground-disturbing activities are closely monitored at this site. The Howard Terminal site is subject to ongoing groundwater monitoring; investigations and other remedial actions may be performed on a voluntary basis. It is also subject to a Land Use Covenant that requires notification to DTSC for any cap disturbance, and requires inspection and maintenance of the cap.

All ground-disturbing activities at Howard Terminal would occur in coordination with DTSC to ensure that adverse impacts associated with existing contamination would be avoided to protect human health and the environment, including groundwater. Project plans would be developed to avoid impeding existing abatement orders and effects on existing monitoring wells in or near the proposed footprint. The proposed IHTB widening would not affect the existing wooden

bulkhead/concrete quay wall at Howard Terminal, which have been shown to contain and prevent the movement of impacted groundwater into San Francisco Bay.

At the Alameda Site, there is no indication of elevated levels of contaminants in groundwater or in soils in contact with groundwater.

Landslide construction would be managed to avoid adverse effects to groundwater. As previously described, as required by the SWRCB, construction contractors would be required to prepare an SWPPP. Implementation of the SWPPP and adherence to the NPDES Construction General Permit would minimize or avoid pollutant inputs (e.g., spills) that could adversely affect groundwater.

***Summary***

Dredging and—to a lesser degree—other in-water activities are likely to result in increases in suspended sediment and turbidity and could result in release of contaminants from disturbed sediment. These potential effects would be localized and temporary and would occur in areas with elevated ambient turbidity levels. Nonetheless, the Proposed Project has potential to degrade surface water quality during construction through the resuspension of contaminants when dredging in areas with elevated contaminant concentrations, which would be a potentially significant impact.

Impacts to groundwater from the Proposed Project are anticipated to be less than significant based on requirements for coordination with DTSC for disturbance at Howard Terminal and observed conditions at the Alameda Site.

## Level of Significance before Mitigation

*Potentially Significant Impact.*

## Mitigation Measure

### MM HYD-1: Silt Curtains

Silt curtains[75] shall be used when dredging sediment with elevated levels of chemical contaminants, as determined through the pre-construction sediment quality characterization and as required by Project permits, or when dredging within 250 meters (or 820 feet, as determined by the pre-construction eelgrass survey) of eelgrass beds. Prior to in-water construction, a silt curtain shall be deployed from the water's edge and pushed out to the deployed location to avoid entrapping aquatic wildlife species.

## Level of Significance after Mitigation

*Less than Significant Impact with Mitigation.*

To further reduce the potential for surface water quality degradation during construction, Mitigation Measure HYD-1 would require use of silt curtains during in-water construction in areas where sediment contains chemical contaminants with potential to cause adverse water quality conditions, as determined through the pre-construction sediment quality characterization, and as required by Project permits, such as the Water Quality Certification from the RWQCB. Therefore, with implementation of Mitigation Measure HYD-1, the Proposed Project's impacts

[75] Silt curtains are land- or water-based barriers that contain suspended silt or sediment and allow it to settle. Similar to silt fences used on landside construction sites, the fabric of silt curtains prevents silts from moving from the construction area to areas outside of the silt curtain.

related to exceeding water quality standards or waste discharge requirements, or otherwise substantially degrade surface waters, would be less than significant.

### *Impact HYD-2. Would the Proposed Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? (Criterion B) (Less than Significant)*

#### Impact Analysis

Proposed Project construction would not use groundwater, and shallow groundwater underlying the Proposed Project sites is not used as a source of drinking water. The Proposed Project would not construct expanded impermeable surface areas, and therefore would not impede groundwater infiltration. Although dredging can increase saltwater intrusion into groundwater, these effects are anticipated to be minimal, given the relatively small size of the Proposed Project widening area, and the Proposed Project's location in the Central Bay, where impacts to freshwater flow regimes are typically minimal.

Dewatering may be required during landside excavation at Howard Terminal and the Alameda Site. Any dewatering operations would be temporary and short term. The relatively small amount of groundwater removed during construction (if any) would be replenished with groundwater infiltration from the Inner Harbor or surrounding greater East Bay Plain groundwater basin. The quantity of groundwater dewatered during construction would not be substantial relative to the volume of adjacent sources and would not result in a net deficit in the groundwater aquifer.

Therefore, the Proposed Project would have a **less-than-significant** impact to groundwater recharge.

### *Impact HYD-3. Would the Proposed Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would (1) result in a substantial erosion or siltation on- or off-site; (2) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; (3) create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (4) impede or redirect flood flows? (Criteria C1 through C4) (Less than Significant)*

#### Impact Analysis

Widening the IHTB would inherently alter drainage patterns by converting upland impermeable surfaces into open water. There may also be minor, permanent alterations to drainage patterns at Howard Terminal and the Alameda Site as a result of IHTB widening including conversion of uplands to open water, but these would not result in adverse water quality impacts. Alterations may include removal, replacement, or redesign of drainage infrastructure such as curbs and

gutters resulting from upland excavation and reconfiguration of the facility shorelines. At Howard Terminal, storm sewer manholes and underground piping and storm cleanouts may need to be relocated. Any such alterations would occur in compliance with applicable Municipal Storm Water Program permits (i.e., Small MS4 or MRP), including treatment measures and other appropriate source control and site design features to minimize the pollutant load in stormwater discharges and to manage runoff flows. Howard Terminal is covered under the MS4 Phase II Permit; therefore, replacement of more than 5,000 square feet of impervious surface would require design features for post-construction treatment and runoff reduction, which would improve runoff flows and water quality post-construction. The Proposed Project would not entail any increase in impervious surfaces, and therefore would not increase the amount of surface runoff or result in related flooding impacts. As stated in Section 2.5.3, Detailed Construction Activities, and as also required by the SWRCB to comply with the NPDES Construction General Permit, construction contractors would be required to prepare an SWPPP. The SWPPP would identify the type and location of erosion and sedimentation controls that would be implemented during construction. Implementation of these measures and adherence to the NPDES Construction General Permit would minimize erosion and sedimentation on- or off-site during construction. The conversion of IHTB uplands to open water and changes to landside drainage infrastructure as a result of the Proposed Project are not anticipated to substantially affect pollutant inputs, contribute additional runoff, or affect flood flows. Therefore, the Proposed Project's impacts related to alteration of drainage patterns would be **less than significant**.

### *Impact HYD-4. Would the Proposed Project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? (Criterion D) (Less than Significant)*

#### Impact Analysis

As discussed in Section 3.10.1, Environmental Setting, the Proposed Project is in a mapped tsunami inundation area, and portions of the Proposed Project footprint are in special flood zones. Seiche risk in the Proposed Project area is minimal. The Proposed Project footprint largely occurs in existing open water areas, with upland components limited to the construction staging areas and existing portions of Howard Terminal and the Alameda Site that would be converted to open water by the Proposed Project. There may be minor, permanent alterations to upland drainage patterns at Howard Terminal and the Alameda Site associated with upland excavation and reconfiguration of the facility shorelines (e.g., removal, replacement, or redesign of drainage infrastructure such as curbs and gutters), but these are not anticipated to affect flood hazard or tsunami susceptibility or introduce new or increased potential for release of pollutants. Therefore, the primary risk for release of pollutants due to inundation during flooding or tsunami would likely be confined to the temporary staging areas and landside areas being converted to open water during construction.

Potential release of pollutants from inundation could include disturbance of construction materials or equipment in the unlikely event of a tsunami or substantial storm event coinciding with construction. Tsunami risk in the Proposed Project area, including the limited landside portions, is relatively small. Further, NOAA operates the National Tsunami Warning Center and the Pacific Tsunami Warning Center, which alert local authorities ahead of tsunamis. For most tsunamis approaching the coast, several hours are available to evacuate residents and undertake

other emergency preparations, such as securing work sites. Storm-induced inundation is expected to also be a relatively infrequent event. As described under Impact HYD-1, as required by law construction contractors would be required to prepare and implement an SWPPP that incorporates hazardous waste, stormwater, and other emergency planning requirements that would minimize risk of pollutant discharge in the event of inundation of the construction work and staging areas.

As with all shoreline areas in San Francisco Bay, the Inner and Outer Harbor areas would be subject to sea level rise which could inundate all or portions of the landside Proposed Project area. The Proposed Project is unlikely to result in hydrodynamic changes that would substantially change inundation during sea level rise; the hydrodynamic effect analysis concluded that the Proposed Project would result in only minor changes in current velocities and negligible changes in water exchange under 7.5 feet of sea level rise (Mott MacDonald 2023, Appendix E). The Proposed Project does not entail any landside improvements that are likely to contribute to potential pollutant release from future sea level rise. Further, the Port's Sea Level Rise Assessment includes potential strategies to address and mitigate for sea level rise (e.g., raising specific seawalls or raising grades of shipping berths).

Although the Proposed Project is within a tsunami inundation area, and portions of the landside sites are within special flood zones, the frequency and risk of tsunami or storm induced flooding during the construction period is relatively small. Measures such as tsunami early warning systems and adherence to SWPPP and Spill Prevention Control and Countermeasure plan conditions would limit the potential for impacts if such an event were to occur. Therefore, the Proposed Project's impacts related risk or release of pollutants as a result of flood or tsunami induced inundation would be **less than significant**.

### *Impact HYD-5. Would the Proposed Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? (Criterion E) (Less than Significant with Mitigation)*

#### Impact Analysis

Water quality objectives specific to San Francisco Bay are contained in the RWQCB's Basin Plan. The Basin Plan identifies measures for protecting beneficial uses of the Bay and water quality objectives, including implementation plans.

As described under Impact HYD-1, dredging—and to a lesser degree—other in-water construction activities such as pile removal and installation are likely to result in increases in suspended sediment and turbidity, and could result in release of contaminants from suspended sediment; these effects could be considered in conflict with the water quality objectives of the Basin Plan. These potential effects would be localized and temporary and would occur in the Oakland Harbor navigation channel and turning basin areas that have existing elevated ambient suspended sediment and turbidity levels. The types of chemical contaminants that may be present in sediment proposed for dredging are tightly bound to sediment and are not easily released during short-term resuspension (e.g., metals), or are generally not very soluble in water (e.g., pesticides, PCBs, and polyaromatic hydrocarbons). For example, recent investigation results demonstrated that groundwater discharge from the Schnitzer/Radius Recycling site to

downgradient sediment pore water in the basin between Howard Terminal and Schnitzer/Radius Recycling has not resulted in concentrations of contaminants of concern in pore water above hazardous waste levels; samples were collected 0 to 3 feet below the sediment surface (Terraphase Engineering 2022). The potential for the presence of elevated contaminant levels would generally decrease with sediment depth because deeper sediments are farther removed from historic contaminant sources. Generally, plumes created during dredging and disposal activities are short-lived; and given the tight bonding of contaminants to sediment, the potential for release of contaminants into the water column is expected to be minor (USACE et al. 2009). Therefore, dredging during construction of the Proposed Project would not be expected to result in the release of contaminants into the water column in excess of water quality standards established in the Basin Plan.

As described in Section 2.5.3, Detailed Construction Activities, the Proposed Project would be constructed in a manner to minimize potential water quality effects. As described under Impact HYD-1, an SAP would be developed and implemented to characterize soils and sediment during the Proposed Project pre-construction engineering and design phase. The results of the SAP would be reviewed by the DMMO, which includes the RWQCB, to identify appropriate placement site options, based on the characteristics of the sediment and acceptance criteria for each placement location. The acceptance criteria are described in the WDR permits for each beneficial reuse site; the WDR permits are issued by the RWQCB, along with input from BCDC, USFWS, and other entities. This regulatory framework establishes standards for sediment quality and DMMO review and approval for sediment to be used for beneficial reuse, including as cover material that could have contact with the aquatic environment, so as to not conflict with RWQCB's Basin Plan water quality objectives. In addition, conditions required by the applicable regulatory permits that would be obtained for implementation of the Proposed Project, such as a Water Quality Certification from the RWQCB, would be followed to minimize the potential for water quality degradation. The Water Quality Certification may include turbidity or contaminant thresholds and water quality monitoring requirements, which would be integrated into a water quality monitoring plan developed for the Proposed Project. Nonetheless, the Proposed Project has potential to degrade surface water quality during construction through the resuspension of contaminants when dredging in areas with elevated contaminant concentrations, and conflict with the water quality objectives of the Basin Plan, resulting in a potentially significant impact.

As discussed under Impact HYD-1, sediment dredged in the widened portions of the turning basins during future maintenance dredging would not be expected to contain elevated levels of contaminants. In addition, future maintenance dredging events would be subject to sediment characterization and DMMO approval.

As described under Impact HYD-2, the Proposed Project's potential impacts related to saltwater intrusion and groundwater recharge would be minimal and are therefore not anticipated to conflict with sustainable groundwater management. Per the East Bay Plain Subbasin Groundwater Sustainability Plan, the East Bay Plain groundwater levels are stable, and the basin is sustainable (East Bay Municipal Utility District and City of Hayward 2022).

The Proposed Project would be constructed in a manner to minimize potential water quality effects and would proceed in compliance with regulatory conditions from required permits and approvals, such as the Water Quality Certification from the RWQCB. Nonetheless, the Proposed Project has potential to degrade surface water quality during construction through the

resuspension of contaminants and conflict with the water quality objectives of the Basin Plan, resulting in a potentially significant impact.

### Level of Significance before Mitigation

*Potentially Significant Impact.*

### Mitigation Measure

#### MM HYD-1: Silt Curtains

### Level of Significance After Mitigation

*Less than Significant Impact with Mitigation.*

As described for Impact HYD-1, the Proposed Project would include Mitigation Measure HYD-1: Silt Curtains to minimize potential water quality impacts resulting from mobilization of material containing elevated chemical contaminant concentrations during in-water construction. Implementation of Mitigation Measure HYD-1 would reduce potential water quality impacts from dredging and in-water work, and potential conflict with the San Francisco Bay Basin Plan, to a level of **less than significant**.

# 3.11. LAND USE/PLANNING

This section describes the applicable regulatory and environmental setting for existing land uses (including maritime uses) in and around the Proposed Project sites, the Proposed Project's physical impacts on such uses, and the potential for land use conflicts with Proposed Project implementation that result in environmental impacts.

## 3.11.1. Environmental Setting

### *Proposed Project Site Land Uses*

The Proposed Project improvements and construction activities would occur at the following locations, the current land uses of which are described below.

#### Inner Harbor Channel and Turning Basin

The Oakland Inner Harbor is a portion of the Oakland-Alameda estuary adjacent to the Seaport that extends from the Ben E. Nutter Terminal east to the Park Street Bridge (NOAA 2023) in Alameda. The Oakland Inner Harbor contains a federal commercial deep draft vessel navigation channel (Inner Harbor Channel) extending to the eastern end of Howard Terminal. In addition to the commercial container and bulk vessels, San Francisco Bay Ferry vessels, commercial fishing boats, and United States Coast Guard vessels frequently use the Inner Harbor Channel. The Inner Harbor Channel is also used by recreational boaters, including motorized watercraft (e.g., cabin motorboats, open motorboats, large sailboats under engine power) and non-motorized watercraft (e.g., kayaks, canoes, sculls, sailboats under sail power, paddleboards, kiteboards). The IHTB is in the Inner Harbor Channel immediately adjacent to the southwestern corner of Howard Terminal (see Figure 2.1-2). The Inner Harbor Channel and IHTB serve the Oakland International Container Terminal, Matson Terminal, Howard Terminal, and Schnitzer/Radius Recycling property. The IHTB can be used 24 hours a day, 7 days per week, with very little seasonal change, although there are restrictions for vessels based on vessel size during certain hours as well as other restrictions (see Section 2.3, Port Operations). The San Francisco Bar Pilots (Bar Pilots) are licensed by the state to safely navigate vessels into and out of San Francisco Bay, including at the Seaport (SF Bar Pilots 2023).

#### Howard Terminal

Howard Terminal occupies approximately 50 acres adjacent to the IHTB and Inner Harbor Channel at the Seaport in the City of Oakland (see Figure 2.2-2). Howard Terminal is not currently an active container terminal for offloading cargo from container vessels but is currently leased to tenants for maritime support uses. Existing uses and activities include, but are not limited to, truck parking, loaded and empty container storage, vessel layberthing (docking) for maintenance and storage, and training of longshore workers and other logistics services that support Seaport operations. Howard Terminal contains Berths 67 and 68 in the Port of Oakland. Four container cranes are on Howard Terminal and were used to load/unload vessels when the terminal was previously used for container vessel operations.

The southern portion of Howard Terminal is composed of a pile-supported wharf structure approximately 75 feet wide, stretching south from a below-grade rock dike (often referred to as "riprap") to the waterway. The remaining site is on-grade (ground-supported) pavement. As described in Section 3.9, Hazards and Hazardous Materials, the soil and groundwater beneath

Howard Terminal have been impacted by historic industrial uses of the site. Howard Terminal has land use restrictions applied to the site and is under the regulatory jurisdiction of the Department of Toxic Substances Control (DTSC). These restrictions require notice and coordination with DTSC before any excavation or changes in land use.

### Alameda Site

The Alameda Site is approximately 19 acres of privately owned property north of and at the western end of Mitchell Avenue in the City of Alameda (see Figure 2.2-2). The Alameda Site is developed with two warehouse buildings. The warehouses are leased by Continental Terminals Annex as a storage facility for coffee beans. In addition, waterside areas adjacent to this property are leased by Centerline Logistics for berthing bulk liquid transport barges and tugs.

### Outer Harbor Berths 10 and 26

Berth 26 is in the 123-acre TraPac Terminal in the Outer Harbor (see Figure 2.2-2); this area is in TraPac's container handling and storage yard and is paved.

Berth 10 occupies approximately 4.5 acres on the northeastern end of the Outer Harbor (see Figure 2.2-2). Berth 10 is used for rehandling dredged material, including drying of the material and loading it onto trucks for transport to disposal locations.[76] During construction of the Proposed Project, dredged material not suitable for beneficial reuse would be placed at Berth 10 for rehandling prior to continued transport to a disposal site.

### Outer Harbor Channel and Turning Basin

The Oakland Outer Harbor is a portion of San Francisco Bay adjacent to the western portion of the Seaport that extends from the Ben E. Nutter Terminal north to the San Francisco-Oakland Bay Bridge (NOAA 2023). The Oakland Outer Harbor contains a federal commercial deep draft vessel navigation channel (Outer Harbor Channel). The OHTB is in the Outer Harbor Channel immediately adjacent to the TraPac Terminal (see Figure 2.1-2). The Outer Harbor Channel and OHTB serve the TraPac Terminal, Ben E. Nutter Terminal, and Outer Harbor berths, including Berth 10.

## *Surrounding Land Uses*

On the Oakland (northern) side of the IHTB, land uses along the shoreline from the Howard Terminal and to the west are characterized by maritime and industrial uses associated with the Port and Schnitzer/Radius Recycling, which is a metal recycling facility. To the east of Howard Terminal is Jack London Square, a pedestrian-oriented mixed-use and entertainment area. Howard Terminal is bordered to the north by the Embarcadero West roadway and Union Pacific Railroad mainline rail tracks, beyond which is a mixture of light-industrial, commercial, and multi-family residential uses. On the Alameda (southern) side of the IHTB, light industrial and maritime uses adjacent to the IHTB are surrounded primarily by single- and multi-family residential development and parks, some of which are currently under construction.

[76] Dredged material rehandling at Berth 10 is conducted in accordance with the Port's Berth 10 Dredge Material Re-handling Facility Maintenance and Operations Plan and is authorized by San Francisco Bay Conservation and Development Commission Permit No. M1992.041.13, the San Francisco Regional Water Quality Control Board Water Quality Certification for the Port's maintenance dredging program, and San Francisco Regional Water Quality Control Board Waste Discharge Requirement Order No. R2-2013-0019. These permits allow rehandling of Class II (non-hazardous) dredge material at Berth 10, consistent with the Proposed Project's proposed use of Berth 10 for rehandling dredged material. The Proposed Project does not include rehandling Class I (hazardous) dredge material at Berth 10.

Land uses in the Outer Harbor Terminal consist entirely of maritime, industrial, and transportation uses. More detail on these surrounding uses is provided below.

### Seaport

The Seaport is composed of approximately 1,800 acres[77] of maritime-related facilities, generally bounded by the San Francisco-Oakland Bay Bridge to the northwest, I-880 to the east and northeast, the Oakland-Alameda estuary to the south, and Howard Terminal at its easternmost extension. The Seaport includes container terminals, break bulk cargo (goods that do not fit in standard shipping containers) terminals, general purpose berths, freight rail yards, and cargo transloading (the unloading of goods from one container to another, or from one container into a warehouse facility, or the transferring of cargo from one mode of transportation to another) and storage facilities (warehouses and yards for container storage and truck parking). The Seaport's four active container terminals are TraPac Terminal, Ben E. Nutter Terminal, Oakland International Container Terminal, and Matson Terminal (see Figure 2.1-2).

### Oakland

North of Howard Terminal are Embarcadero West and industrial uses in the Acorn Industrial District.[78] Jack London Square, to the east of Howard Terminal, is situated primarily between Clay and Alice Streets south of Downtown Oakland and I-880. The neighborhood surrounding Jack London Square has begun to transition from primarily industrial use to a mix of higher density housing in a context of commercial and light industrial/manufacturing uses. Commercial uses consist of warehouse, office, retail, hotel, restaurant, and entertainment uses.

Downtown Oakland is approximately 0.75 mile northeast of the IHTB and 2.5 miles east of the OHTB, and comprises the central business district of the City of Oakland. Downtown Oakland is characterized by a mix of high-rise office buildings, government administration buildings, and mixed-use commercial and residential buildings.

West Oakland is a neighborhood approximately 0.50 mile northwest of the IHTB and 1 mile east of the OHTB, generally bounded by highways I-880, I-980, and I-580. Residential uses occupy about 59 percent of the land in West Oakland, generally concentrated in the northern, eastern, and southwestern portions of the area. Industrial, commercial, and auto-related/parking uses occupy about 23 percent of the land area, and government/institutional and utilities uses occupy the remaining 18 percent. Industrial uses are concentrated around Mandela Parkway and West Grand Avenue, and in the vicinity of 3rd Street, the Acorn Industrial area. Commercial uses primarily occur at the northern end near Emeryville, and along San Pablo Avenue, the eastern end of West Grand Avenue, Market Street, and 7th Street (City of Oakland 2014). The West Oakland BART station is approximately 1 mile northwest of Howard Terminal.

### Alameda

Currently, the northern shore of Alameda southeast and southwest of the IHTB includes marine, residential, commercial, and recreational uses. The northern shore of Alameda is currently

[77] As described in Chapter 2, Proposed Project Description, for this document, the Seaport also encompasses areas beyond Port-owned lands that rely on the Port's operations and the Oakland Harbor waterway, and/or are in close proximity to the Port. Therefore, the Seaport spans and includes approximately 1,300 acres of Port-owned waterfront and inland lands, approximately 200 acres of land owned by City of Oakland, and approximately 300 acres of private land owned and operated by entities such as the Union Pacific Rail Road and Schnitzer Steel Industries/Radius Recycling, for a total of approximately 1,800 acres.

[78] The Acorn Industrial District is a neighborhood in the City of Oakland that is the location of a number of industrial businesses, including those related to the Seaport.

undergoing redevelopment at: 1) Bayport/Alameda Landing Master Plan area, south and east of the IHTB, a mixed-use commercial and residential development with shoreline recreational areas, including the Landing at Bay 37 development; and 2) Alameda Point, part of the former Naval Air Station Alameda southwest of the IHTB, that will include a mix of commercial, residential, open space, recreational, and retail uses. The Alameda Main Street Ferry Terminal is less than 0.25 mile southwest of the IHTB.

## 3.11.2. Regulatory Setting

### *Federal*

#### Coastal Zone Management Act

The Coastal Zone Management Act (CZMA), established in 1972, and administered by the National Oceanic and Atmospheric Administration's Office of Ocean and Coastal Resource Management, provides for management of the nation's coastal resources. The overall purpose is to balance competing land and water use issues in the coastal zone. The CZMA encourages states to develop coastal management programs. Under the CZMA, any federal agency conducting or supporting activities directly affecting the coastal zone must proceed in a manner consistent with the federally approved state coastal zone management programs, to the maximum extent practicable.

#### Commerce Clause of the Constitution

Navigable servitude is a United States constitutional doctrine that gives the federal government the right to regulate navigable waterways as an extension of the Commerce Clause of the United States Constitution. The federal navigational servitude entitles the government to exert a dominant servitude in all lands below the ordinary high water mark of navigable waters.

#### Submerged Lands Act

The Submerged Lands Act of 1953 (43 USC Section 1301 et seq.) grants states title to all submerged navigable lands within their boundaries. This includes navigable waterways, such as rivers, as well as marine waters within the state's boundaries, generally 3 geographical miles from the coastline.

### *State*

#### McAteer-Petris Act

Development in San Francisco Bay is regulated by the San Francisco Bay Conservation and Development Commission (BCDC). The McAteer-Petris Act (California Government Code Section 66000, et seq.), first enacted in 1965, created the BCDC to prepare a plan to protect the San Francisco Bay and shoreline, and provide for appropriate development and public access. This Act directs BCDC to exercise its authority to issue or deny permit applications for placing fill, dredging, or changing the use of any land, water, or structure in the area of its jurisdiction. The BCDC also reviews determinations of consistency with the CZMA for federally sponsored projects. The San Francisco Bay Plan (BCDC 2023) is the BCDC's policy document specifying goals, objectives, and policies for the BCDC's jurisdictional areas. Pursuant to the federal CZMA, the USACE, as the federal lead agency for the Proposed Project, is required to be consistent to the maximum extent practicable with the enforceable policies of the San Francisco Bay Plan (Bay Plan).

### The Public Trust Doctrine

The Public Trust Doctrine governs the use of tidal and submerged lands, including former tidal and submerged lands that have been filled. The purpose of the Public Trust Doctrine is to ensure that these lands are held in trust for the people, for purposes of commerce, navigation, and fisheries. Because public trust lands are held for the benefit of the statewide public, they are subject to certain limitations on their use. Water-dependent or water-related uses, such as fisheries, navigation, environmental preservation, water-related recreation, public open space, and public access to the water and the waterfront, are generally considered to be consistent with the public trust. Ancillary or incidental uses that promote public trust uses or accommodate the public's enjoyment of public trust lands are also permitted (e.g., hotels, restaurants, specialty retail establishments).

The California State Lands Commission (CSLC) has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has residual and oversight authority over tidelands and submerged lands legislatively granted in trust to local jurisdictions (Public Resources Code Sections 6009(c), 6009.1, 6301, and 6306). CSLC is responsible for ensuring that the grantees are managing granted trust lands in accordance with the public trust and terms of applicable legislative grants.

Through a series of legislative grants, the state granted to the City of Oakland, in trust, publicly owned tide and submerged lands within the City's boundaries. In 1927, the City Charter gave the Port the exclusive authority to hold, manage, and administer the Port Area, as defined by ordinance, which includes tidal and submerged lands granted to the City. In the intervening period, the Port (and before the Port was established, the City) acquired from private parties other lands for various Port uses, all of which are currently held by the Port. Today, the Port serves as the local trustee for statutory trust lands and trust assets in the Port's jurisdiction.

### Assembly Bill 1191

In October 2019, the Governor signed AB 1191 (the Oakland Waterfront Sports and Mixed-Use Project, Waterfront Access, Environmental Justice, and Revitalization Act) into law, which applies to the Howard Terminal portion of the Proposed Project. AB 1191 authorizes BCDC (and the CSLC) to take certain actions related to the development of the proposed Oakland Waterfront Ballpark District at Howard Terminal Project (Ballpark Project), under a special statute governing public trust lands at the Howard Terminal property. The CSLC shall not approve an exchange of public trust lands pursuant to AB 1191 unless it finds (among numerous other findings) that BCDC has approved an amendment to the Seaport Plan and removed the Port Priority Use Area (PUA) designation from the Howard Terminal property or portions of the Howard Terminal property.

After such removal, the Port PUA designation shall still be automatically reinstated on the Howard Terminal property, as if it had not been deleted pursuant to BCDC's Seaport Plan and Bay Plan amendment process if: (1) the Port and the Oakland Athletics have not entered into a binding agreement by January 1, 2025 that allows for the construction of a Ballpark Project; or (2) if the Port and the Oakland Athletics have entered into a binding agreement by January 1, 2025 that allows for the development of a Ballpark Project, but that agreement is subsequently terminated before construction has commenced on all or any portion of the Howard Terminal property.

## *Regional*

### San Francisco Bay Plan and San Francisco Bay Area Seaport Plan

BCDC's Bay Plan implements the 1965 McAteer-Petris Act (Government Code Sections 66600–66694), which charges BCDC with planning for the long--term use of the Bay and regulating

development in and around the Bay. The Bay Plan provides policy direction for BCDC's permit authority regarding the placement of fill, extraction of materials (dredging), determining substantial changes in use of land, water, or structures in its jurisdiction, protection of the Bay habitat and shoreline, and maximizing public access to the Bay.

Under the Bay Plan (BCDC 2023a), BCDC regulates the placement of new "fill" (generally defined as any material placed in or over the water surface, including pilings, structures placed on pilings, and floating structures) in the Bay (Government Code Section 66605). Over the years, BCDC has approved modifications to Howard Terminal, including Bay fill for various Port-related purposes (Catellus 2019). **Figure 3.3-11** illustrates the approximate shoreline location at the time of McAteer-Petris Act enactment in September 1965, the original 100-foot historic shoreline band BCDC jurisdiction, as well as the approximate area of fill authorized by BCDC since that time for the Howard Terminal site (as defined for the cumulative proposed Oakland Waterfront Ballpark District at Howard Terminal project). The Alameda Site also contains land under BCDC jurisdiction associated with the 100-foot shoreline band; however, a map has not been provided so as to not misrepresent the extent of BCDC jurisdiction, which will be determined by BCDC during the permitting process. The McAteer-Petris Act and the Bay Plan restrict the types of projects for which fill may be authorized. BCDC interprets these regulations as applying both to projects proposing new fill, as well as projects which would use or rely upon previously authorized Bay fill. Portions of the Proposed Project sites for the IHTB expansion where land would be removed are under the jurisdiction of BCDC, because they are within the 100-foot historic shoreline band or located on previously authorized Bay fill.

The McAteer-Petris Act and the Bay Plan[79] provide for the designation of priority land uses (i.e., PUAs) for the Bay shoreline. These uses include ports, water-related industry, airports, wildlife refuges, and water-oriented recreation. The Bay Plan includes a series of maps that identify designated PUAs, along with policies, notes, and suggestions for future development of these areas. The location of Howard Terminal is included in Bay Plan Map 5, Central Bay. The map identifies Port PUAs that includes the Seaport, Howard Terminal, and adjacent properties as part of a Port PUA. The Bay Plan refers the reader to the San Francisco Bay Area Seaport Plan (the "Seaport Plan") and provides that lands under this designation should be protected for marine terminals and directly related ancillary services. BCDC uses the Seaport Plan to help guide its regulatory decisions on permit applications, consistency determinations, and related matters. The Seaport Plan identifies the following goals (BCDC and MTC 2012):

- Ensure continuation of the San Francisco Bay port system as a major world port and contributor to the economic vitality of the San Francisco Bay region;
- Maintain or improve the environmental quality of San Francisco Bay and its environs;
- Provide for efficient use of finite physical and fiscal resources consumed in developing and operating;
- Provide for integrated and improved surface transportation facilities between San Francisco Bay ports and terminals and other regional transportation systems; and
- Reserve sufficient shoreline areas to accommodate future growth in maritime cargo, thereby minimizing the need for new Bay fill for port development.

[79] See Bay Plan, Part I – Summary, Developing the Bay and Shoreline to Their Highest Potential, No. 3(a)).

**Figure 3.11-1 Howard Terminal Original BCDC Jurisdiction and Subsequent Fill (as defined for the cumulative proposed Waterfront Ballpark District at Howard Terminal project)**



The Seaport Plan policies also provide that "[O]ther uses, especially public access and public and commercial recreational development, should also be permissible uses provided they do not significantly impair the efficient utilization of the port area."

On June 30, 2022, BCDC adopted Bay Plan Amendment 2-19 Removing the Port Priority Use Area Designation from Howard Terminal in the City of Oakland (Resolution No. 2022-02) (BCDC 2022). On July 29, 2022, a lawsuit was filed in Alameda County Superior Court challenging BCDC's amendment (Alameda Superior Court, Case No. 22CV015323). As of the publication date of this Draft EIR, the outcome of this lawsuit is unknown. However, as part of the terms of AB 1191, if the Port and the Oakland Athletics have not entered into a binding agreement by January 1, 2025, that allows for the construction of a Ballpark Project, the Port PUA designation will be automatically reinstated on the Howard Terminal property, as if it had not been deleted pursuant to BCDC's Seaport Plan and Bay Plan amendment process.

In January 2019, the BCDC voted to initiate Bay Plan Amendment 1-19 to undertake a comprehensive update to the Seaport Plan. The intent of the update is to:

- Remove outdated information and update and simplify the Plan's policies.
- Introduce new topic areas to align the Seaport Plan with BCDC's ongoing work on issues like climate change and environmental justice.
- Provide more flexibility for the ports and better clarity for permittees and permit staff.
- Amend the Port Priority Use Area boundaries to reflect shifts in cargo activity.
- Realign the Seaport Plan to better reflect the scope of BCDC's authority and encourage regional coordination.

The Draft Seaport Plan was released for review and comment on June 12, 2023. BCDC's Seaport Plan Advisory Committee met on July 25, 2023, to consider the Draft Seaport Plan and provided a recommendation to BCDC to consider adoption of the Plan. A public hearing is scheduled for November 2023.

## *Local*

### City of Oakland Charter

The City is a municipal corporation, enabled by authority vested through the Charter of the City of Oakland, adopted by the people of the City of Oakland on November 5, 1968, and ratified and made effective by the California Secretary of State on January 28, 1969. As a charter city, the City has broad local authority with respect to land use planning and building permitting of lands lying within the City boundaries. Pursuant to the Charter, the City Council of the City adopts the General Plan of the City.

Under Article VII of the Charter, the City also acts through the Board of Port Commissioners, otherwise known as the Port of Oakland. The Port is a department of the City with the exclusive authority to control and manage certain lands of the City, referred to as the Port Area, in conformity with the Charter and the General Plan. The Howard Terminal and Outer Harbor Terminal, including Berths 10 and 26, are in the Port Area.

### Port of Oakland Building Permits

Under Section 708 of the City Charter, any construction, alteration, or other development in the Port Area requires a Port Building Permit (more often referred to as a Port Development Permit). The Board of Port Commissioners must approve a Port Building Permit prior to the start of such work, and prior to submittal for a City of Oakland building permit. Applications for Port Building Permits for privately owned property in the Port Area are considered and acted on by the Port Executive Director in the same manner as applications made to the Board of Port Commissioners. The Board of Port Commissioners has adopted ordinances governing the application and issuance of Port Building Permits, including Port Ordinance No. 2083, as amended by Port Ordinance Nos. 2972, 3689, and 3943. Further, as the lessor of certain lands in the Port Area, the Port enforces additional standards for its lessees through each applicable tenancy agreement.

### City of Oakland

Howard Terminal and the Outer Harbor berth portions of the Proposed Project are in the "General Industry and Transportation" General Plan land use classification shown in **Figure 3.12-1**, established by the Land Use and Transportation Element (LUTE; City of Oakland 2015). The General Industry and Transportation classification is intended to recognize, preserve, and enhance areas of the City for a wide variety of businesses and related establishments that may have the potential to create off-site impacts such as noise, light/glare, truck traffic, and odor. General Industry and Transportation areas are characterized by sites with good freeway, rail, seaport, and/or airport access.

To date, the City's zoning regulations have not been enforced, nor has the Port developed any zoning regulations for these areas in the Port Area.

### Relevant General Plan LUTE Policies

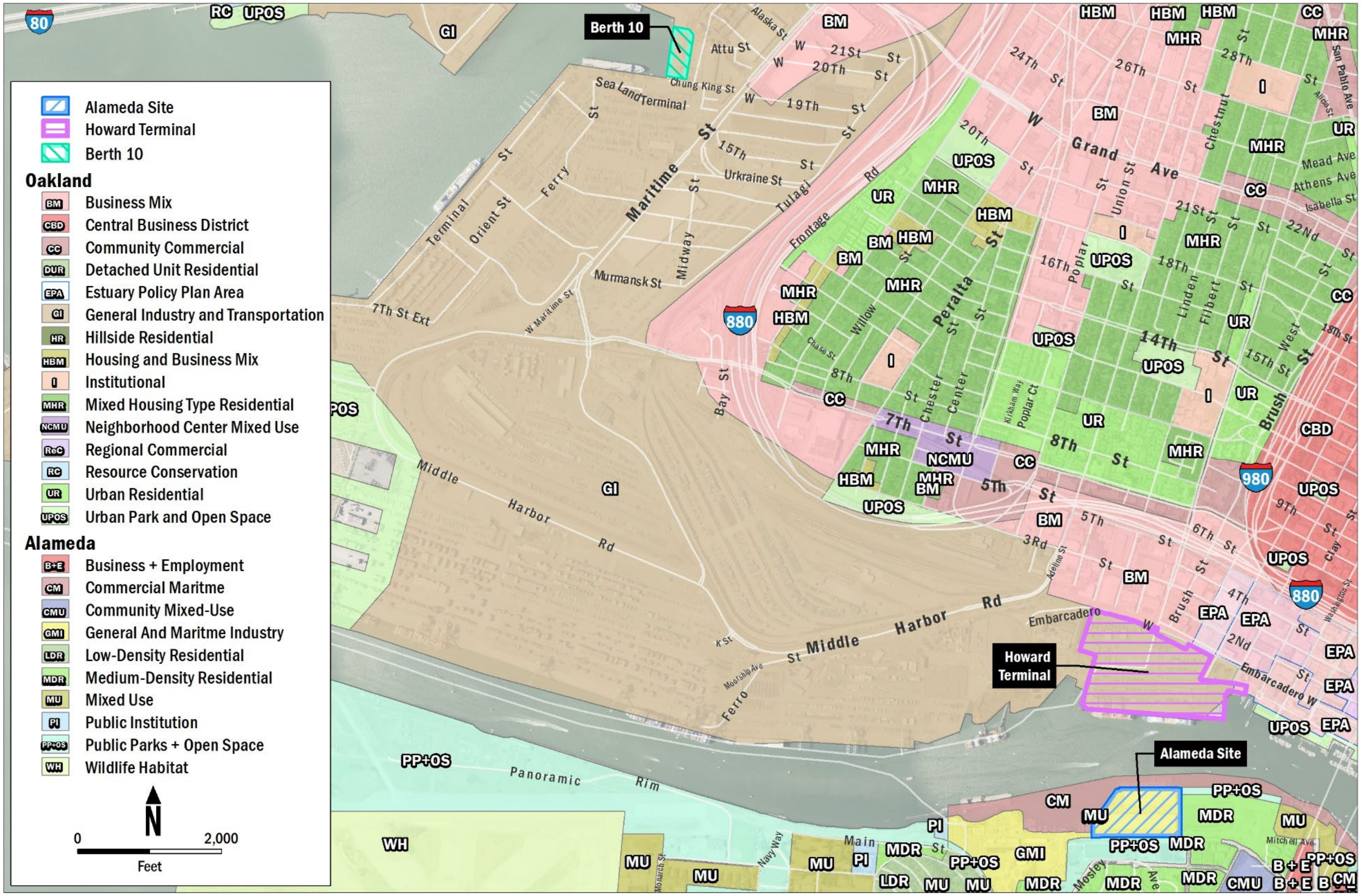
The LUTE of the Oakland General Plan contains the following land use policies that address issues related to land use and planning, and/or are particularly relevant to the Proposed Project (City of Oakland 2007).

#### Industry and Commerce Policies

***Policy I/C.4.1: Protecting Existing Activities.*** Existing industrial, residential, and commercial activities and areas which are consistent with long term land use plans for the City should be protected from the intrusion of potentially incompatible land uses.

***Policy I/C4.2: Minimizing Nuisances.*** The potential for new or existing industrial or commercial uses, including seaport and airport activities, to create nuisance impacts on surrounding residential land uses should be minimized through appropriate siting and efficient implementation and enforcement of environmental and development controls.

**Figure 3.11-2 City of Oakland and City of Alameda General Plan Land Use Designations**



### Waterfront Policies

***Policy W1.1: General Plan Conformance of Projects in the Seaport and Airport Areas.*** The Port shall make a written determination on General Plan conformity for each project, plan, and/or land use guideline it approves in the Port Area. Prior to making such a determination the Port will forward its proposed determination to the Director of City Planning, who may provide the Port with written comments within a specified time period. Any comments so provided shall be considered and responded to in writing by the Port in its conformity determination.

For projects in the Port Area outside the Seaport and airport areas, the Port's determination of General Plan conformity may be appealed to the City Council within 10 days. If not appealed within 10 days, the Port's determination shall be deemed final. If appealed, the City Council, by a vote of at least six members, shall make a final determination on the appeal within 30 days. The City Planning Commission shall provide recommendation to the City Council for consideration in hearing on appeal of the Port's conformity determination.

***Policy W1.2: Planning with the Port of Oakland.*** Plans for maritime and aviation operations as well as activities on all lands in Port jurisdiction should be coordinated with, and generally consistent with, the Oakland General Plan.

***Policy W1.3: Reducing Land Use Conflicts.*** Land uses and impacts generated from Port or neighborhood activities should be buffered, protecting adjacent residential areas from the impacts of seaport, airport, or other industrial uses. Appropriate siting of industrial activities, buffering (e.g., landscaping, fencing, transitional uses), truck traffic management efforts, and other mitigations should be used to minimize the impact of incompatible uses.

***Policy W2.2: Buffering of Heavy Industrial Uses.*** Appropriate buffering measures for heavy industrial uses and transportation uses on adjacent residential neighborhoods should be developed and implemented.

## City of Alameda

The Alameda Site is classified as General and Maritime Industry in the *Alameda General Plan 2040* (Figure 3.11-2). General and Maritime Industry Areas are waterfront lands along the northern Alameda waterfront that are intended to support waterfront maritime and heavier manufacturing and distribution uses (City of Alameda 2022).

The Alameda Site is in a Mixed-Use Planned Development (M-X) zoning district. The purpose of the Mixed-Use District is to encourage the development of a compatible mixture of land uses that may include residential, retail, offices, recreational, entertainment, research-oriented light industrial, water-oriented, or other related uses. The compatibility and interaction between mixed uses is to be ensured through adoption of a Master Plan and development plan site plan, which indicate proper orientation, desirable design character, and compatible land uses (City of Alameda 2022). The Alameda Site is included in the Bayport/Alameda Landing Master Plan and envisioned for either office/waterfront park uses (City of Alameda 2006, 2011) or maritime commercial uses in the Maritime Commercial Variant Sub-Area (City of Alameda 2017a,b).

## 3.11.3. Significance Criteria

Based on Appendix G of the CEQA Guidelines, the following questions (criteria) were analyzed and evaluated to determine whether impacts related to land use and planning are significant. Would the Proposed Project:

A. Physically divide an established community?
B. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

### *Methodology for Analysis*

This analysis evaluates the Proposed Project in terms of its potential to physically divide an existing community and its compatibility with nearby existing land uses. This analysis also evaluates the general consistency of development of the Proposed Project with applicable land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect to determine the potential for significant environmental impacts.

Appendix G of the CEQA Guidelines (Environmental Checklist Form) makes explicit the focus on *environmental* policies and plans, asking if the project would "conflict with any applicable land use plan, policy, or regulation … *adopted for the purpose of avoiding or mitigating an environmental effect*." (emphasis added). Even a response in the affirmative, however, does not necessarily indicate the project would result in a significant impact pursuant to CEQA, unless a physical change would occur. To be an impact under CEQA, the conflict must result in a direct or indirect physical impact on the environment (as determined by application of the significance criteria in this EIR for the affected resource). To the extent that physical impacts may result from such conflicts, such physical impacts are typically analyzed elsewhere in this document, with a few exceptions where the discussion of such impacts is provided below in this section as they relate to land use.

Conflicts with a General Plan also do not inherently result in a significant effect on the environment in the context of CEQA. As stated in Section 15358(b) of the CEQA Guidelines, "[e]ffects analyzed under CEQA must be related to a physical change." Section 15125(d) of the Guidelines states that EIRs shall discuss any inconsistencies between the Proposed Project and applicable general plans.

Consistent with CEQA, not every policy that *could* apply to the Proposed Project is analyzed. The policies analyzed below are those that most directly pertain to the Proposed Project and that emerged as points of interest during the scoping process. To the extent this section discusses potential conflicts with plans, policies, or regulations not adopted for the purpose of mitigating or avoiding an environmental impact, it is for informational purposes. The lead agency and responsible agencies will ultimately determine the Proposed Project's overall consistency on balance with the applicable goals and policies, as part of the decision to approve or reject the Proposed Project.

Relative to future maintenance dredging of the widened portions of the turning basins, this activity would have no potential to divide an existing community or substantially affect existing land uses and land use patterns. Future maintenance dredging activities are assumed to be similar to past USACE annual maintenance dredging operations for Oakland Harbor previously concurred with by BCDC. Continuation of these activities would not be expected to conflict with

plans, regulations, or policies considered under the CZMA, including the Bay Plan, and would be subject to review and concurrence by BCDC. City of Alameda and City of Oakland land use policies would not apply to the USACE's future maintenance dredging of Oakland Harbor. Therefore, land use impacts from future maintenance dredging of the widened portions of the turning basins are not further evaluated in this section.

## 3.11.4. Impact Analysis and Mitigation Measures

### *Impact LUP-1. Would the Proposed Project physically divide an established community? (Criterion A) (Less than Significant)*

#### *Impact Analysis*

For the purpose of this impact analysis, physically dividing an established community means the creation of barriers that prevent or hinder the existing flow of people or goods through an established community, or the placement of a development in such a manner that it physically separates one portion of an established community from the remainder of that community. The construction of a new major highway through an existing residential neighborhood would constitute a typical example of a physical division of an established community.

The Howard Terminal portion of the Proposed Project is in a geographic area with marine terminals and ancillary operations that is a part of an integrated warehouse and transportation industrial logistics network. There are no typical residential neighborhoods or "communities" on or immediately adjacent to the portion of the Proposed Project site where land would be removed. On Alameda to the south of the IHTB, light industrial and maritime uses adjacent to the IHTB are surrounded primarily by single- and multi-family residential development and parks. The Alameda Site, with current light-industrial uses, is adjacent to the Oakland-Alameda estuary and maritime and light-industrial uses, including the Bay Ship & Co. Although a portion of the Alameda Site would be removed to widen the IHTB, the modified shoreline and remaining portions of warehouse structures would remain connected to adjacent maritime and light-industrial uses. Therefore, removal of landside property to facilitate the widening of the IHTB would not result in the physical division or separation of one portion of a community to another. Widening of the OHTB does not require the removal of or use changes to landside property. Therefore, the Proposed Project would not physically divide an established neighborhood or community, and impacts would be **less than significant**.

### *Impact LUP-2. Would the Proposed Project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? (Criterion B) (Less than Significant)*

#### Impact Analysis

##### *San Francisco Bay Plan and Seaport Plan Consistency*

Portions of the Proposed Project sites for the IHTB expansion where land would be removed are under the jurisdiction of BCDC, because they are within the -100-foot historic shoreline band or located on previously authorized Bay fill; development in those areas would be subject to the Bay

Plan. The Proposed Project would require BCDC review and permit approval. BCDC would rely on information in the Final EIR but would make separate consistency findings with respect to its own plan.

In addition, BCDC is required to review federal projects in San Francisco Bay and agree or disagree with the federal agency's determination that the project is consistent with BCDC's Amended Coastal Zone Management Program for San Francisco Bay (i.e., the Bay Plan). As part of the USACE's Oakland Harbor Turning Basins Widening Integrated Feasibility Report and Environmental Assessment (2023), a Coastal Zone Management Act Consistency Determination was prepared to determine the Proposed Project's consistency with the Bay Plan. The Bay Plan provides policy direction for BCDC's permit authority regarding the placement of fill; extraction of materials (dredging); determining substantial changes in use of land, water, or structures in its jurisdiction; protection of the Bay habitat and shoreline; and maximizing public access to the Bay. Due to the size and varied nature of uses in San Francisco Bay, some Bay Plan policy topics apply narrowly to certain types of actions or uses (e.g., Bay Plan salt pond policies apply to the use and maintenance, or restoration, enhancement, or conversion of salt ponds). The Proposed Project sites do not contain, and the Proposed Project does not propose and would not result in impacts related to, the following Bay Plan policy topics: salt ponds; managed wetlands; areas of freshwater inflow; areas of shell deposits; airports; and commercial fishing operations. Consequently, Bay Plan policies related to those identified topics are not applicable to the Proposed Project. The USACE's initial Consistency Determination found that the Proposed Project would be consistent, to the maximum extent practicable, with Bay Plan policies, including those related to the topics of: fish, other aquatic organisms, and wildlife; water quality; water surface and volume; smog and weather; subtidal area; environmental justice and social equity; climate change; safety of fills; shoreline protection; dredging; water-related industry and ports; transportation; recreation; public access; appearance, design, and scenic views; fills in accord with the Bay Plan; mitigation; public trust; and navigational safety and oil spill prevention (USACE 2023). USACE has provided notice to BCDC of their Consistency Determination and requested that BCDC concur with their determination that the Proposed Project is consistent with the Bay Plan. At the time of the preparation of this Draft EIR, BCDC and the USACE are evaluating a phased Consistency Determination for the Proposed Project.

The physical environmental impacts of the replacement and installation of bulkhead and dredging activity related to Bay Plan policies concerning biological resources, water quality, San Francisco Bay hydrology, flood hazards, seismic hazards, contaminated soils, erosion, recreation, and scenic resources are discussed in the applicable topic sections of this Draft EIR, including Sections 3.2, Aesthetics; 3.4, Biological Resources; 3.7, Geology and Soils; 3.9, Hazards and Hazardous Materials; 3.10, Hydrology and Water Quality; and 3.13, Recreation.

A summary of the analysis of the Proposed Project's consistency with applicable land use–related Bay Plan policies is provided below. Bay Plan policies regarding water-related industry and ports, public access, fills in accord with the Bay Plan, mitigation, and public trust are applicable to the Proposed Project regarding land use are listed as they appear in the most recent Bay Plan (2023), and followed by a discussion of the Proposed Project's consistency.

> **Bay Plan Water Related Industry and Ports Policy 1:** Sites designated for both water-related industry and port uses in the Bay Plan should be reserved for those industries and port

uses that require navigable, deep water for receiving materials or shipping products by water in order to gain a significant transportation cost advantage.

**Bay Plan Water Related Industry and Ports Policy 4:** Water-related industry and port sites should be planned and managed so as to avoid wasteful use of the limited supply of waterfront land. The following principles should be followed to the maximum extent feasible in planning for water-related industry and port use:

a. Extensive use of the shoreline for storage of raw materials, fuel, products, or waste should not be permitted on a long-term basis. If required, such storage areas should generally either be at right angles to the main direction of the shoreline or be as far inland as feasible, so other use of the shoreline may be made possible.

b. Where large acreages are available, site planning should strive to provide access to the shoreline for all future plants and port facilities that might locate in the same area. (As a general rule, therefore, the longest dimension of plant sites should be at right angles to the shoreline.) Marine terminals should also be shared as much as possible among industries and port uses.

c. Waste treatment ponds for water-related industry and port uses should occupy as little land as possible, be above the highest recorded level of tidal action, and be as far removed from the shoreline as possible.

d. Any new highways, railroads, or rapid transit lines in existing or future water-related industrial and port areas should be located sufficiently far away from the waterfront so as not to interfere with industrial use of the waterfront. New access roads to waterfront industrial and port areas should be approximately at right angles to the shoreline, topography permitting.

*Proposed Project Consistency with Water Related Industry and Ports Policies 1 and 4*. The Proposed Project does not propose changes to the uses or designations of sites reserved for water-related industry or Port uses. The Proposed Project would remove approximately 4 acres of land area from the Howard Terminal site. In June 2022, BCDC voted to remove the Port PUA designation on Howard Terminal, which designation may revert and apply to the Howard Terminal site if the Port and the Oakland Athletics have not entered into a binding agreement by January 1, 2025, that allows for the construction of a Ballpark Project consistent with AB 1191. Regardless, the Proposed Project would allow for the continued use of water-related industrial or Port activities for which the Project areas (terms) were designated. Further, the Proposed Project would benefit water-related industry by allowing water-related and Port industry dependent on vessel transportation to continue, and to keep pace with changes in shipping technology. The Proposed Project would improve the efficiency of vessels when transiting to and from marine terminals. The Proposed Project does not involve new storage long-term storage of raw materials, fuel, products, or waste; new industrial plants or waste treatment ponds; or new highways, railroads, or rapid transit lines. No new access roads would be required for the Proposed Project. Accordingly, the Proposed Project would not conflict with Water Related Industry and Ports Policies 1 and 4.

**Bay Plan Fills in Accord with the Bay Plan Policy 1:** Fills in Accord with Bay Plan. A proposed project should be approved if the filling is the minimum necessary to achieve its purpose, and if it meets one of the following three conditions:

a. The filling is in accord with the Bay Plan policies as to the Bay-related purposes for which filling may be needed (i.e., ports, water-related industry, and water-related recreation) and is shown on the Bay Plan maps as likely to be needed; or

b. The filling is in accord with Bay Plan policies as to purposes for which some fill may be needed if there is no other alternative (i.e., airports, roads, and utility routes); or

c. The filling is in accord with the Bay Plan policies as to minor fills for improving shoreline appearance or public access.

*Proposed Project Consistency with Fills in Accord with Bay Plan Policy 1*. The proposed expansion of the IHTB and OHTB would remove material to widen the existing turning basins to a depth of -50 feet MLLW. The Proposed Project would only construct components that are necessary to widen the turning basins to the appropriate depths and stabilize the remaining portions of uplands. New fill associated with the Proposed Project would be limited to the in-water portion of the new bulkhead at Howard Terminal, replaced bulkhead at the Alameda Site, in-water bulkhead near the Schnitzer/Radius Recycling property, and rocks installed for slope protection at all new bulkhead locations; these components are required to ensure that the widening of the IHTB would not compromise the future structural integrity and seismic safety of the shoreline. There would be a net reduction of fill from implementation of the Proposed Project because there is more fill being removed than new fill being added. Similarly, as discussed above for Water Related Industry and Ports Policies, the filling is in accordance with the Bay Plan policies regarding Bay-related purposes for port operations and water-related industry. For these reasons, the Proposed Project would not conflict with Fills in Accordance with Bay Plan Policy 1.

**Bay Plan Public Access Policy 1:** A proposed fill project should increase public access to the Bay to the maximum extent feasible, in accordance with the policies for Public Access to the Bay.

**Bay Plan Public Access Policy 10:** Access to and along the waterfront should be provided by walkways, trails, or other appropriate means and connect to the nearest public thoroughfare where convenient parking or public transportation may be available. Diverse and interesting public access experiences should be provided which would encourage users to remain in the designated access areas to avoid or minimize potential adverse effects on wildlife and their habitat.

*Proposed Project Consistency with Public Access Policies 1 and 10*. The proposed widening of the IHTB and OHTB would not involve the creation of new public access and infrastructure, would not result in changes to public access, and would be executed in a way that maintains maximum feasible public access during construction. As discussed above, the Proposed Project would involve the removal of fill to widen the turning basins. Although some new fill would be required to ensure the future structural integrity and seismic safety of the shoreline, the Proposed Project would result in a net reduction of Bay Fill. Therefore, requirements to increase public access may not apply to the Proposed Project, however, inclusion of public access will be evaluated during the permitting process with BCDC. Connections to existing public streets or off-site public pathways would not be altered by the proposed IHTB and OHTB widening. The IHTB and OHTB do not provide public shoreline access, and there are no landside public access facilities that would be impacted by the widening footprints. Like the Seaport, the proposed improvements along the Alameda shoreline are largely surrounded by industrial operations that

preclude safe public access corridors. There are public access sites and parks near the Proposed Project along the Alameda shoreline. Although the presence of water-based construction equipment in the IHTB and OHTB would necessitate that other watercraft maneuver around the construction work vessels, both turning basins and the Inner and Outer Harbor Channels are wide enough that recreational boaters would have ample room to traverse through the remaining available portions of the channels. Therefore, the Proposed Project would not conflict with Public Access Policies 1 and 10.

> **Bay Plan Mitigation Policy 1:** Projects should be designed to avoid adverse environmental impacts to Bay natural resources such as to water surface area, volume, or circulation and to plants, fish, other aquatic organisms and wildlife habitat, subtidal areas, or tidal marshes or tidal flats. Whenever adverse impacts cannot be avoided, they should be minimized to the greatest extent practicable. Finally, measures to compensate for unavoidable adverse impacts to the natural resources of the Bay should be required. Mitigation is not a substitute for meeting the other requirements of the McAteer-Petris Act.

*Proposed Project Consistency with Mitigation Policy 1*. To the maximum extent practicable, the Proposed Project has been designed to avoid or minimize adverse environmental impacts to San Francisco Bay resources, including surface waters, aquatic organisms and habitat, and subtidal areas, in accordance with Bay Plan policies as demonstrated by the USACE's initial Consistency Determination, which at the time of preparation of this Draft EIR is under evaluation as a phased Consistency Determination by BCDC and the USACE. The new fill required is the minimum necessary for the structural integrity and seismic safety of bulkheads being replaced at the adjoining shoreline. The Proposed Project would result in a net reduction of Bay fill. Mitigation measures would be implemented to reduce potentially significant effects on Bay natural resources resulting from construction and dredging activity. These include Mitigation Measures BIO-1A (Silt Curtains), BIO-1B (Worker Education Program), BIO-1C (Pile-Driving-Related Measures), and BIO-2 (Eelgrass Surveys), as further detailed in Section 3.4, Biological Resources. Additionally, the Proposed Project would increase the water surface area and volume of San Francisco Bay due to the conversion of uplands to open water. Furthermore, the Proposed Project would beneficially use all suitable dredged material, which would contribute to restoration projects around the Bay. For these reasons, no compensatory mitigation would be required, and the Proposed Project would not conflict with Mitigation Policy 1.

> **Bay Plan Public Trust Policy 1:** When the Commission takes any action affecting lands subject to the public trust, it should assure that the action is consistent with the public trust needs for the area and, in case of lands subject to legislative grants, should also assure that the terms of the grant are satisfied and the project is in furtherance of statewide purposes.

*Proposed Project Consistency with Public Trust Policy 1*. The Proposed Project would involve lands in San Francisco Bay that are subject to the public trust. Pursuant to Bay Plan Public Trust Policy 1, when BCDC takes any action affecting lands subject to the public trust, it should assure that the action is consistent with the public trust needs for the area. In the case of lands subject to legislative grants, BCDC should also assure that the terms of the land grant are satisfied, and the project is in furtherance of statewide purposes. Uses and interests that are considered consistent with the public trust include water-related commerce and navigation. The Proposed Project would increase the navigation safety of these public trust lands in support of water-related

commerce and navigation and would be considered a trust-consistent use. Therefore, the Proposed Project would not conflict with Public Trust Policy 1.

### *Municipal Land Use Plan Consistency*

The Howard Terminal portion of the Proposed Project is in the General Industry and Transportation General Plan land use classification established by the City of Oakland's LUTE. The removal of land from Howard Terminal to widen the IHTB would not change the General Plan classification, and the remaining land use would continue to operate as it has been in alignment with the General Plan. The removal of land from the southwestern portion of Howard Terminal would result in the removal of truck parking on that portion of the site. The existing tenants and users of Howard Terminal would be relocated or consolidated to locations where their uses are permitted under applicable zoning and other regulations. The IHTB widening would also be in general conformity with the City of Oakland's General Plan. The expanded IHTB would be consistent with surrounding Port-related uses and would serve to protect and support existing Port and maritime commerce-related uses in the Seaport. Therefore, the IHTB widening would be consistent with City of Oakland General Plan policies.

Widening of the OHTB does not require the removal of landside property. To support electrical dredging for widening the OHTB, electrical infrastructure would be installed near Berth 26. The switchgear would be adjacent to existing electrical infrastructure and would be comparable in height and dimensions to the existing substation. The Outer Harbor berth area is also in the General Industry and Transportation General Plan land use classification. The installation of electrical infrastructure at Berth 26 would be consistent with this classification; and similar to the discussion above for the IHTB, the OHTB widening would support existing Port and maritime commerce-related uses in the Seaport, and no changes in classification or land use would occur. Therefore, the OHTB widening would be consistent with City of Oakland General Plan policies.

The Alameda Site is classified as General and Maritime Industry in the *Alameda General Plan 2040*. General and Maritime Industry Areas are intended to support waterfront maritime and heavier manufacturing and distribution uses. Removal of land from the Alameda Site would be generally consistent with this classification, because the IHTB widening would support maritime commerce-related uses; and aside from the demolition of portions of the northern and southern warehouses, light-industrial uses would remain on the site. Additionally, the Proposed Project would be consistent with the Mixed-Use Planned Development (MX) zoning district on the Alameda Site and associated -Bayport/Alameda Landing Master Plan. The compatibility and interaction between mixed uses in the M-X districts are ensured through adoption of a master plan and development of a site plan, which indicate proper orientation, desirable design character, and compatible land uses. The Bayport/Alameda Landing Master Plan contains two land use options for the Alameda Site: future office/waterfront park uses or alternative continued maritime commercial uses. The reduced site area would remain consistent with the office/ waterfront park uses envisioned for the Alameda Site in the Bayport/Alameda Landing Master Plan because the removal of land and portions of the buildings would not change this classification, and the remaining land use could be developed for office/waterfront park uses in the future. Because the existing warehouses would only be partially demolished, the reduced site area would also remain consistent with the alternative maritime commercial uses in the Maritime Commercial Variant of the Master Plan because the land use classification would not change on the remaining land, and portions of warehouses would continue to operate as envisioned in the Master Plan. Additionally, because maritime uses already occur on the Alameda Site, the

expansion of the IHTB would not result in maritime uses being brought into closer proximity with residential uses in a manner that would cause unplanned land uses. Therefore, the Proposed Project would not conflict with the M-X zoning district and Bayport/Alameda Landing Master Plan. Therefore, the IHTB widening would be consistent with City of Alameda General Plan and zoning policies.

#### *Conclusion*

The Proposed Project would be consistent, to the maximum extent practicable, with Bay Plan policies, and would also be consistent with the applicable municipal land use policies in the City of Oakland and City of Alameda. Assuming approval of the Proposed Project and necessary permits described above, the Proposed Project would be consistent with the applicable land use plans and policies, and there would be a **less-than-significant** land use impact.

# 3.12. NOISE

This section assesses the potential for the Proposed Project to result in significant adverse noise impacts, or expose people or structures to vibration impacts, and identifies feasible mitigation measures to avoid or reduce potential adverse impacts. Project-related noise and vibration effects on biological resources are discussed in Section 3.4, *Biological Resources*.

## 3.12.1. Environmental Setting

### *Baseline Conditions*

Under CEQA, the environmental baseline is generally considered to be the conditions at the time of the issuance of the Notice of Preparation (NOP). For the Proposed Project, the NOP was issued on May 31, 2022. The monitored baseline noise conditions contained in this Draft EIR analysis reflect monitoring efforts conducted in 2019 and 2021. The 2019 data were collected as part of the assessment of a proposed development on the adjacent Howard Terminal (i.e., the proposed Oakland Waterfront Ballpark District at Howard Terminal) and are included because they provide the noise environment at sensitive receptors north of Howard Terminal. Additional measurements were collected in 2021 to supplement the data at Howard Terminal, to collect data for additional sensitive receptors that could be impacted by the Proposed Project, and to capture hours when vessels were being turned in the IHTB. The 2021 data were collected in support of a Technical Noise Memorandum prepared in 2021 for the proposed turning-basin widening that was used to inform analysis of noise impacts under NEPA by the USACE.

### *Technical Background*

Sound is mechanical energy transmitted by pressure waves through a medium such as air or water. Noise is defined as unwanted sound that is loud, unpleasant, or that annoys or disturbs people. Sound itself is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level has become the most common descriptor used to characterize the "loudness" of an ambient sound level. Sound pressure level is measured in decibels (dB), with zero dB corresponding roughly to the threshold at which humans can begin to hear sound, and 120 to 140 dB corresponding to the threshold of pain for humans.

Furthermore, dB is commonly adjusted to account for frequencies at which humans can hear. The frequency of sound waves is measured in units of hertz (Hz) that account for the spectrum of frequency from sound pressure fluctuations. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). The typical human ear is not equally sensitive to (in other words, cannot hear) all frequencies of the audible sound spectrum. Therefore, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of decibels (dBA).[80] Frequency A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements. Some representative noise sources and their corresponding A-weighted noise levels are listed in **Table 3.12-1.**

[80] All noise levels reported herein reflect A-weighted decibels unless otherwise stated.

**Table 3.12-1 Example Noise Levels Associated with Activities**

| Noise Level (dBA) | Outdoor Activity | Indoor Activity |
|---|---|---|
| 90+ | Gas lawn mower at 3 feet, jet flyover at 1,000 feet | Rock Band |
| 80 to 90 | Diesel truck at 50 feet | Loud television at 3 feet |
| 70 to 80 | Gas lawn mower at 100 feet, noisy urban area | Garbage disposal at 3 feet, vacuum cleaner at 10 feet |
| 60 to 70 | Commercial area | Normal speech at 3 feet |
| 40 to 60 | Quiet urban daytime, traffic at 300 feet | Large business office, dishwasher next room |
| 20 to 40 | Quiet rural, suburban nighttime | Concert hall (background), library, bedroom at night |
| 10 to 20 | Remote open space | Broadcast/recording studio |
| 0 | Lowest threshold of human hearing | Lowest threshold of human hearing |

Note:
dBA = A-weighted decibels

## Noise Exposure and Community Noise

An individual's noise exposure is a measure of the noise experienced by the individual over a period of time. A noise level is a measure of noise at a given instant in time. The noise levels presented in **Table 3.12-1** represent noise measured at a given instant in time; however, noise levels rarely persist consistently over a long period of time. Rather, community noise varies continuously (instant to instant) over time because of the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources that constitute a relatively stable background noise, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and wind. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short-duration single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens) that are readily identifiable to the individual.

These successive additions of sound to the community noise environment varies the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to accurately characterize a community noise environment and evaluate the totality of a given noise impact. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

$L_{eq}$: The equivalent sound level is used to describe noise over a specified period of time, typically 1 hour, in terms of a single numerical value. The $L_{eq}$ is the constant sound level, which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period). The $L_{eq}$ is an unadjusted metric, and no "penalties" are applied to account for noise sensitivity during evening or nighttime hours.

$L_{max}$: The instantaneous maximum noise level for a specified period of time.

$L_{50}$: The noise level that is equaled or exceeded 50 percent of the specified time. This is the median noise level during the specified time. An $L_{50}$ represents the noise level exceeding 30 minutes in a given hour. The numerical subscript may be changed to reflect other percentages. For example, a noise level exceeded for 5 minutes in a given hour would be the noise level exceeded 8.3 percent of the time, or $L_{8.3}$. These percentile noise metrics are unadjusted, meaning no "penalties" are applied to account for noise sensitivity during evening or nighttime hours.

$L_{90}$: The noise level that is equaled or exceeded 90 percent of the specified time. The $L_{90}$ is often considered the background noise level averaged over the specified time.

DNL: The Day/Night Average Sound Level is the 24-hour day and night A-weighed noise exposure level, which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night. Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance from nighttime noise. Consequently, the DNL is always greater than the individual daytime and nighttime average hourly $L_{eqs}$. DNL is also referred to as "$L_{dn}$."

CNEL: Similar to the DNL, the Community Noise Equivalent Level (CNEL) adds a 10-dBA "penalty" between the hours of 10:00 p.m. and 7:00 a.m. However, the CNEL also adds a 5-dBA "penalty" for the evening hours between 7:00 p.m. and 10:00 p.m.

## Effects of Noise on People

The effects of noise on people can be placed into three categories:

- Subjective effects of annoyance, nuisance, dissatisfaction;
- Interference with activities such as speech, sleep, learning; and
- Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants generally experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation exists in the individual thresholds of annoyance, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Therefore, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so called "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- Under controlled conditions in an acoustics laboratory, the trained healthy human ear is able to discern changes in sound levels of 1 dBA;
- Outside these controlled conditions, the trained ear can detect changes of 2 dBA in normal environmental noise;
- It is widely accepted that the average healthy ear, however, can barely perceive changes in the noise level of 3 dBA;
- A change in level of 5 dBA is a readily perceptible increase in noise level; and
- A 10 dBA change is recognized as twice as loud as the original source (Caltrans 2013).

These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a nonlinear fashion; therefore, the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

### Noise Attenuation

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of 6 to 7.5 dBA per doubling of distance from the source, depending on the topography of the area and environmental conditions (i.e., atmospheric conditions and noise barriers, vegetative or manufactured). Widely distributed noise, such as a large industrial facility spread over many acres or a street with moving vehicles (known as a "line" source), would typically attenuate at a lower rate, approximately 3 to 4.5 dBA each time the distance doubles from the source, which also depends on environmental conditions (Caltrans 2009). Noise from large construction sites would exhibit characteristics of both "point" and "line" sources, and attenuation would therefore generally range between 4.5 and 7.5 dBA each time the distance doubles.

## *Health Effect of Noise*

The consequences of exposure of people to excessive noise can include annoyance and disturbance of human activities, as well as effects on human health. The following discussion is provided so that the health implications of noise exposure are fully understood.

Exposure to high levels of noise can cause permanent hearing impairment. A common method of measuring health effects or impacts of noise is to use the levels at which noise exposure can lead to hearing loss (140 dB) or pain (120 dB). The Federal Occupational Safety and Health Administration (OSHA) has established an occupational noise exposure program that includes hearing conservation standards for long-term noise exposure. Employers are required to measure noise levels; provide free annual hearing exams, hearing protection, and training; and conduct evaluations of the adequacy of the hearing protection in use where noise environments exceed 85 dBA for an 8-hour daily exposure.

The World Health Organization (WHO) is a noted source of current knowledge regarding the health effects of noise impacts because European nations have continued to study noise and its health effects, while the United States Environmental Protection Agency (USEPA) all but eliminated its noise investigation and control program in the 1970s. According to WHO, sleep disturbance can occur when intermittent interior noise levels reach 45 dBA, particularly if background noise is low. WHO also notes that maintaining noise levels within the recommended levels during the first part of the night is believed to be effective for the ability of people to initially fall asleep (WHO 1999). Excessive noise during sleep periods can result in difficulty falling asleep, awakenings, and alterations in sleep stages and depth (e.g., a reduction in proportion of rapid eye movement sleep). Exposure to high levels of noise during sleep can also result in increased blood pressure, increased heart rate, increased finger pulse amplitude, vasoconstriction, changes in respiration, cardiac arrhythmia, and an increase in body movements. Secondary physiological effects of exposure to excessive noise during sleep can occur the following day, including reduced perception of quality sleep, increased fatigue, depressed mood or well-being, and decreased performance of cognitive tasks.

Other potential health effects of noise identified by WHO include decreased performance for complex cognitive tasks, such as reading, attention span, problem solving, and memorization; physiological effects such as hypertension and heart disease (after many years of constant exposure, often by workers, to high noise levels); and hearing impairment (again, generally after long-term occupational exposure, although shorter-term exposure to very high noise levels—for example, exposure several times a year to concert noise at 100 dBA—can also damage hearing). Finally, noise can cause annoyance and can trigger emotional reactions like anger, depression, and anxiety. WHO reports that, during daytime hours, few people are seriously annoyed by activities with noise levels below 55 dBA.

Vehicle traffic and continuous sources of machinery and mechanical noise contribute to ambient noise levels. Short-term noise sources, such as truck backup beepers, the crashing of material being loaded or unloaded, contribute very little to 24-hour noise levels but are capable of causing sleep disturbance and annoyance. The importance of noise to receptors depends on both time and context. For example, long-term high noise levels from large traffic volumes can make conversation at a normal voice level difficult or impossible, while short-term peak noise levels, if they occur at night, can disturb sleep.

## *Noise Sources and Levels*

Transportation sources, such as automobiles, trucks, buses, trains, and aircraft, are the principal sources of noise in the urban environment. Along major transportation corridors, noise levels can reach 80 DNL; along arterial streets, noise levels typically range from 65 to 70 DNL. However, noise levels on roadways, like all areas, can be affected by intervening development, topography, or landscaping. Industrial and commercial equipment and operations also contribute to the ambient noise environment in their vicinities. Primary noise sources in the Proposed Project vicinity include locomotive and railcar activity along the Union Pacific Railroad (UPRR) tracks, which has both freight and passenger rail activity and horn soundings at the two at-grade crossings north of the IHTB; cargo handling operations of the Port, container truck traffic in the Port terminals and roadways and along the Embarcadero West north of Howard Terminal; and Schnitzer/Radius Recycling. Howard Terminal is approximately 1,300 feet south of Interstate 880 (I-880). Observations during site reconnaissance and monitoring in 2021 indicated that local truck noise is prominent, and traffic along I-880 corridor is only audible at Howard Terminal during the quietest periods, due to the presence of intervening structures and the distance.

To characterize the noise environment at the Proposed Project sites and surrounding area, both long-term (48 hours or more) and short-term (20-minute) noise monitoring was conducted, and resulting data are presented in **Appendix F**. Long-term noise monitoring was conducted at seven locations, and short-term noise monitoring was conducted at three locations. **Table 3.12-2** presents a summary of the noise data collected during the noise monitoring effort. Long-term noise monitoring locations (see **Figure 3.12-1**) were selected to represent the existing noise sound environment at residential uses nearest to proposed demolition, dredging, and pile driving activities within the proposed turning basin widening construction areas as well as to capture existing noise sources: UPRR rail tracks, Schnitzer, and vessel maneuvering in the IHTB. A quantitative assessment of each long-term and short-term noise monitoring location is provided below. As stated above with respect to baseline conditions, the monitored baseline noise conditions contained in this analysis reflect monitoring efforts conducted in 2019 and 2021. The 2019 data were collected as part of the assessment of a proposed development on the adjacent Howard Terminal and are included because they provide the noise environment as it existed prior to the COVID-19 pandemic and its related effects on the transportation network.

**Figure 3.12-1 Noise Monitoring Locations**



**Table 3.12-2 Monitored Long-Term and Short-Term Noise Environments within the Proposed Project Area**

| Long-Term Noise Monitoring Location | Day-Night Noise Level (DNL)[1] | Daytime Hourly Average Noise Level $L_{eq}$ (dBA) | Nighttime Hourly Average Noise Level $L_{eq}$ (dBA) |
|---|---|---|---|
| LT-1 Residential uses on Barbers Point Road, IHTB – Alameda Side | 67 | 63 | 60 |
| LT-2 Residential Uses on Mosley Avenue, IHTB – Alameda Side | 58 | 55 | 50 |
| LT-3 Residential Uses on Mitchell Avenue, IHTB – Alameda Side | 60 | 58 | 52 |
| LT-4 Terminus of Clay Street adjacent to Port Offices, IHTB – Oakland Side | 77 | 73 | 70 |
| LT-5 Southeastern End of Howard Terminal Wharf, IHTB – Oakland Side | 65 | 59 | 58 |
| LT-6 Howard Terminal Adjacent to Schnitzer/Radius Recycling, IHTB – Oakland Side | 75 | 69 | 69 |
| LT-7 Southeastern End of Matson Terminal Wharf, IHTB – Oakland Side | 70 | 66 | 63 |
| **Short-Term Noise Monitoring Location** | **Maximum 1-Minute Average Noise Level $L_{eq}$ with Vessel in Turning Basin (dBA)** | **1-Minute Average Noise Level $L_{eq}$ with no Vessel in Turning Basin (dBA)** | |
| ST-1 Southwestern End of Howard Terminal Wharf During Vessel Turn in IHTB – Oakland Side | 69 (vessel at 68 meters)[2] | 59 | |
| ST-2 Middle Harbor Shoreline Park, OHTB Area | NA | 58 | |
| ST-3 Northern End of TraPac Terminal Wharf During Vessel Turn in OHTB | 70 (vessel at 200 meters)[3] | 65 | |

Notes:

[1] The average A-weighted noise level during a 24-hour day (DNL or $\mathbf{L_{dn}}$) is obtained after 10 dB are added to each hourly $L_{eq}$ noise level measured between 10 p.m. and 7 a.m. to account for nighttime noise sensitivity. Consequently, the DNL is always greater than the individual daytime and nighttime average hourly $L_{eqs}$.

[2] Average noise level over the entirety of the 25-minute vessel turn = 66.5 dBA.

[3] Monitored noise levels are influenced substantially by ground-based trucks and service equipment on the TraPac Terminal and do not represent the sole contribution of the turning vessel.

dB = decibel
dBA = A-weighted decibel
DNL = day-night average noise level expressed as dBA.
IHTB = Inner Harbor Turning Basin
$L_{eq}$ = equivalent-continuous sound level
NA = not applicable
OHTB = Outer Harbor Turning Basin
Port = Port of Oakland

Airborne noise measurements were conducted using a Larson Davis Model 831 Type 1 sound-level meter for short-term measurements, and model LxT2 for long-term measurements. The meters were laboratory-certified within the past year and were calibrated prior to each measurement using a laboratory-certified calibrator (Larson Davis model CAL-200). For short-term measurements, the sound-level meter was placed on a tripod at an approximate microphone height of 5 feet. Some long-term measurements necessitated a higher microphone height of approximately 12 feet to ensure equipment safety. Elevated locations included fences, trees, light standards, and telephone poles.

**Noise Monitoring Location LT-1:** This noise monitoring location is on the northern side of the former military housing on the northern side of Barbers Point Road in the Main Street Neighborhood of the City of Alameda General Plan's land use element. This location is approximately 1,100 feet from the nearest proposed construction areas on the southern side of the IHTB. Observations during the deployment and collection of noise monitoring equipment indicated that existing daytime noise contributions at this location were generated by intermittent traffic on Main Street. Noise monitoring data indicate a consistent average noise level during both daytime and nighttime hours of 63 and 60 dBA, respectively. The $L_{50}$ over the entire monitoring period was recorded to be 51.6. The data were collected in 2021. A large container vessel (*One Ibis*) entered and departed the IHTB during the monitoring period, during which noise levels for the hour were consistent with the same hour on the subsequent day when no vessels were in the IHTB. This indicates that vessel movements in the IHTB do not meaningfully contribute to the local noise environment.

**Noise Monitoring Location LT-2:** This noise monitoring location is on the northern side of Mosely Avenue in Alameda, approximately 100 feet north and across from an existing multi-family housing complex and adjacent to Alameda Estuary Park. This location is approximately 500 feet from the nearest proposed construction areas on the southern side of the IHTB. Observations during the deployment and collection of noise monitoring equipment indicated that existing daytime noise contributions at this location were generated by intermittent vehicle traffic on Mosely Avenue. Noise monitoring data indicate a consistent average noise level during both daytime and nighttime hours of 55 and 50 dBA, respectively. The $L_{50}$ over the entire monitoring period was recorded to be 50.2. The data were collected in 2021. A large container vessel (*One Aquila*) entered and departed the IHTB during the monitoring period, during which noise levels for the hour were consistent with the same hour on the subsequent day when no vessels were in the IHTB. This indicates that vessel movements in the IHTB do not meaningfully contribute to the local noise environment.

**Noise Monitoring Location LT-3:** This noise monitoring location is on the southern side of Mitchell Avenue in Alameda, adjacent to an existing multi-family housing complex. This location is approximately 1,000 feet from the nearest proposed construction areas on the southern side of the IHTB. Observations during the deployment and collection of noise monitoring equipment indicated that existing daytime noise contributions at this location were generated by intermittent vehicle traffic on Mitchell Avenue. Noise monitoring data indicate an average noise level during both daytime and nighttime hours of 58 and 52 dBA, respectively. The $L_{50}$ over the entire monitoring period was recorded to be 48.1. The data were collected in 2019 for the proposed Oakland Waterfront Ballpark District at Howard Terminal.

**Noise Monitoring Location LT-4:** This monitoring location is at the terminus of Clay Street on the western side of the Port office building in Oakland, south of Embarcadero West. It is

approximately 2,000 feet from the nearest proposed construction areas on the northeastern side of the IHTB. Observations during the deployment and collection of noise monitoring equipment indicated that existing daytime noise contributions at this location were generated by UPRR and Amtrak train activity, including warning bells and train horns, and operations of the Oakland Ferry Terminal at Jack London Square. Noise monitoring data indicate average hourly noise levels of 73 dBA during daytime hours and 70 dBA during nighttime hours. The data were collected in 2019 for the proposed Oakland Waterfront Ballpark District at Howard Terminal.

**Noise Monitoring Location LT-5:** This noise monitoring location is on the Howard Terminal wharf in Oakland, east of the Proposed Project construction footprint along the Inner Harbor Channel. This location was included due to its potential to be developed with a new ballpark and residences as part of the proposed Oakland Waterfront Ballpark District, and to characterize the noise environment nearest proposed construction areas on the northeastern side of the IHTB. Noise monitoring data indicate a consistent average noise level during both daytime and nighttime hours of 58 to 59 dBA. The data were collected in 2019 for the proposed Oakland Waterfront Ballpark District at Howard Terminal.

**Monitoring Location LT-6:** This noise monitoring location is on the western Howard Terminal boundary in Oakland, along the property line with the adjacent Schnitzer/Radius Recycling heavy metal recycling operation. These monitoring data were included due to the potential for this location to be developed for residential or other noise-sensitive land use as part of the proposed Oakland Waterfront Ballpark District Project, and to demonstrate the noise contributions from the neighboring recycling activities. This location is currently occupied by STG Drayage, LLC, which operates a truck transport business at 1 Market Street. Observations during the deployment and collection of monitoring equipment indicated that existing daytime noise contributions at this location were generated by multiple mobile cranes sorting incoming metals and operations in the easternmost shed of the adjacent Schnitzer/Radius Recycling site. Trucking operations in the XPO Logistics trucking facility site, where the noise monitor was installed, were infrequent. Noise monitoring data indicate that operations at the Schnitzer/Radius Recycling site occur 24 hours a day, with average noise level during both daytime and nighttime hours of 69 dBA. Based on the noise monitoring data, the only downtime in activity for Schnitzer/Radius Recycling operations occurred between Sunday 3:00 a.m. and Monday 4:00 a.m. The data were collected in 2019 for the proposed Oakland Waterfront Ballpark District at Howard Terminal.

**Noise Monitoring Location LT-7:** This noise monitoring location is on the eastern end of Matson Terminal in Oakland, adjacent to Berth 63, along the property line with the adjacent Schnitzer/Radius Recycling heavy metal recycling operation. It was selected due to its proximity to the IHTB, approximately 700 feet to the northwest. Observations during the deployment and collection of monitoring equipment indicated that existing daytime noise contributions at this location were generated by truck operations on Matson Terminal and multiple mobile cranes sorting incoming metals at Schnitzer/Radius Recycling. Noise monitoring data indicate an average noise level during both daytime and nighttime hours of 66 and 63 dBA, respectively. The data were collected in 2021. A large container vessel (*One Ibis*) entered and departed the IHTB during the monitoring period, during which noise levels for the hour were consistent with the same hour on other weekdays when no vessels were in the IHTB. This indicates that vessel movements in the IHTB do not meaningfully contribute to the local noise environment. The data were collected in 2021.

**Noise Monitoring Location ST-1:** This short-term noise monitoring location is on the Howard Terminal wharf in Oakland, immediately adjacent to the IHTB. It was selected for monitoring due to its proximity to large vessels actively operating in the IHTB. During the monitoring period, a large container vessel (the *One Aquila*) entered, was turned, and departed the IHTB along with four assist tugboats; this operation occurred over an approximately 30-minute period. Maximum airborne noise levels during the turning activity were recorded to be 69 dBA at an approximate distance of 68 meters (225 feet). Underwater noise monitoring during the vessel turning period recorded a maximum sound pressure level of 174 dB and a root mean square (RMS) level of 151 dB at a depth of half the water column (25 feet). The data were collected in 2021.

**Noise Monitoring Location ST-2:** This short-term noise monitoring location is at Middle Harbor Shoreline Park in Oakland, a recreational area approximately 2,500 feet south of the OHTB. This location was selected as a nearby recreational receptor because there are no residential area or other noise-sensitive receptors within 1 mile of the OHTB. The park is open to the public during daytime hours only, and a short-term daytime monitor recorded a daytime noise level of 58 dBA. The primary sources of noise at this location were truck traffic along 7th Avenue, and ground-based equipment activity at the TraPac Terminal. The data were collected in 2021.

**Noise Monitoring Location ST-3:** This short-term noise monitoring location is on the TraPac Terminal wharf in Oakland, immediately adjacent to the OHTB. It was selected for monitoring due to its proximity to large vessels actively transiting in the OHTB. During the monitoring period, a large container vessel (the *Hyundai Hongkong*) entered, was turned, and departed the OHTB along with three assist tugboats; this operation occurred over an approximately 30-minute period. Maximum airborne noise levels during the turning activity were recorded to be 70 dBA at an approximate distance of 200 meters (625 feet). Underwater noise monitoring during the vessel turning period recorded a maximum sound pressure level of 175 dB and a root mean square level of 141 dB at a depth of half the water column (22 feet). Observations of the monitoring technician indicated that airborne noise levels were dominated by ground-based equipment activity of the TraPac Terminal even during vessel turning activity. The data were collected in 2021.

**Noise Monitoring of Haul Tug Operations**: To inform the analysis of dredging noise more accurately, a short-term noise measurement was collected to determine the noise level generated by haul tug operations. On August 11, 2023, the tug vessel *Solana* with a loaded scow in tow was monitored from Treasure Island at a distance of 300 meters (963 feet). Monitored data indicated a noise level of 54 dBA, $L_{eq}$ and 54 dBA, $L_{50}$. Using noise propagation equations with distance, this equates to a noise level of 80 dBA at a distance of 50 feet.

### *Vibration*

As described in the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment (U.S. DOT and FTA 2018), groundborne (ground-surface) vibration can cause buildings to shake and rumbling sounds to be heard. In contrast to airborne noise, it is unusual for groundborne vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Common sources of vibration are trains, and construction activities such as blasting, pile-driving, and operation of heavy earth-moving equipment.

Several different methods are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts on buildings. The RMS amplitude is most frequently used to describe the effect of vibration on the human body and is commonly measured in vibration decimals. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and the sick), and vibration-sensitive equipment.

Sources of vibration in the Proposed Project vicinity include Amtrak and freight railroad operations, approximately 1,200 feet north of the proposed northern extent of the widened IHTB. The FTA has published generalized ground-surface vibration curves for locomotive-powered passenger and freight trains, which are presented in **Table 3.12-3**. It should be noted that most freight activity originates from or terminates at the Seaport. Amtrak trains stop at the Oakland Station, and because there are several at-grade crossings in the area, train speeds along the rail line are generally in the range of 5 to 20 miles per hour.

**Table 3.12-3 Generalized Vibration Levels from Locomotive-Powered Passenger or Freight Trains (Peak Particle Velocity) Based on Distance from Tracks**

| Train Speed | 30 Feet | 50 Feet | 100 Feet | 150 Feet | 200 Feet |
|---|---|---|---|---|---|
| 10 mph | 0.051 PPV | 0.040 PPV | 0.019 PPV | 0.016 PPV | 0.013 PPV |
| 20 mph | 0.085 PPV | 0.066 PPV | 0.031 PPV | 0.026 PPV | 0.022 PPV |
| 30 mph | 0.12 PPV | 0.092 PPV | 0.043 PPV | 0.037 PPV | 0.03 PPV |
| 50 mph | 0.17 PPV | 0.13 PPV | 0.060 PPV | 0.024 PPV | 0.043 PPV |

Notes:

mph = miles per hour
PPV = peak particle velocity in inches per second

Source: U.S. DOT and FTA 2018

The only other sources of groundborne vibration in the Proposed Project vicinity are heavy-duty vehicular travel (e.g., refuse trucks and haul trucks) on local roadways. At a distance of 50 feet, the typical groundborne vibration velocity levels generated by traveling trucks is approximately 0.006 in/sec PPV; these levels could reach approximately 0.016 in/sec PPV where trucks pass over discontinuities in the roadway (U.S. DOT and FTA 2018).

### *Sensitive Receptors*

Receptors occupying certain land uses are considered more sensitive to noise than others due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, and auditoriums generally are more sensitive to noise than are commercial and industrial land uses. Land uses with potentially sensitive noise receptors within 2,000 feet of the generalized IHTB and OHTB proposed construction boundaries were identified. A 2,000-foot

distance[81] was selected as the radius based on the potential for impact pile driving as a construction method. At 2,000 feet, noise from pile driving would be attenuated by distance and intervening structures to noise levels commensurate with existing ambient noise levels of the surrounding urbanized areas. The sensitive receptors in the study area are described below and presented in **Table 3.12-4**, along with their approximate distance to the IHTB and OHTB proposed construction boundaries and representative monitoring locations for data presented in **Table 3.12-2**.

**Table 3.12-4 Existing Noise-Sensitive Receptors within 2,000 Feet of the Proposed Turning Widening Areas**

| Receptor/Address | Type/ Public or Private | Distance from Turning Basin (at Closest Point) | Representative Monitoring Location/Noise Level |
|---|---|---|---|
| **Oakland Receptors** | | | |
| Phoenix Lofts Residential/737 2nd Street, Oakland | Private | 1,300 feet from IHTB | 68 dBA[1] |
| 4th Street Residences, Oakland | Private | 1,800 feet from IHTB | 69 dBA[1] |
| Proposed Howard Terminal Multi-family Residences, Oakland (cumulative scenario receptor) | Private | 200 feet from IHTB | LT-5 |
| Middle Harbor Shoreline Park, Oakland | Public | 2,000 feet from OHTB | ST-2 |
| Jack London Square Marina (live-aboards), Oakland | Public | 1,400 feet from IHTB | LT-4 |
| **Alameda Receptors** | | | |
| Admiral's Cove Residential Development, 250 Mosley Avenue | Private | 500 feet from IHTB | LT-2 |
| Alameda Landing Residential Development/400 Block of Mitchell Avenue and southward, Alameda | Private | 1,000 feet from IHTB | LT-3 |
| Barbers Point Residential, Alameda (future Main Street Residential Development) | Private | 1,100 feet | LT-1 |
| Planned Landing at Bay 37 Residential Development North of Mitchell Avenue, Alameda (currently under development) | Private | 500 feet from IHTB | LT-3 |

Notes:
[1] Daytime $L_{eq}$ as measured for the proposed Oakland Waterfront Ballpark District at Howard Terminal Draft Environmental Impact Report.
IHTB = Inner Harbor Turning Basin
OHTB = Outer Harbor Turning Basin

[81] A 2,000-foot distance was selected as the radius for the analysis area based on the potential for pile driving as a construction method. At 2,000 feet, noise from pile driving would be attenuated to below 65 dBA, $L_{eq}$, which is the maximum allowable receiving noise standard from temporary construction activities for residential uses during daytime hours within the City of Oakland (Oakland Noise Ordinance No. 11895, 1996).

With respect to the IHTB locations, the sensitive receptors on the Oakland (northern) side include potential live-aboards at the Jack London Square Marina and proposed residential uses planned for Howard Terminal. Sensitive receptors on the Alameda (southern) side of the IHTB area consist of a multi-family residential neighborhood at the western terminus of Mitchell Avenue, multi-family residences south of Mosley Avenue, and former Navy housing to be redeveloped with multi-family housing south of Main Street.

There are no residential receptors within 2,000 feet of the OHTB. Middle Harbor Shoreline Park and Port View Park are approximately 2,000 feet south of the OHTB, but recreational users at the park are not considered sensitive noise receptors. The noise-sensitive land use closest to the OHTB would be single-family residences on Pine Street, approximately 5,000 feet to the east.

## 3.12.2. Regulatory Setting

### *Federal*

#### Federal Noise Standards

In 1972, the Noise Control Act (42 United States Code Section 4901 et seq.) was passed by Congress to promote limited noise environments in support of public health and welfare. It also established the USEPA Office of Noise Abatement and Control to coordinate federal noise control activities. Although this Office has not been active since being defunded in 1982, it did conduct investigations and studies on noise and its effect on the public health and welfare. Accordingly, the USEPA established guidelines for noise levels that would be considered safe for community exposure without the risk of adverse health or welfare effects. **Table 3.12-5** presents the noise exposure levels highlighted by the guidelines. The purpose of these guidelines is to provide a basis for state and local governments' judgments in setting standards. Not all of these exposure levels are adopted at the local level.

USEPA found that, to prevent hearing loss over the lifetime of a receptor, the yearly average $L_{eq}$ should not exceed 70 dBA, and the $L_{dn}$ should not exceed 55 dBA in outdoor activity areas or 45 dBA indoors to prevent interference and annoyance (USEPA 1974). In 1982, noise control was largely passed to state and local governments.

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under Title 40 of the Code of Federal Regulations, Part 205, Subpart B. The federal truck pass-by noise standard is 80 dBA at 50 feet from the vehicle pathway centerline, under specified test procedures. These requirements are implemented through regulatory controls on truck manufacturers. There are no comparable standards for vibration, which tends to be specific to the roadway surface, the vehicle load, and other factors. FTA cites a reference vibration level for loaded trucks to be 0.076 PPV at 25 feet.

Additionally, federal noise standards directly regulate noise related to the operation of a proposed project, when workers are exposed to certain noise levels with consideration given to both intensity and duration. OSHA has established worker noise exposure limits that vary with the duration of the exposure; and requires implementation of a hearing conservation program if employees are exposed to noise levels in excess of 85 dBA.

**Table 3.12-5 Summary of Noise Levels Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety**

| Effect | Level | Area |
|---|---|---|
| Hearing loss | < 70 dBA[a] ($L_{eq}$, 24 hour) | All areas |
| Outdoor activity interference and annoyance | < 55 dBA ($L_{dn}$) | Outdoor residential areas and farms, other outdoor areas where people spend varying amounts of time, and places where quiet is a basis for use |
| Outdoor activity interference and annoyance | < 55 dBA ($L_{eq}$, 24 hour) | Outdoor areas where people spend limited amounts of time, such as school yards or playgrounds |
| Indoor activity interference and annoyance | < 45 dBA ($L_{dn}$) | Indoor residential areas |
| Indoor activity interference and annoyance | < 45 dBA ($L_{eq}$, 24 hour) | Other indoor areas with human activities, such as schools |

Notes:

[a] Yearly average equivalent sound levels in decibels; the exposure period that results in hearing loss at the identified level is 40 years.

dBA = A-weighted decibel
$L_{dn}$ = day-night average sound level
$L_{eq}$ = equivalent continuous sound level

Source: USEPA 1974

## Federal Transit Administration Vibration Standards

The FTA has adopted vibration standards that are used to evaluate potential building damage impacts related to construction activities. The vibration damage criteria adopted by FTA are provided in **Table 3.12-6**.

**Table 3.12-6 Construction Vibration Damage Criteria**

| Building Category | PPV (in/sec) |
|---|---|
| I. Reinforced concrete, steel, or timber (no plaster) | 0.5 |
| II. Engineered concrete and masonry (no plaster) | 0.3 |
| III. Nonengineered timber and masonry buildings | 0.2 |
| IV. Buildings extremely susceptible to vibration damage | 0.12 |

Notes:

in/sec = inches per second
PPV = peak particle velocity

Source: U.S. DOT and FTA 2018

## *State*

### California Department of Public Health Noise Standards

The California Department of Public Health has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. These guidelines for land use and noise exposure compatibility are shown in **Table 3.12-7**. In addition, Section 65302(f) of the California Government Code requires each county and city in the state to prepare and adopt a comprehensive long-range general plan for its physical development, with Section 65302(g) requiring a noise element to be included in the general plan. The noise element must: (1) identify and appraise noise problems in the community; (2) recognize Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels.

The State of California also establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the state pass-by standard is consistent with the federal limit of 80 dB. The state pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dB at 50 feet from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by state and local law enforcement officials.

### California Building Code

The California Building Code requires that walls and floor/ceiling assemblies separating dwelling units from each other, or from public or service areas, have a *Sound Transmission Class*[82] of 50 dB for all common interior walls and floor/ceiling assemblies between adjacent dwelling units or between dwelling units and adjacent public area for multi-family units and transient lodging. The code specifies a maximum interior performance standard of 45 dBA.

Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

The state has also established noise insulation standards for new multi-family residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards establish an interior standard of 45 dB CNEL in any habitable room. They require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than 60 dB CNEL. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

### State Vibration Standards

According to Caltrans' *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020), there are no official Caltrans standards for vibration. However, this manual provides guidelines for assessing vibration damage potential to various types of buildings, ranging from 0.08 to 0.12 in/sec PPV for extremely fragile historic buildings, ruins, and ancient monuments; to 0.50 to 2.0 in/sec PPV for modern industrial/commercial buildings.

[82] The STC is used as a measure of a material's ability to reduce sound. The STC is equal to the number of decibels a sound is reduced as it passes through a material.

**Table 3.12-7 State Guidelines for Land Use and Noise Exposure Compatibility (in dBA)**

| Land Use | Normally Acceptable[1] | Conditionally Acceptable[2] | Normally Unacceptable[3] | Clearly Unacceptable[4] |
|---|---|---|---|---|
| Single-Family Homes, Duplexes, Mobile Homes | 50 to 60 | 55 to 70 | 70 to 75 | above 75 |
| Multi-Family Homes | 50 to 65 | 60 to 70 | 70 to 75 | above 75 |
| Schools, Libraries, Churches, Hospitals, Nursing Homes | 50 to 70 | 60 to 70 | 70 to 80 | above 80 |
| Transient Lodging—Motels, Hotels | 50 to 65 | 60 to 70 | 70 to 80 | above 75 |
| Auditoriums, Concert Halls, Amphitheaters | — | 50 to 70 | — | above 70 |
| Sports Arenas, Outdoor Spectator Sports | — | 50 to 75 | — | above 75 |
| Playgrounds, Neighborhood Parks | 50 to 70 | — | 67 to 75 | above 75 |
| Golf Courses, Riding Stables, Water Recreation, Cemeteries | 50 to 75 | — | 70 to 80 | above 80 |
| Office Buildings, Business and Professional, Commercial | 50 to 70 | 67 to 77 | above 75 | — |
| Industrial, Manufacturing, Utilities, Agriculture | 50 to 75 | 70 to 80 | above 75 | — |

Notes:

1 **Normally Acceptable:** Specified land use is satisfactory, based on the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

2 **Conditionally Acceptable:** New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

3 **Normally Unacceptable:** New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

4 **Clearly Unacceptable:** New construction or development should generally not be undertaken.

Source: OPR 2017

## *Local*

### City of Oakland General Plan

The Oakland General Plan Noise Element contains guidelines for determining the compatibility of various land uses with different outdoor noise environments (City of Oakland 2005). The Noise Element recognizes that some land uses are more sensitive to ambient noise levels than others, due to the amount of noise exposure (in terms of both the exposure duration and insulation from noise) and the types of typical activities. The City uses the state noise guidelines to evaluate the compatibility of various land uses with their noise environments, which are summarized in **Table 3.12-8**.

**Table 3.12-8 Land Use Noise[83] Compatibility Guidelines – City of Oakland**

| Land Use Compatibility Guidelines | | | | | | |
|---|---|---|---|---|---|---|
| Land Use Category | Community Noise Exposure ($L_{DN}$ or CNEL, dB) | | | | | |
| | 55 | 60 | 65 | 70 | 75 | 80 |
| Residential | NA | CA | | NU | | CU |
| Transient lodging – motels, hotels | NA | | CA | | NU | CU |
| Schools, libraries, churches, hospitals, nursing homes | NA | CA | | NU | | CU |
| Auditoriums, concert halls, amphitheaters | CA | | | CU | | |
| Sports arenas, outdoor spectator sports | CA | | | | CU | |
| Playgrounds, neighborhood parks | NA | | NU | | CU | |
| Golf courses, riding stables, water recreation, cemeteries | NA | | | NU | | CU |
| Office buildings, business commercial and professional | NA | | CA | | NU | |
| Industrial, manufacturing, utilities, agriculture | NA | | | CA | | NU |

Notes:

NA = NORMALLY ACCEPTABLE: Development may occur without an analysis of potential noise impacts *to the proposed development* (although it might still be necessary to analyze noise impacts that the project might have *on its surroundings*).

CA = CONDITIONALLY ACCEPTABLE: Development should be undertaken only after an analysis of noise-reduction requirements is conducted and if necessary, noise-mitigating features are included.

NU = NORMALLY UNACCEPTABLE: Development should generally be discouraged; it may be undertaken only if a detailed analysis of the noise-reduction requirements is conducted, and if highly effective noise mitigation features are included.

CU = CLEARLY UNACCEPTABLE: Development should not be undertaken.

[83] Noise compatibility is analyzed in the DNL or CNEL noise metrics, which are 24-hour metrics that apply a penalty for noise generated during noise-sensitive hours.

In this context, "normally acceptable" is defined as satisfactory for the specific land use, assuming that normal, conventional construction is used in buildings. "Conditionally acceptable" means that new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh-air supply systems or air conditioning, will normally suffice. "Normally unacceptable" means that new construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made, and needed noise insulation features must be included in the design.

The Oakland Noise Element identifies the maximum interior noise levels generally considered to be acceptable for various common land uses (with windows closed). Relevant to the Proposed Project, 45 dB is the maximum interior noise level acceptable for residential uses. The Noise Element includes two goals for the City:

- To protect Oakland's quality of life and the physical and mental well-being of residents and others in the City by reducing the community's exposure to noise; and
- To safeguard Oakland's economic welfare by mitigating noise incompatibilities among commercial, industrial, and residential land uses.

The Noise Element also contains the following applicable policies and actions:

- ***Policy 1:*** Ensure the compatibility of existing and, especially, of proposed development projects not only with neighboring land uses but also with their surrounding noise environment.
    - *Action 1.1*: Use the noise-land use compatibility matrix in conjunction with the noise contour maps (especially for roadway traffic) to evaluate the acceptability of residential and other proposed land uses and the need for any mitigation or abatement measures to achieve the desired degree of acceptability.
    - *Action 1.2*: Continue using the City's zoning regulations and permit processes to limit the hours of operation of noise-producing activities which create conflicts with residential uses and to attach noise-abatement requirements to such activities.
- ***Policy 2:*** Protect the noise environment by controlling the generation of noise by both stationary and mobile noise sources.
    - *Action 2.1:* Review the various noise prohibitions and restrictions under the City's nuisance noise ordinance and revise the ordinance if necessary.
    - *Action 2.2:* As resources permit, increase enforcement of noise-related complaints and also of vehicle speed limits and of operational noise from cars, trucks, and motorcycles.

### Oakland Municipal Code

The City also regulates noise through enforcement of its noise ordinance, which can be found in Section 8.18.020 of the Health and Safety Code, Section 17.120 of the Planning Code, and Chapter 12.56 of the Municipal Code.

The noise ordinance in the Health and Safety Code qualitatively addresses persistent nuisance noise, which it defines as "the persistent maintenance or emission of any noise or sound produced by human, animal, or mechanical means, between the hours of 9:00 p.m. and 7:00 a.m.

next ensuing, which, by reason of its raucous or nerve-racking nature, shall disturb the peace or comfort, or be injurious to the health of any person." In addition, the code states that failure to comply with the following requirements constitutes a nuisance:

A. All construction equipment powered by internal combustion engines shall be properly muffled and maintained.

B. Unnecessary idling of internal combustion engines is prohibited.

C. All stationery noise-generating construction equipment such as tree grinders and air compressors are to be located as far as is practical from existing residences.

D. Quiet construction equipment, particularly air compressors, are to be selected whenever possible.

E. Use of pile drivers and jack hammers shall be prohibited on Sundays and holidays, except for emergencies and as approved in advance by the Building Official.

The noise ordinance in the Planning Code regulates construction noise and only operational noise from stationary sources; cities and counties do not have the regulatory authority to establish noise-level limits over noise from mobile on-road sources (transportation noise). Transportation noise is regulated at the state and federal level by noise limits placed on vehicle manufacturers. **Table 3.12-9** presents the maximum allowable receiving noise standards applicable to long-term exposure for residential and civic land uses, for noise from stationary noise sources (not transportation noise). Section 17.120.050 states that all activities shall be so operated that the noise level inherently and regularly generated by these activities across real property lines shall not exceed the applicable values indicated in **Table 3.12-9**, as modified where applicable by the adjustments indicated in footnote (a) of that table. Subsection F of Section 17.120.050 further indicates that noise measurement procedures shall be conducted at a position or positions at any point on the receiver's property.

Once a structure or facility is constructed, noise from a stationary source would be limited by the standards in **Table 3.12-9**. For example, between 10:00 p.m. and 7:00 a.m., residential uses may only be exposed to noises up to 45 dBA for a cumulative period of 20 minutes in a 1-hour time period. The noise ordinance states that if the measured ambient noise level exceeds the applicable standard in any category, then the stated applicable noise level shall be adjusted so as to equal the ambient noise level. In other words, if existing noise is measured to be louder than the maximum allowed (i.e., the "applicable noise-level standard"), the existing noise level shall be considered the maximum allowed.

**Table 3.12-10** presents noise-level standards from the noise ordinance that apply to temporary exposure to short- and long-term construction noise. In this context, "short-term" refers to construction activities lasting less than 10 days at a time, and "long-term" refers to construction activities lasting more than 10 days at a time. Given the Proposed Project's multi-year construction schedule, the latter noise-level standards would apply for daytime construction activities. According to Section 17.120.050 (G) of the Planning Code, the limits in **Table 3.12-10** apply to residential and industrial/commercial land uses. In addition, active recreational areas are considered marginally sensitive to noise, with the standards for commercial and industrial land uses applied.

**Table 3.12-9 City of Oakland Maximum Allowable Receiving Noise Standards for Specified Land Uses, dBA[1] (from stationary sources)**

| Receiving Land Use | Cumulative Number of Minutes in 1-Hour Time Period[2] | Maximum Allowable Noise Level Standards (dBA) | |
|---|---|---|---|
| | | Daytime 7:00 a.m. to 10:00 p.m. | Nighttime 10:00 p.m. to 7:00 a.m. |
| Residential, School, Child Care, Health Care, or Nursing Home, and Public Open Space | 20 ($L_{33}$)<br>10 ($L_{16.7}$)<br>5 ($L_{8.3}$)<br>1 ($L_{1.7}$)<br>0 ($L_{max}$) | 60<br>65<br>70<br>75<br>80 | 45<br>50<br>55<br>60<br>65 |
| | | Anytime | |
| Commercial | 20 ($L_{33}$)<br>10 ($L_{16.7}$)<br>5 ($L_{8.3}$)<br>1 ($L_{1.7}$)<br>0 ($L_{max}$) | 65<br>70<br>75<br>80<br>85 | |
| Manufacturing, Mining, and Quarrying | 20 ($L_{33}$)<br>10 ($L_{16.7}$)<br>5 ($L_{8.3}$)<br>1 ($L_{1.7}$)<br>0 ($L_{max}$) | 70<br>75<br>80<br>85<br>90 | |

Notes:

1 These standards are to be further reduced by 5 dBA for simple tone noise, noise consisting primarily of speech or music, or recurring impact noise. If the ambient noise level exceeds these standards, the standard shall be adjusted to equal the ambient noise level.

2 $L_x$ represents the noise level that is exceeded X percent of a given period.

dBA = A-weighted decibels

$L_{max}$ = maximum instantaneous noise level

Source: Oakland Noise Ordinance No. 11895, 1996

**Table 3.12-10 City of Oakland Maximum Allowable Receiving Noise Standards for Temporary Construction or Demolition Activities, dBA**

| Operation/Receiving Land Use | Daily (Weekday) 7:00 a.m. to 7:00 p.m. | Weekends 9:00 a.m. to 8:00 p.m. |
|---|---|---|
| **Short-Term Operation (less than 10 days)** | | |
| Residential | 80 | 65 |
| Commercial, Industrial | 85 | 70 |
| **Long-Term Operation (more than 10 days)** | | |
| Residential | 65 | 55 |
| Commercial, Industrial | 70 | 60 |

Notes:

During the hours of 7:00 p.m. to 7:00 a.m. on weekdays and between 8:00 p.m. to 9:00 a.m. on weekends and federal holidays, noise levels received by any land use from construction or demolition shall not exceed the applicable nighttime operational noise-level standard (see **Table 3.12-9**). If the ambient noise level exceeds these standards, the standard shall be adjusted to equal the ambient noise level. Maximum allowable receiving standards are applied in this analysis as the maximum $L_{eq}$.

dBA = A-weighted decibels

$L_{eq}$ = equivalent continuous sound level

Source: Oakland Noise Ordinance No. 11895, 1996.

For nighttime construction activities during the hours of 7:00 p.m. to 7:00 a.m. on weekdays and 8:00 p.m. to 9:00 a.m. on weekends and federal holidays, noise-level limits received by any land use from construction or demolition are addressed not by standards in **Table 3.12-10** but according to the City's Noise Ordinance; these nighttime construction noise levels shall not exceed the applicable nighttime operational noise-level standards in **Table 3.12-9**, which for residential uses would be 45 dBA ($L_{33}$). The ordinance further states that if the ambient noise level exceeds these standards, the standard shall be adjusted to equal the ambient noise level.

### City of Alameda General Plan

The City of Alameda General Plan is the principal policy document for guiding future conservation and development in Alameda. It represents the framework on which the City of Alameda must base decisions regarding growth, public services and facilities, and protection and enhancement of the community.

The Health and Safety Element of the General Plan includes the following noise policies that would be applicable to the Proposed Project:

- ***Policy HS-51.*** With the cooperation of the U.S. Coast Guard, the City of Oakland, and the Port of Oakland, enforce California noise emission standards for engine-driven maritime vessels.

- ***Policy HS-54.*** Maintain day and nighttime truck routes that minimize the number of residents exposed to truck noise.
- ***Policy HS-58.*** To the extent feasible, through the development entitlement process, require local businesses to reduce noise impacts on the community by avoiding or replacing excessively noisy equipment and machinery, applying noise-reduction technology, and following operating procedures that limit the potential for conflicts.
- ***Policy HS-59.*** Require noise reduction strategies in all construction projects. Require a vibration impact assessment for proposed projects in which heavy-duty construction equipment would be used (e.g., pile driving or bulldozing) within 200 feet of an existing structure or sensitive receptor. If applicable, the City of Alameda shall require all feasible mitigation measures to be implemented to ensure that no damage to structures will occur and disturbance to sensitive receptors would be minimized.
- ***Policy HS-60.*** In making a determination of impact under CEQA, consider the following impacts to be "significant" if they are caused by the proposed project: an increase in the $L_{dn}$ noise exposure of 4 or more dBA if the resulting noise level would exceed that described as normally acceptable for the affected land use, as indicated in **Table 3.12-11** (reproduced Figure 7.5 from Alameda General Plan), or any increase in $L_{dn}$ of 6 dBA or more.

### City of Alameda Municipal Code

Section 4.10 of the City of Alameda Municipal Code establishes exterior noise standards (City of Alameda 2017). Specifically, e

noise-level **Table 3.12-12** In the event the measured ambient noise level exceeds the applicable noise-level standard in any category in **Table 3.12-12**, the applicable standards shall be adjusted to equal said ambient noise level. Each of the noise-level standards specified in **Table 3.12-12** are to be reduced by 5 dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. Construction noise is exempted from the noise standards, provided it is limited to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday, and 8:00 a.m. to 5:00 p.m. on Saturdays. However, per Section 4.10.5(b)(10)(a), the prohibition of nighttime construction in the noise ordinance does not apply to construction that does not require a city permit.

Section 13-31.4(b) of the City's Municipal Code establishes an interior CNEL standard with windows closed, attributable to exterior sources not to exceed 45 dB in any habitable room.

## Table 3.12-11 Acceptable Noise Levels in Alameda

| Land Use Category | Community Noise Exposure – $L_{dn}$ or CNEL (dB) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 50 | 55 | 60 | 65 | 70 | 75 | 80 |
| Residential – Low Density Single Family, Duplex, Mobile Home | NA | CA | | | NU | | CU |
| Residential – Multiple Family | NA | | CA | | NU | | CU |
| Transient Lodging – Motels, Hotels | NA | | CA | | NU | | CU |
| Schools, Libraries, Churches, Hospitals, Nursing Homes | NA | | CA | | NU | | CU |
| Auditoriums, Concert Halls, Amphitheaters | CA | | | NU | | | |
| Sports Arena, Outdoor Spectator Sports | CA | | | | NU | | |
| Playgrounds, Neighborhood Parks | NA | | | | NU | CU | |
| Golf Courses, Riding Stables, Water Recreation, Cemeteries | NA | | | | NU | | NU |

| Land Use Category | Community Noise Exposure – $L_{dn}$ or CNEL (dB) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 50 | | 55 | | 60 | | 65 | | 70 | | 75 | | 80 | |
| Office Buildings, Business, Commercial, Professional | NA | | | | | | | | | | | | | |
| | | | | | | | | | CA | | | | | |
| | | | | | | | | | | | | NU | | |
| | | | | | | | | | | | | | | |
| Industrial, Manufacturing, Utilities, Agriculture | NA | | | | | | | | | | | | | |
| | | | | | | | | | | CA | | | | |
| | | | | | | | | | | | | NU | | |
| | | | | | | | | | | | | | | |

Notes:

**NA = Normally Acceptable**: Specified land use is satisfactory, based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

**CA = Conditionally Acceptable**: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

**NU = Normally Unacceptable:** New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.

**CU = Clearly Unacceptable**: New construction or development generally should not be undertaken.

CNEL = community noise equivalent level
dB = decibel
$L_{dn}$ = day-night average sound level

Source: California Office of Planning and Research, 2017. General Plan Guidelines.

**Table 3.12-12 City of Alameda Exterior Noise Standards**

| Location | Cumulative Number of Minutes in Any 1-Hour Time Period | 7:00 a.m. to 10:00 p.m. Standard (dBA) | 10:00 p.m. to 7:00 a.m. Standard (dBA) |
|---|---|---|---|
| Single- or Multiple-Family Residential, School, Hospital, Church, or Public Library Properties | 30 ($L_{50}$) | 55 | 50 |
| | 15 ($L_{25}$) | 60 | 55 |
| | 5 ($L_{8.3}$) | 65 | 60 |
| | 1 ($L_{1.6}$) | 70 | 65 |
| | 0 ($L_{max}$) | 75 | 70 |
| Commercial Properties | 30 ($L_{50}$) | 65 | 60 |
| | 15 ($L_{25}$) | 70 | 65 |
| | 5 ($L_{8.3}$) | 75 | 70 |
| | 1 ($L_{1.6}$) | 80 | 75 |
| | 0 ($L_{max}$) | 85 | 80 |

Notes:
dBA = A-weighted decibel
Source: City of Alameda 2012

## 3.12.3. Significance Criteria

Based on Appendix G of the CEQA Guidelines, the below questions (criteria) were analyzed and evaluated to determine whether impacts related to noise and vibration are significant. Would the Proposed Project:

A. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Proposed Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

B. Generate excessive groundborne vibration or groundborne noise levels?

C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels?

### *Methodology for Analysis*

#### Construction Noise Levels

The construction noise levels presented in this analysis are based on FTA's general assessment approach, which recommends assessing the two noisiest pieces of construction equipment operating concurrently at the center of the project site (U.S. DOT and FTA 2018). However, for the purpose of conducting a conservative analysis, and given the expansive work areas for the Proposed Project, equipment noise was assumed to occur in areas closest to a sensitive receptor instead of at the center of the site.

The FTA guidelines identify a daytime criterion of 90 dBA during daytime hours and 80 dBA during nighttime hours for residential land uses. For all other land uses, the criterion is 100 dBA during the daytime or nighttime hours. The FTA methodology was used to determine the resultant noise levels from the two noisiest pieces of equipment expected to be used simultaneously during construction. Although construction activities would involve an array of different equipment, the two noisiest pieces of equipment are the same for daytime construction. The noisiest daytime equipment would employ pile-driving activities: either impact pile drivers (primarily for landside shoring), or vibratory pile drivers (primarily for removal of existing piles and installation of in-water sheet piles). Pile driving is only proposed to be used for construction during daytime hours on weekdays (Monday through Friday).

Dredging of the IHTB and OHTB is proposed to occur 24 hours a day and would be the noisiest activity during nighttime hours. The two noisiest pieces of equipment associated with dredging would be an electric-powered dredge and a support tugboat. Noise levels were estimated for the nearest sensitive receptors to each of the proposed turning basin widening areas.

Estimated noise levels were then assessed to determine whether construction activities would generate noise in violation of the FTA Guidelines, the Oakland Noise Ordinance (Oakland Planning Code Section 17.120.050) regarding construction noise for receptors in the City of Oakland (see **Table 3.12-10**), or the City of Alameda Noise Ordinance (Alameda Municipal Code Section 4.10) regarding construction noise for receptors in the City of Alameda.

### Construction Traffic Noise Impacts

Demolition material and excavated soils would be exported in on-road haul trucks using local roadways to access freeways to transport these materials to disposal sites. Trucks would also be used to deploy and withdraw equipment. The analysis of potential increases in roadside noise levels generated by these transport trips focuses on roadways that could be used where noise-sensitive receptors exist.

Traffic noise modeling to address the effects of the traffic generated by haul trucks on roadway noise was completed using algorithms of the Federal Highway Administration (FHWA) Traffic Noise Model (FHWA 2006). Traffic noise-level significance for roadways in Oakland is determined by comparing the increase in noise levels (traffic contribution only) to increments recognized by the City's significance criteria of an increase in noise levels of 5 dBA or more.

Traffic noise-level significance for roadways in Alameda is determined by comparing the increase in noise levels (traffic contribution only) to increments recognized by the City of Alameda in its General Plan Policy HS-60, which considers impacts to be "significant" if the project causes an increase in the noise exposure of 4 or more dBA, and the resulting noise level would exceed that described as normally acceptable for the affected land use, as indicated in **Table 3.12-11**; or otherwise result in any increase in $L_{dn}$ of 6 dBA or more.

### Construction Vibration

Vibration-inducing construction activities would include pile driving, drilling, and compaction, which would have the potential to generate groundborne vibration. Construction vibration impacts are considered significant if they would result in levels substantial enough to result in damage to nearby structures or buildings. Such an impact is determined if construction activities would result in vibration levels that exceed FTA's groundborne vibration impact criteria presented in **Table 3.12-6**.

### Operational Noise Impacts

Additionally, although the Proposed Project would not change the projected overall volumes of freight that would come into the Port under future without-project conditions, it could result in increases in vessel turning activity noise experienced at noise receptors due to the widening of the turning basins reducing distance of vessel turning activity noise to those noise-sensitive receptors. Tug assist requirements for turning vessels are generally expected to remain unchanged after implementation of the Proposed Project; therefore, the noise generated by the turning activity at a specified distance, which is dominated by tugboat engine noise, would reasonably be expected to remain very similar to noise generated by existing vessels turning (e.g., noise levels presented in **Table 3.12-2** for Monitoring Location ST-1). The Proposed Project could also result in increases in noise from annual maintenance dredging of the navigation channel, which is an existing annual activity and part of the baseline conditions, experienced at certain noise receptors in Alameda due to the widening of the turning basins reducing distance of maintenance dredging noise to those noise-sensitive receptors.

Transportation noise is not regulated by local noise ordinances, but rather by state or federal regulatory agencies such as Caltrans or the Federal Aviation Administration (or occasionally at the local level through policies of the local General Plan—and then only for the purposes of stated environmental review for which the City or County is a lead agency or a commenting party).

For receptors in Oakland, the analysis of potential increases in maritime vessel noise in the IHTB and OHTB applies the same criteria adopted by the City for analysis of roadway transportation noise under CEQA. Specifically, a significant impact related to transportation noise would occur if the Proposed Project would generate noise resulting in a 5 dBA permanent increase in ambient noise levels in the Proposed Project vicinity above levels existing without the Proposed Project.

For receptors in Alameda, the impact assessment of potential increases in operational maritime vessel transit noise and annual maintenance dredging noise is performed by comparing the increase in noise levels to increments recognized by the City of Alameda in its General Plan Policy HS-60, which considers impacts to be "significant" if the Proposed Project causes an increase in the noise exposure of 4 or more dBA, and the resulting noise level would exceed that described as normally acceptable for the affected land use, as indicated in **Table 3.12-11**; or otherwise result in any increase in $L_{dn}$ of 6 dBA or more.

## *Topics Considered and Determined to Have No Impact*

The following topic is considered to have no impact related to the Proposed Project based on the Proposed Project's geographical location. Therefore, this topic is not addressed further in this document for the following reasons:

- ***Airport-related Noise*** (Criterion C). The Proposed Project sites are not in an airport influence area of either Oakland International Airport or San Francisco International Airport (San Mateo County Planning 2015) or in the vicinity of a private airstrip. Therefore, the Proposed Project would not result in an impact related to exposure to excessive aircraft noise.

## 3.12.4. Impact Analysis and Mitigation Measures

***Impact NOI-1. Would the Proposed Project generate a substantial temporary or periodic increase in ambient noise levels at sensitive receptors in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? (Criterion A) (Significant and Unavoidable)***

### *Impact Analysis*

As described in Section 3.12.1 under Sensitive Receptors, a distance of 2,000 feet from the IHTB and OHTB was defined as the noise analysis area, because beyond 2,000 feet, construction-related or operational noise levels would generally be attenuated by distance and intervening structures to noise levels commensurate with existing ambient noise levels of the surrounding urbanized areas.[84] There are existing and proposed noise-sensitive receptors that are between 200 feet and 2,000 feet from the proposed new perimeter of the IHTB. There are no sensitive noise receptors within 2,000 feet of the OHTB. Therefore, the analysis for Impact NOI-1 focuses on the noise-related effects from widening the IHTB. A brief discussion of noise impacts from widening the OHTB is provided following the analysis of construction noise, construction traffic, and impacts during operations for widening the IHTB.

### *Inner Harbor Turning Basin Widening*

#### Construction Noise – Daytime

Construction to widen the IHTB would require the use of heavy equipment during demolition activities, landside excavation, pile removal, pile driving during bulkhead installation, and dredging. Construction activities would also involve the use of smaller power tools, generators, and other sources of noise. Throughout all stages of construction, there would be a changing mix of equipment. As a result, construction activity noise levels at and near the IHTB project sites would fluctuate depending on the type, number, and duration of use of the various pieces of construction equipment.

**Table 3.12-13** shows the hourly noise levels ($L_{max}$) produced by the various types of the noisiest equipment, with the equipment at a distance of 50 feet from the noise-sensitive receptor. It should be noted that $L_{max}$ noise levels associated with the construction equipment would only be generated when equipment is operated at full power. Typically, the operating cycle for a piece of construction equipment would involve 1 or 2 minutes of full power operation, followed by operation at lower power settings. The $L_{max}$ noise levels shown in **Table 3.12-13** would, therefore, be expected to only occur briefly throughout the construction day. The noise level for the tugboat was empirically determined through on-site monitoring of a haul tug scow that would be used to transport dredged materials.

[84] This screening threshold distance was developed based on stationary source noise attenuation equations (Caltrans 2013) and the combined noise level generated by pile driving for a given project (assuming impact pile driver and a crane) at a distance of 50 feet. Using the attenuation equations, the maximum noise level of 101 A-weighted decibels (dBA) would diminish to below 65 dBA, $L_{eq}$ at 2,000 feet, which is therefore used as the geographic scope.

**Table 3.12-13 Maximum Noise Levels from Construction Equipment**

| Construction Equipment | Noise Level at 50 Feet (dBA, $L_{max}$) |
|---|---|
| Air Compressor | 77 |
| Backhoe | 78 |
| Compactor | 83 |
| Crane | 81 |
| Excavator | 81 |
| Haul Truck | 77 |
| Front-End Loader | 80 |
| Dozer | 82 |
| Concrete Saw | 90 |
| Tugboat (with scow) | 80 |
| Dredge (Electrically powered) | 72 |
| Impact and Vibratory Pile Drivers | 101 |

Notes:

dBA = A weighted decibel

$L_{max}$ = maximum instantaneous noise level

Sources: U.S. DOT and FTA 2018; Epsilon Associates 2006; USFWS and SDRPJPA 2000; ESA Noise Monitoring 2023.

Input values and calculated noise levels using FTA methodology and the Roadway Construction Noise Model for both the pile driving and dredging phases of construction are presented in **Table 3.12-14**. All dredging activities would be conducted with an electric dredge. The precise electric dredge that could be used is not known at this time, and the exact horsepower, location on the dredge, and configuration of the electric motors that would be part of the dredging system have not yet been determined. As a dredging project in a similar maritime port, it is likely that noise levels would be comparable to the electric dredge used to dredge the navigation channels in the Port of Los Angeles. That dredge generates 72 dBA $L_{eq}$ at 50 feet (USFWS and SDRPJPA 2000), which is approximately 9 dBA less than a diesel-powered dredge.

Following the FTA methodology described above, the two noisiest pieces of equipment during both the daytime and nighttime were identified to calculate construction-related noise effects at nearby sensitive receptors in Oakland and Alameda. The noisiest daytime activity would be land-based pile driving (for landside installation of new bulkheads), and the two noisiest pieces of equipment associated with such pile driving would be a pile driver and crane. The only construction activity planned to occur at night would be dredging, which would occur 24 hours a day, 7 days a week. The two noisiest pieces of equipment associated with dredging would be an electric dredge and a support tugboat. Pile driving and dredging activities are assessed separately because the location of the activities relative to sensitive receptors would be different for each activity, and the duration of the dredging phases would be markedly longer than that of pile

**Table 3.12-14 Noise Levels from Construction**

| Receptor | Existing Daytime/ Nighttime Noise Level (dBA, $L_{eq}$) | Loudest Two Noise Sources | Source Noise Level (dBA)[1] | Distance to Receptor (feet)[2] | Usage Factor | $L_{eq}$ Noise Level at Receptor (dBA)[3] | Does Source Noise Exceed FTA Standards – 90 dBA Daytime/ 80 dBA Nighttime? | Does Source Noise Exceed Daytime Local Noise Ordinance Standard (65 dBA)[4]? | Does Source Noise Exceed Nighttime Local Noise Ordinance Standard (existing nighttime noise level)[5]? |
|---|---|---|---|---|---|---|---|---|---|
| **Oakland Receptors** | | | | | | | | | |
| Phoenix Lofts Residential (daytime) | 68/65[6] | Pile driver/crane | 101/81 | 1,300 | 20/16 % | 66 | No | **Yes** | NA |
| 4th Street Residences (daytime) | 69/64[6] | Pile driver/crane | 101/81 | 1,800 | 20/16 % | 63 | No | No | NA |
| Proposed Howard Terminal Multi-family Residences (daytime) | 59/58 | Pile driver/crane | 101/81 | 200 | 20/16 % | 82 | No | **Yes** | NA |
| Jack London Square Marina Live-aboards (daytime) | 73/70 | Pile driver/crane | 101/81 | 1,400 | 20/16 % | 65 | No | No | NA |
| Phoenix Lofts Residential (nighttime) | 68/65[6] | Electric dredge/ tug | 72/80 | 1,300 | 50/25% | 49 | No | No | No |
| 4th Street Residences (nighttime) | 69/64[6] | Electric dredge/ tug | 72/80 | 1,800 | 50/25% | 46 | No | No | No |
| Proposed Howard Terminal Multi-family Residences (nighttime) | 59/58 | Electric dredge/ tug | 72/80 | 200 | 50/25% | 65 | No | No | **Yes** |
| Jack London Square Marina Live-aboards (nighttime) | 73/70 | Electric dredge/ tug | 72/80 | 1,400 | 50/25% | 49 | No | No | No |
| **Alameda Receptors** | | | | | | | | | |
| Mitchell Avenue Residential (daytime) | 58/52 | Pile driver/crane | 101/81 | 1,000 | 20/16 % | 68 | No | **Yes** | NA |
| Mosley Avenue Residential (daytime) | 55/50 | Pile driver/crane | 101/81 | 500 | 20/16 % | 74 | No | **Yes** | NA |

| Receptor | Existing Daytime/ Nighttime Noise Level (dBA, $L_{eq}$) | Loudest Two Noise Sources | Source Noise Level (dBA)[1] | Distance to Receptor (feet)[2] | Usage Factor | $L_{eq}$ Noise Level at Receptor (dBA)[3] | Does Source Noise Exceed FTA Standards – 90 dBA Daytime/ 80 dBA Nighttime? | Does Source Noise Exceed Daytime Local Noise Ordinance Standard (65 dBA)[4]? | Does Source Noise Exceed Nighttime Local Noise Ordinance Standard (existing nighttime noise level)[5]? |
|---|---|---|---|---|---|---|---|---|---|
| **Alameda Receptors (Cont'd)** | | | | | | | | | |
| Barbers Point Residential (daytime) | 63/60 | Pile driver/crane | 101/81 | 1,100 | 20/16 % | 68 | No | **Yes** | NA |
| Planned Landing at Bay 37 Multifamily Residential (daytime) | 58/52 | Pile driver/crane | 101/81 | 500 | 20/16 % | 74 | No | **Yes** | NA |
| Mitchell Avenue Residential (nighttime) | 58/52 | Electric dredge/ tug | 72/80 | 1,350 | 50/25% | 47 | No | No | No |
| Mosley Avenue Residential (nighttime) | 55/50 | Electric dredge/ tug | 72/80 | 600 | 50/25% | 54 | No | No | **Yes** |
| Barbers Point Residential (nighttime) | 63/60 | Electric dredge/ tug | 72/80 | 1,200 | 50/25% | 48 | No | No | No |
| Planned Landing at Bay 37 Multifamily Residential (nighttime) | 58/52 | Electric dredge/ tug | 72/80 | 600 | 50/25% | 54 | No | No | **Yes** |

Notes:
1 $L_{max}$ at 50 feet.
2 Distance between approximate location of equipment and property line of sensitive receptor.
3 The $L_{eq}$ level is adjusted for distance and percentage of usage.
4 The construction standard that applies to construction activity occurring over 10 days or more within the City of Oakland is 65 dBA.
5 For construction noise, the City of Oakland noise ordinance specifies nighttime hours to be 7:00 p.m. to 7:00 a.m. on weekdays, and from 8:00 p.m. to 9:00 a.m. on weekends. The nighttime noise standard in the City of Oakland when the existing noise level exceeds 45 dBA is the existing monitored noise level. The nighttime noise standard in the City of Alameda is 50 dBA. Because the existing average hourly nighttime noise levels at all four Alameda receptor locations already equal or exceed 50 dBA, this analysis applies the existing average nighttime noise level as the nighttime standard, similar to the City of Oakland methodology.
6 Existing noise level at this receptor as reported in the Draft Environmental Impact Report for the proposed Oakland Waterfront Ballpark District at Howard Terminal.

dBA = A-weighted decibel
FTA = Federal Transit Administration
$L_{eq}$ = equivalent-continuous sound level
$L_{max}$ = maximum instantaneous noise level

driving. In **Table 3.12-14**, input values are presented for FTA methodology considerations for the nearest sensitive-receptor locations. Adjusted noise levels at each sensitive receptor are also presented in the table, and then compared to the FTA criteria for daytime construction. As shown in **Table 3.12-14**, daytime noise from construction would be below the 90 dBA daytime criterion for the nearest sensitive receptors.

For this analysis, construction noise is also assessed relative to the standards of the local noise ordinance for the jurisdiction of the location of the impacted receptors. For receptors in Oakland, daytime noise levels are compared to the 65 dBA construction standard that applies to construction activity occurring over 10 days or more. As shown in **Table 3.12-14**, this standard would be exceeded at two receptors (Phoenix Lofts and the proposed Howard Terminal residences) when pile driving occurs at the northernmost extent of the IHTB, and piles would be installed at a distance of 1,300 and 200 feet from the receptor, respectively. As a practical matter, the existing average hourly daytime noise level at the Phoenix Lofts receptor already exceeds the contribution from the nearest pile-driving activity. However, the Proposed Project's daytime construction noise would exceed the existing hourly daytime noise level and Oakland's daytime noise ordinance standard at the proposed Howard Terminal residential uses, should they be occupied prior to construction work, which would be a **potentially significant impact**.

For receptors in Alameda, the City of Alameda Noise Ordinance exempts construction noise from its exterior noise standards if occurring between 7:00 a.m. and 7:00 p.m. on Monday through Friday and 8:00 a.m. to 5:00 p.m. on Saturdays. However, for the purpose of this analysis, the Port is applying the City of Oakland's daytime noise ordinance standards to receptors in Alameda. As indicated in **Table 3.12-14**, this standard would be exceeded at the four Alameda receptors when pile driving occurs at the southernmost extent of the IHTB and piles would be installed at a distance of 1,100 feet from the receptor, which would be considered a **potentially significant impact**.

### Level of Significance before Mitigation

*Potentially Significant Impact.*

### Mitigation Measure

#### MM NOI-1A: Pile Driving Noise-Reducing Techniques and Muffling Devices.

The Port shall require the construction contractor to use noise-reducing pile-driving techniques if conducted within 1,500 feet of receptors identified in **Table 3.12-14** that could be subject to significant pile-driving noise. Construction contractors shall be required to use construction equipment with state-of-the-art noise shielding and muffling devices. For impact hammer driving, these techniques shall include use of cushion blocks during pile installation activities within 1,500 feet of sensitive receptors in Oakland and Alameda. The impact pile hammer shall be cushioned using a wood cushion block or other material sufficient to obtain an 11 dBA reduction for all impact hammer pile-driving operations. For all pile-driving activities, at least 14 calendar days prior, the Port, in coordination with USACE, shall notify residents within 1,500 feet of the pile-driving activities of the dates, hours, and expected duration of such activities.

### Level of Significance after Mitigation

*Significant and Unavoidable.*

Implementation of Mitigation Measure NOI-1A would reduce the Proposed Project's construction noise impact because wood cushion blocks have been demonstrated to be effective in reducing pile-driving noise by 11 dBA. Use of cushion blocks providing an 11 dBA reduction

would be sufficient to reduce impacts from pile driving to a less-than-significant level for all receptors except the potential future receptors at Howard Terminal. Given that predicted noise levels at the proposed residential tower of Howard Terminal would be 82 dBA during pile driving, such a reduction would be insufficient to reduce pile-driving noise to below the 65 dBA standard of the City of Oakland municipal code. Because these proposed residences would be several stories in elevation in a tower structure, the use of a noise barrier would not be a feasible measure of further reducing nose levels. Consequently, the residual impact would be **significant and unavoidable** should development and occupation of Howard Terminal residences occur prior to commencement of pile-driving activities for the Proposed Project.

### *Construction Noise – Nighttime and Weekends*

Dredging would be the only construction activity that would occur 24 hours a day, and therefore have the potential to impact receptors during the more sensitive nighttime hours. For nighttime construction activities during the hours of 7:00 p.m. to 7:00 a.m. on weekdays and 8:00 p.m. to 9:00 a.m. on weekends and federal holidays, noise-level limits received at any land use from construction impacting receptors within the City of Oakland are not addressed by the construction noise standards in **Table 3.12-10**. Instead, according to the City of Oakland's Noise Ordinance, nighttime construction noise levels shall not exceed the applicable nighttime operational noise-level standards in **Table 3.12-9**, which for residential uses would be 45 dBA ($L_{33}$).[85] The ordinance further states that if the ambient noise level exceeds these standards, the standard shall be adjusted to equal the ambient noise level. As shown in **Table 3.12-14**, existing noise levels (considered ambient noise level) at the Oakland sensitive receptors surrounding the IHTB project sites already exceed the applicable 45 dBA standard at all receptors. Consequently, as required by the ordinance, the existing nighttime ambient level at each respective receptor would be the applicable nighttime construction standard.

As shown in **Table 3.12-14**, nighttime construction noise levels from dredging operations would be below the 80 dBA nighttime criterion of the FTA for the nearest residential sensitive receptors in both Oakland and Alameda. The table also shows that construction noise levels from dredging operations would be below existing ambient nighttime noise levels at all receptors in Oakland, except for the potential future residential uses at Howard Terminal. Noise from nighttime dredging would exceed the existing nighttime ambient noise level by 7 dBA. However, given that the proposed land uses for Howard Terminal would also increase noise levels, including the proposed ballpark, the increase over future ambient noise levels cannot be reliably determined. Therefore, the noise from nighttime dredging is identified as a **potentially significant impact** for the proposed residential uses at Howard Terminal.

The City of Alameda Noise Ordinance exempts construction noise from its exterior noise standards if occurring between 7:00 a.m. and 7:00 p.m., and 8:00 a.m. and 5:00 p.m. on Saturdays. However, per Section 4.10.5(b)(10)(a), the prohibition of nighttime construction hours in the noise ordinance does not apply to construction that does not require a city permit. For nighttime work, the City of Alameda's exterior standard for residential uses is 50 dBA, $L_{50}$, which would be exceeded by up to 4 dBA at the nearest receptor when dredging occurs at the closest point. However, it should be noted that existing average nighttime noise levels already

[85] The RCNM model only reports noise in terms of either the $L_{eq}$ and $L_{10}$ metrics. The $L_{eq}$ is reported in **Table 3.12-14** because the $L_{eq}$ is closer to the $L_{33}$ metric that is the stationary source standard in the City of Oakland noise ordinance than $L_{10}$ metric. Furthermore, use of the $L_{eq}$ metric is more conservative compared to either the $L_{33}$ or $L_{50}$ because it assumes that the equipment operates for the entirety of the hour rather than a portion of the hour.

meet or exceed 50 dBA at all four Alameda receptor locations. **Table 3.12-14** shows that construction noise levels from nighttime dredging operations would be below existing ambient nighttime noise levels at all receptors in Alameda, except for residential areas south of Mosley Avenue and planned multi-family residences at the Landing at Bay 37; this would be considered a **potentially significant impact**.

Generally, there would be instances of approximately one hour each when tugboats (the primary noise source for dredging) would be in operation. Depending on the depth of cut in the dredge area, there could be two to three anchor moves per day by smaller assist tugs. Additionally, larger tugboats, similar to those monitored for this analysis and assumed in **Table 3.12-14**, would be used to haul scows in and out of the dredge area approximately every 12 hours.

It should be noted that for the planned Landing at Bay 37 multi-family residences, the warehouses immediately to the west are over 20 feet in height and would serve as a noise barrier for the westernmost first- and second-floor units that are not in the direct line of sight of dredging activity ; this would reduce the noise level at these receptors to 50 dBA, and would avoid conflicting with the local ordinance for these residences. At a distance of 725 feet from the dredging activity, the combined noise level of the dredge and tug would be 51.9 dBA, which would be below the ambient nighttime noise level for the Landing at Bay 37 location of 52 dBA. Therefore, the residences at Bay 37 where the City of Alameda nighttime noise standard would be exceeded during combined operation of the dredge and tug are those within 725 feet of the dredging activity that are either: 1) first- and second-floor residences along the waterfront that would have direct line-of-sight to the dredging operation (which would exclude the residences closest to the warehouses); and 2) the first line of third floor residences within this distance with direct line-of-sight to the dredging activity. Nighttime dredging within 725 feet of these residences would occur intermittently over approximately 4 weeks.

Section 13-31.4(b) of the City of Alameda's Municipal Code establishes an interior CNEL standard with windows closed, attributable to exterior sources not to exceed 45 dB in any habitable room. Assuming a standard building attenuation level of 20 dBA (US HUD 2009), nighttime interior noise levels at waterfront units would be 35 dB, which would equate to a CNEL value of 42 dB. Therefore, although exterior noise levels would exceed the City's 50 dBA exterior nighttime standard, interior noise levels would be below the City's 45 dB CNEL standard.

Available mitigation for addressing the potential nighttime noise impacts in Alameda would be to construct a temporary barrier. A Technical Memorandum (see Appendix F) was prepared to assess the potential noise reduction that might be achieved with construction of a temporary 12-foot noise barrier along the southern edge of the harbor on the Alameda side of the IHTB at a location approximately 220 feet from the noise source, and 380 feet from the nearest receptors. This analysis found that such a barrier could achieve a resultant noise reduction of 5.5 dB.

However, construction of a barrier along the waterfront at the Bay 37 development would not be feasible because of the necessary height requirement to break the line-of-sight to receptors and secondary impacts related to aesthetics.

### Level of Significance before Mitigation

*Potentially Significant Impact.*

## Mitigation Measures

### MM NOI-1B: Erection of a Temporary Noise Barrier

To address significant nighttime noise impacts at the Mosley Avenue residences in Alameda, the Port shall require contractors, as a condition of contract, to construct a temporary 12-foot noise barrier along the southern edge of the harbor on the Alameda side of the turning basin during nighttime dredging activities at the Alameda Site. The barrier shall be installed at a location approximately 220 feet from the noise source and 380 feet from the nearest receptors. The barrier's location would serve as a lateral extension of the existing warehouse structure on the Alameda Site, north of the athletic fields. The barrier shall be of solid construction with no apparent gaps. Barriers are generally constructed with two layers of 0.5-inch-thick plywood (with joints staggered), and K-rail or other support; or a limp mass barrier material weighing 2 pounds per square foot.

## Level of Significance after Mitigation

*Significant and Unavoidable.*

Implementation of Mitigation Measure NOI-1B would reduce the Proposed Project's nighttime construction noise impact on the Mosley Avenue residences by installing a noise wall between the IHTB and the Mosley Avenue residences. This would reduce the noise level to 49.5 dBA at the Mosley Avenue residences, which would avoid conflicting with the local ordinance, and the residual impact of the Proposed Project would be less than significant. The barrier would be in place during dredging at the Alameda Site, which is anticipated to be completed during the 2029 in-water work window (June 1 through November 30). Such a barrier could have a temporary aesthetic impact but would generally serve as an extension of the existing warehouse structure on the Alameda Site. Public access would not be restricted by the presence of the barrier because individuals would be able to move around the ends of the barrier.

For the planned Landing at Bay 37 multi-family residences, the warehouses immediately to the west are over 20 feet in height and would serve as a noise barrier for dredging activity that is not in the direct line of sight of first- and second-floor residences; this would reduce the noise level at these receptors to 50 dBA, and would avoid conflicting with the local ordinance for first- and second-floor residences. However, a noise barrier would not be feasible for third-floor residences or for dredging activities that would otherwise be in the direct line of sight of first- and second-floor residences. Therefore, with the above considerations, there would be a residual impact to some of the Bay 37 residential units that would be **significant and unavoidable** related to exceeding the City of Alameda's 50 dBA exterior nighttime standard. As noted above, interior noise levels would be below the City of Alameda's 45 dB CNEL standard.

## *Construction Traffic Noise Impacts*

Debris generated by Proposed Project demolition and construction activities and excavated soils would be exported by on-road haul trucks that would use local roadways to access freeways to transport these materials to disposal sites. Trucks would also be used to deploy and withdraw equipment.

The locations from which construction truck trips would gain ingress and egress from the Proposed Project construction work and staging areas to the local roadway network where they would operate are more than 1,000 feet from the closest area of pile driving and dredging activities. Consequently, aggregate noise increases from a combination of truck operations and construction activity are not expected.

Most of the routes in the City of Oakland to be used by haul trucks to access freeways pass through industrial areas in Oakland where no noise-sensitive receptors are present; however, the truck route on Adeline Street would pass by the existing 5th Street Lofts. Most of the truck routes in Alameda would use roadway segments with adjacent residential uses.

Traffic noise modeling using algorithms of the FHWA Traffic Noise Model was conducted for baseline conditions and baseline plus peak haul truck traffic, as determined by the transportation analysis, with results summarized in **Table 3.12-15**. The significance of traffic noise levels in Oakland is determined by comparing the increase in noise levels (traffic contribution only) to increments recognized by the City's significance criteria of an increase in noise levels of 5 dBA or more. **Table 3.12-15** indicates that the addition of peak haul truck volumes on Adeline Street would generate a roadside noise-level increase of less than 5 dBA and would be less than significant.

Traffic noise-level significance for roadways in Alameda is determined by comparing the increase in noise levels (traffic contribution only) to increments recognized by the City of Alameda in its General Plan Policy HS-60, which considers impacts to be "significant" if the project causes an increase in the noise exposure of 4 or more dBA and the resulting noise level would exceed that described as normally acceptable for the affected land use, as indicated in **Table 3.12-11**; or otherwise result in any increase in $L_{dn}$ of 6 dBA or more.

The proposed truck routes through Alameda would use two roadway segments that have multi-family residential uses where the normally acceptable noise level is 65 dBA, and eight roadway segments that have single-family residential uses where the normally acceptable noise level is 60 dBA. As shown in **Table 3.12-15**, the addition of peak haul truck volumes on Main Street would generate a noise level in excess of 4 dBA where the resultant noise level would exceed 60 dBA in the presence of single-family residential uses along a single roadway (Main Street between Willie Stargell Avenue and Ralph Appezzato Memorial Parkway); this would be considered a **potentially significant impact**. Noise increase along all other Alameda roadways from Proposed Project peak truck traffic would be **less than significant**.

Available mitigation measures to address the increased roadway noise along Main Street primarily consist of limiting the number of hourly truck trips generated. Because the modeling analysis used the maximum daily truck trips estimated for the transportation analysis, noise increases are conservative, because there would likely be fewer average daily truck trips.

### Level of Significance before Mitigation

*Potentially Significant Impact.*

### Mitigation Measure

#### MM NOI-1C: Truck Operation Restriction in Alameda

The Port shall require contractors, as a condition of contract, to monitor and limit truck trip generation so that no more than 23 truck trips per hour[86] (approximately one truck every 3 minutes) enter or egress the Alameda Site work area as part of the Project Traffic Control Plan.

### Level of Significance after Mitigation

*Less than Significant with Mitigation.*

[86] According to the algorithms of the FHWA Traffic Noise Model, 23 trucks per hour would result in a noise increase of less than 4 dBA on Main Street between Willie Stargell Avenue and Ralph Appezzato Memorial Parkway.

**Table 3.12-15 Roadway Noise Levels with Project Truck Traffic for Roadways with Sensitive Receptors in the Vicinity of the Project**

| Roadway Segment[1,2] | Existing (dBA, $L_{eq}$)[3] | Applicable Significance Threshold | Existing Plus Project (dBA, $L_{eq}$)[4] | Difference between Existing plus Project and Existing (dBA) | Significant Roadway Noise Increase?[5] |
|---|---|---|---|---|---|
| Adeline Street from 3rd Street to 5th Street, Oakland | 68.2 | 5 dBA or greater increase | 70.4 | 2.2 | No |
| Main Street from Southern IHTB to Willie Stargell Avenue, Alameda | 59.2 | 6 dBA or greater increase (multi-family residential uses with resultant noise level < 65 dBA) | 63.5 | 4.3 | No |
| Main Street from Willie Stargell Avenue to Ralph Appezzato Memorial Parkway, Alameda | 57.9 | 4 dBA or greater increase (single-family residential uses with resultant noise level > 60 dBA) | 63.0 | 5.1 | **Yes** |
| Ralph Appezzato Memorial Parkway from Main Street to Webster Street, Alameda | 67.7 | 4 dBA or greater increase (single-family residential uses with resultant noise level > 60 dBA) | 70.1 | 2.4 | No |
| Webster Street from Ralph Appezzato Memorial Parkway to Willie Stargell Avenue, Alameda | 69.5 | 4 dBA or greater increase (multi-family residential uses with resultant noise level > 65 dBA) | 70.6 | 1.1 | No |
| Atlantic Avenue from Webster Street to Sherman Street, Alameda | 60.3 | 4 dBA or greater increase (single-family residential uses with resultant noise level > 60 dBA) | 62.6 | 2.3 | No |
| Sherman Street from Atlantic Avenue to Buena Vista Avenue, Alameda | 64.8 | 4 dBA or greater increase (single-family residential uses with resultant noise level > 60 dBA) | 66.3 | 1.5 | No |
| Buena Vista Avenue from Sherman Street to Grand Street, Alameda | 64.5 | 4 dBA or greater increase (single-family residential uses with resultant noise level > 60 dBA) | 66.0 | 1.5 | No |
| Grand Street from Buena Vista Avenue to Clement Avenue, Alameda | 60.3 | 4 dBA or greater increase (single-family residential uses with resultant noise level > 60 dBA) | 64.1 | 3.8 | No |
| Clement Avenue from Grand Street to Park Street, Alameda | 60.8 | 4 dBA or greater increase (single-family residential uses with resultant noise level > 60 dBA) | 63.8 | 3.0 | No |

Notes:

1 Road center to receptor distance is 15 meters (approximately 50 feet) for all roadway segments except for Main Street where residences are set back approximately 150 feet from the roadway center and Atlantic Avenue where residences are set back approximately 80 feet from the roadway center. Noise levels were determined using the algorithms of the Federal Highway Administration Traffic Noise Prediction Model.

2 Traffic speeds for all vehicle classes were set at 25 miles per hour (mph) for all Alameda roadways east of Webster Street, 30 mph for Adeline Avenue in Oakland, and 35 mph for all other roadways.

3 Existing hourly traffic volumes and truck percentages calculated from average daily traffic in **Table 3.12-6** of Section 3.14, Transportation, based on Caltrans data for hourly and daily traffic data for the Webster Tube, except for Adeline Street, which used Caltrans data for I-880 and Adeline Street.

4 Existing plus project volumes calculated by adding hourly heavy-duty truck trips distributed over a 12-hour workday and worker auto trips distributed to the morning peak hour (half of all worker trips.

5 A significant increase is identified when the difference between the existing plus project condition and the existing condition meets or exceeds the applicable significance threshold.

Mitigation Measure NOI-1C would limit the number of hourly truck trips generated so that the localized roadway noise increase along Main Street would be less than 4 dBA. Implementation of Mitigation Measure NOI-1C would reduce the Proposed Project's construction noise impact by limiting truck operations sufficiently to comply with City of Alameda General Plan Policy HS-60. Therefore, the residual impact would be **less than significant**.

### Operations

Operational noise impacts of the Proposed Project would primarily be the result of the widening and shifting of the perimeter of the turning basins in cases where the distance of the turning basin to noise-sensitive receptors would be reduced.

The noise generated by the turning activity at a specified distance would reasonably be expected to be similar to those monitored and presented in **Table 3.12-2** for Monitoring Location ST-1. However, a particular metric presented in **Table 3.12-12** is the peak 1-minute average noise level, which was a brief occurrence over the duration of the overall vessel turn. The average noise level monitored during the entirety of the approximately 25-minute vessel turning event was 66.5 dBA, measured from the edge of the IHTB at Howard Terminal when the distance from the vessel varied from 68 to 200 meters (approximately 225 to 650 feet). Because this metric captures the noise generated by the entirety of a turning event, it is used to estimate the change in noise level that might be experienced by the nearest receptors as a result of the widening and lateral shift of the IHTB at a conservatively assumed distance of 68 meters (225 feet). Operations in the IHTB can occur during both daytime and nighttime hours; and as a conservative analysis, the assessment of increased noise focuses on the more sensitive nighttime hours.

For receptors in Oakland, the analysis of potential increases in maritime vessel noise in the IHTB applies criteria adopted by the City for analysis of transportation noise under CEQA. Specifically, a significant impact related to transportation noise would occur if the Proposed Project would generate noise resulting in a 5 dBA permanent increase in ambient noise levels in the Proposed Project vicinity above levels existing without the Proposed Project. As indicated in **Table 3.12-4**, the existing Oakland receptors nearest to the widened IHTB would be in the Phoenix Lofts, approximately 1,300 feet from the northernmost extent of the enlarged IHTB. At this distance, noise from vessel operations in the basin would be attenuated by distance to 51 dBA. Because the existing nighttime noise level at this receptor is 76 dBA, due to rail and truck noise in the immediate vicinity, noise from vessel operations would not increase the existing ambient noise levels at the closest receptor. Other Oakland receptors, such as live-aboards at the Jack London Square Marina, would be farther away and also have high nighttime noise levels that would render the increased noise contributions of vessel activity in the widened basin to a less-than-perceivable increase.

The proposed residential receptors that could be constructed on Howard Terminal would be approximately 200 feet from the expanded IHTB. At this distance, the noise levels during a vessel-turning event would be similar to that recorded on the edge of Howard Terminal, 66.5 dBA. Because these residential uses do not currently exist, the assessment of future impact is analyzed not in terms of an increase in noise levels, but rather in terms of whether the exterior noise exposure would be compatible for these proposed multi-family residential uses. The acceptable exterior noise level exposure for residential uses set forth by the City of Oakland General Plan is presented in **Table 3.12-8**. The regulations consider the range between 60 dBA $L_{dn}$ and 70 dBA $L_{dn}$ to be conditionally unacceptable but may be developed provided appropriate

sound attenuation measures are incorporated. The existing $L_{dn}$, inclusive of a vessel-turn event in the IHTB, was monitored to be 65 $L_{dn}$ at the edge of Howard Terminal (LT-5). The proposed multi-family residential use would be subject to Title 24 of the California Code of Regulations, which establishes noise insulation standards to maintain an interior standard of 45 dB $L_{dn}$ in any habitable room. This code requires an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than 60 dB $L_{dn}$. Title 24 standards are enforced by the City of Oakland through the building permit application process. Therefore, compliance with requirements of the City of Oakland's building permit process would ensure that operational noise exposure to potential residential uses on Howard Terminal would be less than significant.

For receptors in the City of Alameda, the analysis of potential increases in maritime vessel noise in the IHTB applies criteria adopted by the City of Alameda in its General Plan Policy HS-60, which considers impacts to be "significant" if the Proposed Project causes an increase in the $L_{dn}$ noise exposure of 4 or more dBA and if the resulting noise level would exceed that described as normally acceptable for the affected land use, as indicated in **Table 3.12-11**; or otherwise result in any increase in $L_{dn}$ of 6 dBA or more. Monitored noise levels at these receptors indicate that the day-night noise level at these locations are 58 and 60 $L_{dn}$, respectively, which places them in the "normally acceptable" land use exposure category for such uses (refer to **Table 3.12-11**). Therefore, the applicable criterion under the Alameda General Plan is an increase of 6 dBA or more.

As indicated in **Table 3.12-4**, the Alameda receptors nearest to the expanded turning basin would be in the Mosley Avenue residences and planned residential uses of the Landing at Bay 37 development, approximately 600 feet from the southernmost extent of the widened IHTB. At this distance, noise from vessel operations in the IHTB would be attenuated by distance to 58 dBA. The existing nighttime noise level at these receptors is 58 $L_{dn}$. The $L_{dn}$ metric penalizes noise contributions during the more sensitive nighttime hours. To assess the impact of increased noise from vessel operations, it was assumed that, in a given day, two 30-minute turning events could occur during daytime hours, and two events would occur during nighttime hours. Adding the noise contribution from these four daily events results in a noise increase from 58 to 59 $L_{dn}$ at the nearest receptors. Vessel operations from the expanded IHTB would not result in an increase in the $L_{dn}$ noise exposure of 4 or more dBA of the normally acceptable noise level for the affected land use; in addition, it would not otherwise result in any increase in $L_{dn}$ of 6 dBA or more. This resultant noise level would also be below the 60 dBA, $L_{dn}$ federal residential noise exposure standard that the City of Alameda considers to be acceptable.

Widening of the turning basins would also reduce the distance of future maintenance dredging activities for the navigation channel to the Mosley Avenue residences. Currently, the nearest to the maintenance dredging activities occurring at the IHTB are located approximately 700 feet from the Mosley Avenue residences. At this distance, noise from maintenance dredging activities in the IHTB would be attenuated by distance to 56.5 dBA, $L_{eq}$. As noted above, the existing nighttime noise level at these receptors is 58 $L_{dn}$. To assess the current impact of noise from maintenance dredging operations to ambient noise levels, it was assumed that dredging activities using a diesel dredge and a tug would be conducted throughout the day. Adding the noise contribution from maintenance dredging increases the current ambient noise level from 58 to 64 $L_{dn}$ at the nearest Mosley Avenue receptors. Maintenance dredging at the expanded IHTB

would take place 150 feet closer, at a distance of 550 feet from these receptors. The monitored ambient noise levels at the Mosley Avenue residences would be in the "normally acceptable" land use exposure category for such uses (refer to **Table 3.12-11**). Current ambient noise levels with noise from maintenance dredging taken into account would exceed the "normally acceptable" limits for residential uses. Therefore, the applicable criterion under the Alameda General Plan is an increase of 4 dBA or more. The reduction in distance separating the maintenance dredging activities from the receptors due to the widening the IHTB would increase the $L_{dn}$ at the nearest receptors by 2 dBA to 66 $L_{dn}$, which would not exceed the 4 dBA criterion. In addition, as noted in Section 3.12.1, it is widely accepted that the average healthy ear can barely perceive changes in the noise level of 3 dBA, which this increase would be less than. Therefore, the Proposed Project is expected to have a less-than-significant operational noise impact on receptors in Alameda. Operational noise impacts for receptors in both Oakland and Alameda are expected to be **less than significant**.

## *Outer Harbor Turning Basin Widening*

### Construction Noise

Construction activities for widening the OHTB would only require dredging and minor landside construction for installation for electrical infrastructure at Berth 26; no pile-driving activity is proposed. The nearest noise-sensitive land use to the OHTB would be single-family residences on Pine Street, approximately 5,000 feet to the east. At this distance, noise from these construction activities would be attenuated by distance to approximately 40 dBA, and would be further attenuated by intervening structures, and masked by existing noise from the I-880 freeway. Consequently, construction noise from widening the OHTB would not be perceptible at these closest residences during daytime or nighttime hours. The Middle Harbor Shoreline Park is approximately 2,000 feet from the OHTB and is not open to the public during nighttime hours. Monitored daytime noise levels at this park were recorded to be 59 dBA. Noise from dredging activity at the Middle Harbor Shoreline Park would be approximately 46 dBA, and would not impact park users if they were considered to be a noise-sensitive use. Truck routes for accessing Berths 26 and Berth 10 (where construction staging would occur) would use roadways that do not pass noise-sensitive receptors. Therefore, construction noise from widening the OHTB would be negligible and **less than significant**.

### Operations

The noise-sensitive land use nearest to the OHTB would be single-family residences on Pine Street, approximately 5,000 feet to the east. At this distance, noise generated by vessels in the widened OHTB of 58 dBA at 225 feet would be attenuated to 40 dBA and would be further attenuated by intervening structures and the I-880 freeway. Consequently, noise from vessel operations in the widened OHTB would not be perceptible at these closest residences during either daytime or nighttime hours, and there would be **no impact**.

## *Impact NOI-2. Would the Proposed Project generate excessive groundborne vibration or groundborne noise levels? (Criterion B) (Less than Significant)*

### Impact Analysis

Construction activities to widen the IHTB would include landside pile driving at Howard Terminal and the Alameda Site, which would have the potential to generate groundborne vibration. The only landside construction in the Outer Harbor, electrical infrastructure installation at Berth 26, would involve a minor amount of ground disturbance that could also generate vibration, but less than that from pile driving. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to structural damage at the highest levels. Site ground vibrations from construction activities rarely reach the levels that can damage structures, but they may be perceived in buildings within 100 feet, depending on the equipment or activity.

As shown in **Table 3.12-16**, vibration impact criteria for structural damage depend on the type of structure potentially impacted. The vibration building damage thresholds for nonhistoric structures is 0.5 PPV. The building damage threshold for historic buildings is 0.25 PPV. With regard to potential damage to nearby structures due to groundborne vibration, the various PPV levels for the types of construction equipment that would operate during construction of the Proposed Project are identified in **Table 3.12-16**, as are the resultant vibration levels for the closest structures.

As shown in **Table 3.12-16**, vibration from construction equipment would be below the applicable criteria for building damage. Because groundborne vibration generated from pile driving and other activities associated with construction is predicted to be below the 0.5 PPV threshold, which most of the nearby buildings are considered, and the 0.25 PPV threshold, which applies to the historic PG&E Station C building, construction-related vibration would not result in potential groundborne vibration impacts related to building damage. Therefore, the Proposed Project's impact with respect to generation of excessive groundborne vibration levels would be **less than significant,** and no control measures are warranted.

**Table 3.12-16 Vibration Levels from Construction Equipment**

| Nearest Building/Receptor | Vibration-Inducing Equipment | Reference Vibration Level (PPV)[1] | Distance to Nearest Receptor (feet)[2] | Adjusted Vibration at Building (PPV)[3] | Exceed 0.5 PPV Standard or 0.25 PPV for Historic Building? |
|---|---|---|---|---|---|
| 2900 Main Street Building 140D, Alameda | Impact Pile Driver | 0.65 | 100 | 0.08 | No |
| | Loaded Trucks | 0.076 | 100 | 0.01 | No |
| Schnitzer/Radius Recycling, Oakland | Impact Pile Driver | 0.65 | 700 | 0.004 | No |
| | Loaded Trucks | 0.076 | 700 | 0.0005 | No |
| Proposed Ballpark at Howard Terminal, Oakland | Impact Pile Driver | 0.65 | 100 | 0.08 | No |
| | Loaded Trucks | 0.076 | 100 | 0.01 | No |
| PG&E Station C building at Howard Terminal, Oakland | Impact Pile Driver[4] | 0.65 | 600 | 0.004 | No |
| | Loaded Trucks | 0.076 | 600 | 0.0005 | No |
| TraPac Administration Building, Outer Harbor Terminal, Oakland | Impact Pile Driver[4] | 0.65 | 660 | 0.004 | No |
| | Loaded Trucks | 0.076 | 660 | 0.0005 | No |

Notes:

[1] PPV at 25 feet.

[2] Distance between approximate location of equipment and structure. Propagation estimates assume a site-specific vibration attenuation rate ("n") of 1.5, based on FTA guidance.

[3] The PPV level is adjusted for distance.

[4] An impact pile driver was conservatively used as representative of construction equipment that would be used for installing the electrical infrastructure at Berth 26 and Howard Terminal.

FTA = Federal Transit Administration
PPV = peak particle velocity

Source: U.S. DOT and FTA 2018; Caltrans 2020

# 3.13. RECREATION

Recreational resources are those features in a setting that provide for recreational activities and experiences. Most commonly, recreational resources include natural features (e.g., beaches and river rapids) and developed facilities (e.g., parks, trails, piers, and boat ramps). This section identifies the existing recreational resources in the Proposed Project vicinity and evaluates potential impacts related to recreation that could result directly or indirectly from implementation of the Proposed Project.

## 3.13.1. Environmental Setting

This analysis considers recreational resources within close proximity (approximately 0.75 mile) of either the IHTB or OHTB that could be directly or indirectly affected by the Proposed Project's implementation. These resources include public parks and open spaces; pedestrian and bicycle trails; playfields; fishing and observational piers; and water-oriented recreational activities, including fishing, boating, and two historic ship museums that are occasionally open for public viewing. On-street bicycle routes (aside from segments designated as part of the Bay Trail) are considered transportation facilities and therefore are not considered recreational facilities for the purposes of this analysis.

Recreational activities in the project area consist of boating and fishing (outside the federal deep-draft commercial waterway) in the Outer and Inner Harbors, walking and bicycling along portions of the Bay Trail, bird/wildlife viewing, and a variety of activities at several existing and planned landside public parks in Oakland and Alameda. These activities and recreational facilities are described in further detail below. The names and locations of recreational resources considered in this analysis are shown in Figures 3.2-1 and 3.2-2 in Section 3.2, Aesthetics.

### *Boating and Fishing*

Recreational boating for privately owned pleasure craft is available throughout the IHTB and OHTB. The San Francisco Bay Water Trail was created to promote recreational nonmotorized boating access throughout the Bay, including within the Oakland Harbor waterways. Approximately 0.5 mile east of the IHTB, there are numerous private marinas with boat docks on both sides of the Inner Harbor, particularly the Jack London Square area in Oakland and the Mariner Square Drive area in Alameda. Recreational boating and sightseeing are also available in the form of ferry trips through the Inner Harbor and across the Bay from the San Francisco Bay Ferry terminals at the Oakland Terminal and the Alameda Main Street Terminal. Nonmotorized recreational boating use in the area includes sailboats and human-powered watercraft such as kayaks and paddleboards, and team or individual rowing boats (e.g., shells and dragon boats). In addition, businesses at Jack London Square and Brooklyn Basin offer sailing and kayak rentals, classes, and tours.

The USS Potomac, former President Roosevelt's presidential yacht, is moored in the Inner Harbor at Jack London Square, approximately 0.3 mile northeast of the IHTB. The ship is occasionally open to the public for tours and cruises in the Bay. The Lightship Relief, which served as a lightship station to aid maritime navigation along the coast of Delaware and in California off Cape Mendocino, is moored in the Inner Harbor at Jack London Square next to the USS Potomac. The ship is open to the public for tours on weekends.

Recreational fishing is available throughout the Inner Harbor and the Outer Harbor waterways from private boats via trolling, though boats may not stop or anchor in the federal navigation channel or turning basins to fish. Landside recreational fishing is available from the pier in the Judge John Sutter Shoreline Park (Gateway Park); from Point Arnold, the Western Pacific Mole, and the fishing pier in the Middle Harbor Park Complex (Middle Harbor); and from the area around the Main Street Dog Park and near the Alameda Ferry Terminal (Inner Harbor). Fish species commonly reported by recreational fishermen in the area include jacksmelt, perch, rays, small sharks, rockfish, halibut, and striped bass (among others).

### *San Francisco Bay Trail*

The San Francisco Bay Trail Project is a nonprofit organization administered by the ABAG that plans, promotes, and advocates for the implementation of the Bay Trail. The San Francisco Bay Trail, when fully constructed, will consist of a 500-mile-long walking and cycling path around the entire San Francisco Bay, running through all nine Bay Area counties, 47 cities, and across the region's seven toll bridges. More than 350 miles of the trail have been constructed. The Bay Trail provides both recreational and scenic viewing opportunities in a variety of different landscapes, including waterfront/marine, cityscapes, and mountain backdrops (ABAG and MTC 2023).

In the City of Oakland, portions of the Bay Trail have been constructed across the eastern span of San Francisco-Oakland Bay Bridge, in Judge John Sutter Regional Shoreline Park (Gateway Park), along Burma Road and Maritime Street, along 7th Street connecting to Middle Harbor Shoreline Park, and in the Middle Harbor Shoreline Park complex. In the City of Alameda, a portion of the Bay Trail has been constructed along the Main Street Dog Park to the Main Street Alameda Ferry Terminal, immediately adjacent to the Inner Harbor Channel, and from the Alameda Ferry Terminal to the western end of the Bay Ship and Yacht Company. The Bay Trail provides walking and bicycling opportunities, as well as scenic viewing and birdwatching.

### *San Francisco Bay Water Trail*

The Water Trail program is administered by the State Coastal Conservancy, ABAG, Metropolitan Transportation Commission, BCDC, and California State Parks Division of Boating and Waterways. The San Francisco Bay Area Water Trail is not a linear trail, but rather a network of boat launching and landing sites that provides access to more than 500 square miles of navigable waters on San Francisco Bay and its major tributaries, including the San Joaquin, Napa, and Petaluma Rivers (State Coastal Conservancy 2023). The Water Trail provides both recreational and scenic viewing opportunities in a variety of different landscapes, including estuarine habitat, waterfront/marine, cityscapes, and mountain backdrops. The nearest nonmotorized boat launch ramp in the Proposed Project vicinity that is part of the Bay Water Trail is east of the IHTB, at Jack London Square.

### *Landside Public Parks*

There are several public parks in Oakland and Alameda, in the vicinity of the Proposed Project, that are either fully constructed and operational, or planned and approved. **Table 3.13-1** describes the size, recreational amenities provided, and distance of the landside public parks from the Proposed Project sites. In addition to the activities afforded by the amenities listed in **Table 3.13-1**, several of these parks provide for bird/wildlife viewing opportunities.

**Table 3.13-1 Public Parks in the Proposed Project Area**

| Resource Name | Amenities | Size | Approximate Distance from Project Sites | Nearest Project Feature |
|---|---|---|---|---|
| **Oakland Parks** | | | | |
| Judge John Sutter Regional Shoreline Park (Gateway Park) | Observation and fishing pier, bridge yard building and observation deck (available for special events), walking path, restrooms, and day use parking for the Alexander Zuckerman Bay Bridge Trail | 22.5 acres | 0.35 mile | OHTB and Berth 10 Staging Area |
| Middle Harbor Shoreline Park Complex (Port View Park, Point Arnold, Western Pacific Mole) | Surrounds the Middle Harbor Basin; includes pedestrian/bicycle paths, open space, beach, fishing pier, amphitheater, Chappell Hayes observation tower, historical exhibits, benches, viewing telescopes, restrooms and water fountains, picnic tables, children's play structure, and parking | 45 acres | 0.25 to 0.75 mile | OHTB |
| **Alameda Parks** | | | | |
| Alameda Point Fields | Soccer fields | 6.5 acres | 0.75 mile | IHTB |
| City View Skate Park | Skate park, picnic tables, water fountains, and parking | 1.5 acres | 0.8 mile | IHTB |
| Alameda Point Multi-Purpose Field | Multi-purpose athletic field and restrooms | 4.6 acres | 0.70 mile | IHTB |
| Open Space at West Mall Square (former Parade Grounds) | Open space with walking paths; Douglas A-4 Skyhawk Display | 7.5 acres | 0.64 mile | IHTB |
| Northwest Territories Regional Shoreline Park (Planned and Approved) | Open space, wildlife preserve, walking and bicycle paths (Bay Trail), viewing and seating areas, restrooms, drinking foundations, and parking | 158 acres | 0.37 mile | IHTB |
| Albert H. DeWitt Officers' Club | Former naval officers' club now available for event rentals | 2.0 acres | 0.37 mile | IHTB |
| Main Street Dog Park | Fenced grass dog park, picnic tables, and parking | 1.5 acres | 0.36 mile | IHTB |

| Resource Name | Amenities | Size | Approximate Distance from Project Sites | Nearest Project Feature |
|---|---|---|---|---|
| **Alameda Parks (Cont'd)** | | | | |
| Alameda Estuary Park | Baseball/softball field, soccer field, wetland area, grassy open space, and walking path (additional amenities are planned) | 8 acres | 60 feet | IHTB and Alameda Site |
| Alameda Landing Waterfront Park (Planned and Approved) | Reuse of existing historic wharf as public park with landscaped promenade, plaza, greenspace, dock, kayak launch, fitness area, children's play area, picnic tables, Bay Trail, and parking | 5.4 acres | 375 feet | IHTB |
| Alameda Landing Park | Walking path, benches, picnic tables, grassy open space, and landscaping | 0.75 acre | 0.32 mile | IHTB |

Source: Data Compiled by AECOM in 2021

Notes:

IHTB = Inner Harbor Turning Basin
OHTB = Outer Harbor Turning Basin

## 3.13.2. Regulatory Setting

### *Federal*

#### Coastal Zone Management Act (16 United States Code § 1451 et seq.)

The Coastal Zone Management Act (CZMA) provides for management of the nation's coastal resources. The overall purpose of the act is to balance competing land and water issues in the coastal zone. For San Francisco Bay, the San Francisco Bay Conservation and Development Commission (BCDC) is the regional coastal zone management agency. The Bay Plan is BCDC's policy document specifying goals, objectives, and policies for BCDC jurisdictional areas, and is the primary plan governing development in San Francisco Bay. Federal activities that affect the jurisdiction are subject to review by BCDC, pursuant to the CZMA, for their consistency with BCDC's federally approved coastal management program. USACE, as the federal sponsor for the Proposed Project, must demonstrate that the Proposed Project is consistent, to the maximum extent practicable, with the enforceable policies of the Bay Plan. The Bay Plan is further discussed under the regional regulatory setting below.

### *State*

There are no state plans, policies, regulations, or laws related to recreation that would apply to the Proposed Project.

## *Regional*

### San Francisco Bay Plan

In addition to serving as the regional coastal zone management agency pursuant to the CZMA, BCDC is a state agency with permit authority over the Bay and its shoreline. BCDC issues permits for dredging and development activities within its jurisdiction if it finds the activities to be consistent with the Bay Plan. The Bay Plan includes policies for management of Bay resources designed to promote water-oriented recreation facilities such as marinas, launch ramps, beaches, and fishing piers, in addition to landside parks along the shoreline (BCDC 1969, as amended). Consistency with BCDC plans and policies is discussed in Section 3.11, Land Use.

## *Local*

### City of Oakland General Plan

The City of Oakland General Plan's Open Space, Conservation, and Recreation Element contains goals and policies that are intended to provide for parklands, reduce potential land use conflicts, maintain such parklands, and provide park-related programs. In addition, land uses along the shoreline should promote the beneficial uses of the estuary and bay waters, including a balanced mix of commercial shipping facilities; water-dependent industry, commerce, and transportation; recreation; water-oriented services and housing; and resource conservation (City of Oakland 1996). Policies relevant to the Proposed Project include the following:

- Policy OS2.1: Protection of Park Open Space. Manage Oakland's urban parks to protect and enhance their open space character while accommodating a wide range of outdoor recreational activities.
- Policy OS6.1: Intergovernmental Coordination. Coordinate Oakland's open space planning with other agencies, including adjacent cities and counties, the Port of Oakland, and the East Bay Regional Park District.
- Policy OS7.1: Promotion of Beneficial Waterfront Uses. Require land uses along the shoreline that promote the beneficial uses of the Estuary and Bay waters, including a balanced mix of commercial shipping facilities; water-dependent industry, commerce and transportation; recreation; water-oriented services and housing; and resource conservation.
- Policy OS-7.2: Dedication of Shoreline Public Access. Support the BCDC requirements which mandate that all new shoreline development designate the water's edge as publicly accessible open space where safety and security are not compromised, and where access can be achieved without interfering with waterfront industrial and maritime uses. Where such conflicts or hazards would result, support the provision of offsite access improvements in lieu of onsite improvements. In such cases, the extent of offsite improvements should be related to the scale of the development being proposed.

### City of Alameda General Plan

The City of Alameda General Plan's Open Space, Recreation, and Parks Element contains goals and policies to preserve and enhance Alameda's waterfronts as important destinations by maximizing waterfront physical access from adjoining neighborhoods and streets, considering land uses that complement the waterfront setting.

This General Plan element also contains goals and policies that promote the creation and maintenance of an interconnected system of parks, open space, commercial, recreation, and trails that frames and complements the City's waterfronts, neighborhoods, and commercial areas (City of Alameda 2022). Policies relevant to the Proposed Project include the following:

- Policy OS7: An Interconnecting Network. Promote the creation of and maintenance of a comprehensive, seamless, interconnected system of parks, open space, commercial recreation, trails, and urban forest that frames and complements the City's waterfronts, neighborhoods, and commercial areas.
- Policy OS9: San Francisco Bay Trail. Support the completion of a continuous shoreline Bay Trail along the entire perimeter of the City of Alameda.
- Policy OS-14: [Alameda] Estuary Park. Support the completion of the 8-acre Estuary Park to provide recreational facilities for the neighborhoods on the former Naval Air Station property in western Alameda to include passive recreational space, picnic areas, and basketball courts.

## 3.13.3. Significance Criteria

Based on Appendix G of the CEQA Guidelines, the following questions (criteria) were analyzed and evaluated to determine whether impacts related to recreation are significant. Would the Proposed Project:

A. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

B. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

## 3.13.4. Impact Analysis and Mitigation Measures

***Impact REC-1. Would the Proposed Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? (Criterion A) (Less than Significant)***

### Impact Analysis

Throughout construction, localized portions of the Inner and Outer Harbor channels and turning basins may be restricted to boating access due to the presence of water-based construction equipment during in-water construction activities that include bulkhead installation and removal, in-water pile driving and removal, dredging, rock removal, and rock placement. Water-based construction equipment that would occupy portions of the Inner and Outer Harbor channels and turning basins include work barges and support tugs. However, the presence of in-water construction equipment is not expected to substantially affect recreational boating in Oakland Harbor. The turning basins and channels are wide enough that recreational boaters and San Francisco Bay passenger ferries would have room to traverse the turning basin. The Inner and

Outer Harbor Channels are 800 feet and 900 feet wide, respectively, and the Inner and Outer Harbor Turning Basins are 1,500 feet and 1,650 feet in diameter, respectively. Even if construction activity were to occupy 200 feet of the waterway, a minimum of 600 feet would be available for other vessels to pass, depending on the specific work location. This is because during widening of the IHTB, in-water equipment would be located on the perimeter of the turning basin and not in the middle of the existing navigation channel, which would minimize interference with other motorized and non-motorized vessels. Further, in-water work for Howard Terminal and the in-water bulkhead near the Schnitzer/Radius Recycling Terminal would be conducted during a different construction year than in-water work for the Alameda Site; therefore, equipment for these construction activities would not be operating on the northern and southern sides of the IHTB concurrently. In the OHTB, dredging would occur outside the limits of the existing navigation and channel and away from the Outer Harbor Terminal berths, and therefore would not be expected to interfere with vessel use of the Outer Harbor Channel and OHTB. Lastly, under existing conditions, container passenger ferries and recreational vessels are able to maneuver around dredging equipment operating in the Inner and Outer Harbor waterways during annual maintenance dredging and therefore would be expected to do so during Proposed Project construction and future maintenance dredging of the widened portions of the turning basins.

Noise, dust, and visual changes may temporarily discourage the use of recreational facilities in the area, such as the City of Alameda's Estuary Park and Main Street Dog Park, and the Bay Trail. Existing users of these recreational areas/facilities may opt to use alternative facilities in the vicinity during construction. Although a minor increase in use of other nearby facilities may occur, the increased use is unlikely to result in substantial physical deterioration of the facilities and would only occur temporarily during the construction period. After construction completion, the Proposed Project would not result in new users of recreational facilities and would place no new demand on facilities that would lead to substantial physical deterioration. Therefore, the impact would be **less than significant.**

## *Impact REC-2. Would the Proposed Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? (Criterion B) (No Impact)*

### Impact Analysis

The Proposed Project would not include any recreational facilities that could have a physical effect on the environment. As described above, construction of the Proposed Project may result in a minor increase in use of recreational facilities outside of the Proposed Project area, as existing users may temporarily seek other facilities to avoid potential noise, dust, and visual effects from construction. However, this potential minor increase would only be temporary and would not place a new demand that would require construction or expansion of recreational facilities. Therefore, no adverse physical effects on the environment would occur from construction or expansion of recreational facilities, and the Proposed Project would have **no impact.**

# 3.14. TRANSPORTATION

This section describes existing transportation facilities and conditions in the vicinity of the Proposed Project, including both land- and water-based transportation; discusses regulations, policies, and plans pertinent to transportation and circulation that are applicable to the Proposed Project; assesses the transportation and circulation impacts of implementing the Proposed Project; and provides, where appropriate, mitigation measures to address those impacts.

## 3.14.1. Environmental Setting

The land-based transportation network includes roadways, transit service, bicycle facilities, pedestrian facilities, freight rail facilities, and emergency access. The analysis area for land-based transportation facilities varies by mode and is described for each category below. For example, for transit and pedestrian facilities, the analysis area is generally limited to facilities within reasonable walking distance of the Proposed Project Sites. For roadways, the analysis area includes the local roadways that would be used to access the Proposed Project sites from regional roadways, including highways. For emergency access, the nearest emergency service providers to the Oakland and Alameda Proposed Project sites are identified.

Water-based transportation uses and facilities include commercial cargo transport, passenger ferries, United States Coast Guard (USCG) facilities, and marinas. The analysis area for water-based transportation consists of the Inner and Outer Harbor Channels at the Seaport.

### *Roadways*

#### Regional Roadways

Primary regional access to the Proposed Project sites is provided by Interstate 880 (I-880), an auxiliary Interstate Highway[87] connecting Interstate 80 (the San Francisco-Oakland Bay Bridge) and Interstate 580 in Oakland (near the Emeryville border north of the Seaport) as well as I-980 (in downtown Oakland near the southeastern end of the Seaport). I-80 is a major east–west transcontinental highway that terminates on the West Coast in San Francisco. I-880 has a generally has north-south orientation along the Seaport, then curves more east-west before generally following a northwest-southeast orientation through the remainder of Oakland and cities further south. I-880 provides the primary freeway access for the Port's maritime facilities, including the container terminals and intermodal yards, and generally separates the industrial and residential areas of West Oakland. I-980 also provides direct access to the southeastern end of the Seaport near the IHTB. I-980 is a short, approximately 2-mile auxiliary Interstate Highway that follows a primarily north-south orientation and connects I-580 and State Route 24 (SR 24) on the north to I-880 towards the south between West Oakland and Downtown Oakland. Both I-880 and I-980 typically have three travel lanes in each direction, but some areas have as many as five lanes (e.g., where I-980 joins I-880 near the southeastern end of the Seaport).

[87] Auxiliary Interstate Highways are a supplemental subset of the freeways within the Interstate Highway System of the United States. Auxiliary routes are usually connected to or diverted from a parent highway.

The three major access points for the Seaport are:

- West Grand Avenue at the northern end of the Seaport;
- 7th Street near the middle of the Seaport where I-880 curves from orienting generally north-south to more east-west; and
- Adeline Street at the southeastern end of the Seaport.

On- and off-ramps in the analysis area are provided at the following locations:

- West Grand Avenue/Frontage Road (I-880 northbound on-ramp and southbound off-ramp)
- 7th Street/Frontage Road (I-880 northbound off-ramp and southbound on-ramp)
- 5th Street/Union Street (I-880 northbound on-ramp and southbound off-ramp)
- 5th Street/Adeline Street (I-880 southbound on-ramp) and 6th Street/Market Street (I-880 northbound off-ramp)
- 5th Street/Broadway (I-880 southbound on-ramp) and 6th Street/Broadway (I-880 northbound off-ramp)
- 5th Street/Jackson Street (I-880 southbound off-ramp) and 6th Street/Jackson Street (I-880 northbound on-ramp)
- 5th Street/Oak Street (I-880 southbound on-ramp) and 6th Street/Oak Street (I-880 northbound off-ramp)
- 11th Street/Brush Street (I-980 southbound on-ramp) and 11th Street/Castro Street (I-980 northbound off-ramp)
- 12th Street/Brush Street (I-980 southbound off-ramp) and 12th Street/Castro Street (I-980 northbound on-ramp)

## Local Roadways

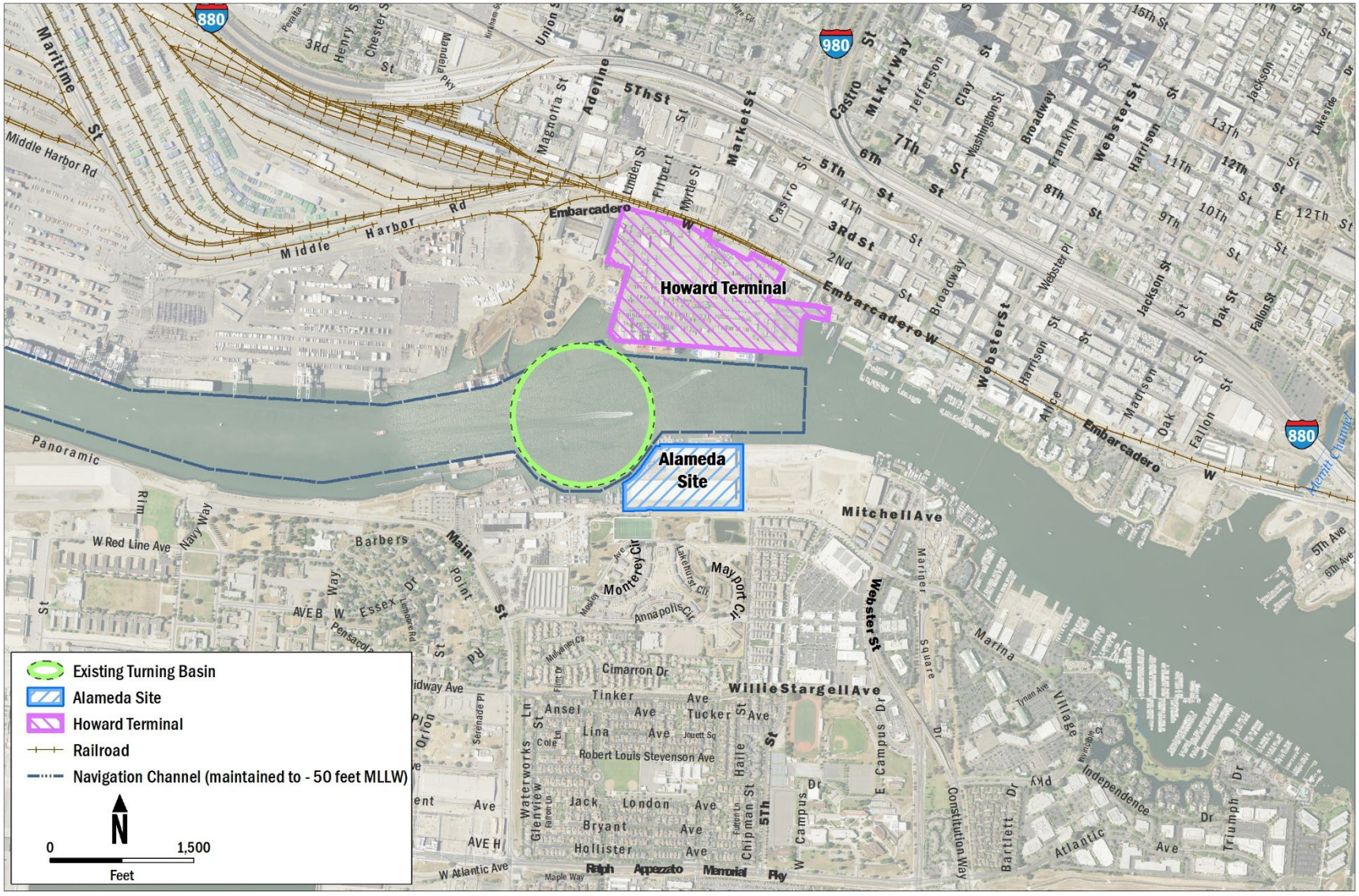
Local roadway access to the proposed construction and staging areas at Howard Terminal, the Alameda Site, and in the Outer Harbor is briefly described below. Roadway classifications are as defined by the relevant local jurisdiction (City of Oakland 2021a; City of Alameda 2020). Local streets that would likely be used as truck routes are identified in the "Truck Routes" section immediately following this section.

### *Howard Terminal/Oakland Side of IHTB*

Local roadway access for Howard Terminal and the Oakland (i.e., northern) side of the IHTB is generally provided by the following streets (**Figure 3.14-1**):

- **Adeline Street** is generally oriented north-south and connects South Berkeley (where it diverges from Shattuck Avenue near Ward Street) with West Oakland (where it continues south into the Seaport before turning into Middle Harbor Road. In the analysis area, Adeline Street is classified as a Principal Arterial and accommodates two travel lanes in each direction. In urban centers, Principal Arterials are corridors with the highest traffic volume and those with the longest trip lengths.

**Figure 3.14-1 Existing Inner Harbor Turning Basin Transportation and Navigation Facilities**



- **Market Street** is generally oriented north-south and connects North Oakland (where it diverges from Sacramento Street near Alcatraz Avenue) with West Oakland (where it terminates at the main access for Howard Terminal at Embarcadero West). In the analysis area, Market Street north of 3rd Street is classified as a Minor Arterial (roads that service crosstown traffic from several neighborhoods) and south of 3rd Street as a Local Street (a road that primarily provides direct access to abutting land and access to Collectors [defined below] and Arterials). It generally accommodates two travel lanes in each direction, although the Local Street portion between 3rd Street and Embarcadero West through the at-grade crossing with the Union Pacific Railroad (UPRR) Niles Subdivision is striped with three travel lanes in the southbound direction and one travel lane in the northbound direction. Market Street serves as the main entrance to Howard Terminal.
- **Martin Luther King Jr. Way** is generally oriented north-south and connects Uptown Oakland at San Pablo Avenue with Howard Terminal. It serves as an entrance to eastern side of Howard Terminal. In the analysis area, Martin Luther King Jr. Way is classified as a Minor Arterial north of Embarcadero West and as a Local Street south of Embarcadero West. It accommodates two travel lanes in each direction.
- **Embarcadero West** is generally oriented east-west and begins from the Schnitzer/Radius Recycling facility (immediately west of Howard Terminal) east to Oak Street, where it continues across the Lake Merritt Channel into the Brooklyn Basin and East Peralta neighborhoods as Embarcadero. In the analysis area, Embarcadero West is classified as a Local Street west of Martin Luther King Jr. Way, and as a Collector (a road that collects and distributes traffic from the arterial system) east of Martin Luther King Jr. Way. It functions as a frontage road for properties on either side of the UPRR Niles Subdivision through the Jack London Square area, and generally accommodates one travel lane in each direction. From the Schnitzer/Radius Recycling facility east to Martin Luther King Jr. Way, both travel lanes are provided along the southern side of the railroad tracks; east of Martin Luther King Jr. Way, only an eastbound lane continues. There is no westbound travel lane between Martin Luther King Jr. Way and Jefferson Street. From Jefferson Street one block east to Clay Street, the westbound travel lane is along the northern side of the tracks, and the eastbound travel lane is along the southern side of the railroad tracks. East of Clay Street, the railroad tracks are at-grade, with both the westbound and eastbound travel lanes through the Jack London Square area east to Webster Street, where Embarcadero West again shifts to along the southern side of the railroad tracks, and where it is again not at-grade with the railroad tracks.
- **3rd Street** is generally oriented east-west and connects West Oakland (where it begins as a continuation of Mandela Parkway at the Adeline Street intersection) and the Jack London Square area (where it terminates at Oak Street). In the analysis area, 3rd Street is classified as a Local Street from Mandela Parkway east to Magnolia Street, as a Collector from Magnolia Street east to Market Street, and as a Minor Arterial east of Market Street. It generally accommodates one travel lane in each direction and includes a Class II bikeway (on-street bicycle lane) in each direction west of Brush Street. In addition, 3rd Street serves as part of a permitted heavy container transportation program.
- **5th Street** is generally oriented east-west and connects West Oakland (where it begins at Peralta Street) and the Jack London Square area (where it terminates in a dead-end just east of Franklin Street near the northern portal of the Webster Tube). In the analysis area, 5th Street is classified as a Local Street west of Market Street, as a Minor Arterial between Market Street and Broadway, and as a Local Street east of Broadway. West of

Market Street, 5th Street generally accommodates two travel lanes in each direction; east of Market Street, it becomes an eastbound-only roadway, generally with three travel lanes. The portion between Adeline Street and Market Street is designed as two travel lanes on the northern side, separated from a one-lane "frontage road" on the southern side by structural supports for the BART aerial guideway.

- **6th Street** is generally oriented east-west and extends as a one-way roadway from Fallon Street (near Laney College) to Adeline Street (in West Oakland), where it merges into 5th Street. Because of the presence of adjacent I-880 on- and off-ramps, through-traffic along 6th Street is totally or partially restricted at several locations, such as the portions approaching Oak Street (a forced right turn onto Oak Street) and Broadway (concrete barriers prevent all access to 6th Street downstream of the intersection). In the analysis area, 6th Street is classified as a Local Street west of Brush Street and as a Major Collector between Brush Street and Broadway. East of Broadway, 6th Street includes surface portions classified as a Local Street (primarily providing local access), and an elevated portion that provides access to and from northbound I-880. The cross-section of 6th Street varies considerably over the course of its length (depending on the street classification and the presence of adjacent on- and off-ramp connectors for I-880), but generally consists of one to three travel lanes.

### *Alameda Site/Alameda Side of IHTB*

Local roadway access for the Alameda Site and Alameda (i.e., southern) side of the IHTB includes the following roadways (**Figure 3.14-1**):

- **Webster and Posey Tubes** are separate (i.e., one-way) underwater tunnels connecting Alameda with Oakland. The Webster Tube runs in the southbound direction, with entrances from the 5th Street/Broadway and 7th Street/Webster Street intersections in Oakland and exits to the Webster Street/Willie Stargell Avenue and Constitution Way/ Marina Village Parkway intersections in Alameda. The Posey Tube runs in the northbound direction, with entrances from the Webster Street/Willie Stargell Avenue and Constitution Way/Mariner Square Drive intersections in Alameda, and an exit to the 7th Street/Harrison Street intersection in Oakland. Each tube accommodates two lanes. Currently, the Webster and Posey Tubes are temporarily closed to vehicles with three or more axles for maintenance work, reopening to these vehicles by approximately 2026 (Caltrans 2021a). There is no pedestrian or bicycle access in the Webster Tube. It is possible to walk or bike through the Posey Tube via a narrow strip hugging the eastern side of the tube; however, it is not wide enough for two cyclists to cross without dismounting, and there are signs instructing cyclists to walk their bikes.
- **Willie Stargell Avenue** is oriented east-west and connects Webster Street with Main Street, where it continues west into Alameda Point as West Midway Avenue. Stargell Avenue is classified as an Island Arterial (a route that connects local streets with regional roadways). Stargell Avenue generally accommodates two lanes in each direction east of 5th Street, and one lane in each direction west of 5th Street. A Class II bikeway (on-street bicycle lane) is also provided in each direction east of 5th Street, transitioning to Class III bikeways (shared lanes with sharrow markings[88]) west of 5th Street. Vehicles exceeding 3 tons are prohibited.

[88] Road markings used to indicate a shared lane environment for bicycles and automobiles.

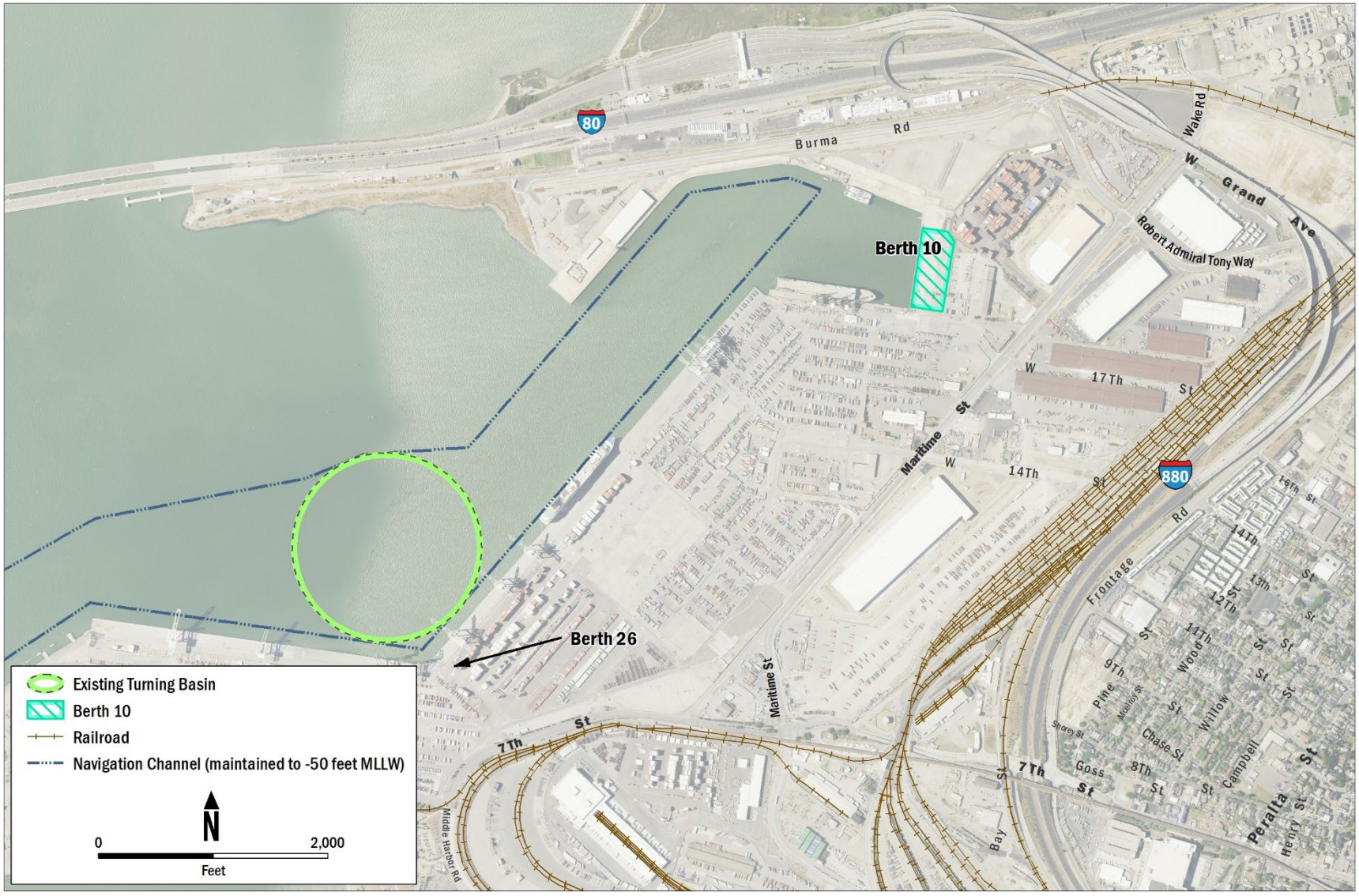
- **5th Street** is oriented north-south and connects Mitchell Avenue with Ralph Appezzato Memorial Parkway. North of Stargell Avenue, 5th Street is classified as an Island Arterial and generally accommodates one travel lane in each direction. South of Stargell Avenue, 5th Street is classified as an Island Collector and generally accommodates two travel lanes in each direction. A Class II bikeway (on-street bicycle lane) is also provided in each direction of 5th Street. Island Collectors typically funnel all local traffic onto arterials for longer trips and disperse arterial traffic onto local streets for local traffic.
- **Mitchell Avenue** is oriented east-west and connects Bette Street with Mariner Square Drive, where it continues east as Marina Village Parkway. At Bette Street, a short cul-de-sac provides access to the Alameda Site. Mitchell Avenue is classified as an Island Arterial and generally accommodates one travel lane and a Class II bikeway (on-street bicycle lane) in each direction.
- **Webster Street** is oriented north-south and connects the Webster/Posey Tubes with Central Avenue. Webster Street is classified as a Regional Arterial (routes that carry the heaviest volumes of traffic on the longest trip lengths, including intercity trips and regional through-traffic). Webster Street generally accommodates three lanes in each direction north of Ralph Appezzato Memorial Parkway, and two lanes in each direction south of Ralph Appezzato Memorial Parkway. The outermost lane in the northbound direction between Willie Stargell Avenue and Ralph Appezzato Memorial Parkway is signed and striped as a bus-only lane at all times. Webster Street and the Webster/Posey Tubes are formally designated as part of State Route 260.
- **Ralph Appezzato Memorial Parkway** is oriented east–west and connects Ferry Point in the former Naval Air Station (NAS) Alameda with Webster Street, where it continues east as Atlantic Avenue. Ralph Appezzato Memorial Parkway is classified as an Island Arterial west of Main Street, and a Regional Arterial east of Main Street. It generally accommodates two travel lanes in each direction.
- **Main Street** is generally oriented north–south and connects Navy Way in the former NAS Alameda with Pacific Avenue and Central Avenue. Main Street generally features one travel lane and one Class II bikeway (on-street bicycle lane) in each direction, with a two-way center left-turn lane. Near the Alameda Main Street Ferry Terminal, however, the cross-section transitions to two travel lanes in each direction with no dedicated bikeway facilities, which continues west to the terminus at Navy Way.

#### *Outer Harbor Turning Basin Area*

Local roadway access to the Outer Harbor, including Berths 10 and 26, is provided by the following streets (**Figure 3.14-2**):

- **Maritime Street** is oriented north-south and connects West Grand Avenue (where it continues north as Wake Avenue to Engineer Road) with Middle Harbor Road. Maritime Street is classified as a Minor Arterial and generally accommodates two travel lanes in each direction, with a two-way center left-turn lane. Maritime Street is one of the primary thoroughfares through the Seaport, in conjunction with 7th Street/Middle Harbor Road. Berth 10 is accessed from Maritime Street via 17th Street. Berth 26 is accessed from the TraPac Terminal entrance on Maritime Street via 7th Street.

**Figure 3.14-2 Existing Outer Harbor Turning Basin Transportation and Navigation Facilities**



- **West Grand Avenue** is oriented east-west and connects Maritime Street/Wake Avenue at the northern end of the Seaport with Broadway in Uptown Oakland, where it continues as Grand Avenue. In the analysis area, West Grand Avenue is classified as a Principal Arterial and generally accommodates two travel lanes in each direction.
- **7th Street** is oriented east-west and connects the Ben E. Nutter Terminal at the Seaport with Downtown Oakland, continuing east across the Lake Merritt Channel as East 8th Street. In the analysis area, 7th Street is classified as a Minor Arterial east of Maritime Street, and as a Collector west of Maritime Street. In the analysis area, 7th Street accommodates two to three travel lanes in each direction.

### Local Truck Routes

Both the City of Oakland and the City of Alameda have designated several local streets as "local truck routes" for use by commercial trucks. Truck traffic can use non-truck route streets when it is necessary to reach a destination only if the truck leaves a designated truck route at the closest point to its destination. In Alameda, the routes are governed by the City of Alameda General Plan's Transportation Element, which includes designated truck routes (City of Alameda n.d.) designed to maintain a limited number of streets on which through truck traffic is allowed.

In Oakland, local truck routes are defined in the California Vehicle Code and Oakland Municipal Code, and shown on both a City of Oakland Truck Routes and Prohibited Street map and online interactive map.[89] Although both maps are meant to reflect the published Oakland Municipal Code, discrepancies have been noted between the two.[90] Truck routes in West Oakland are being re-evaluated through implementation of the West Oakland Truck Management Plan, which incorporates community feedback in its process. Relevant truck routes are described below; the capacity and existing average daily traffic (ADT) for truck route segments is identified in **Table 3.14-6** in Section 3.14.4. **Figure 3.14-3** through **Figure 3.14-5** show inbound and outbound routes on local streets, including segments on designated local truck routes (listed below), that would be used between regional highways and Howard Terminal, the Alameda Site, and Berth 10 for the Proposed Project's construction truck trips. Therefore, these routes only show a portion of the directional travel on regional highways and are not intended to depict the full routes to origin and destination points.

City of Oakland local truck routes in the IHTB analysis area include the following roadways:

- 3rd Street between Market Street and Adeline Street
- 5th Street between Market Street and Union Street
- Adeline Street south of 7th Street
- Market Street south of 7th Street to Howard Terminal
- Castro Street north of 7th Street and south of 12th Street

City of Alameda local truck routes in the IHTB analysis area include the following roadways (City of Alameda 2009a):

- Webster and Posey Tubes
- Marina Village Parkway
- Wilma Chan Way north of Atlantic Avenue
- Atlantic Avenue/Ralph Appezzato Memorial Parkway
- Main Street

[89] Published in February 2018 and August 18, 2018, and noted as updated January 2017 online at: https://cao-94612.s3.amazonaws.com/documents/oak063236.pdf.

[90] Where the published Oakland Municipal Code and maps differ, the shortest truck route of the two is proposed here.

**Figure 3.14-3 Truck Routes for Howard Terminal**

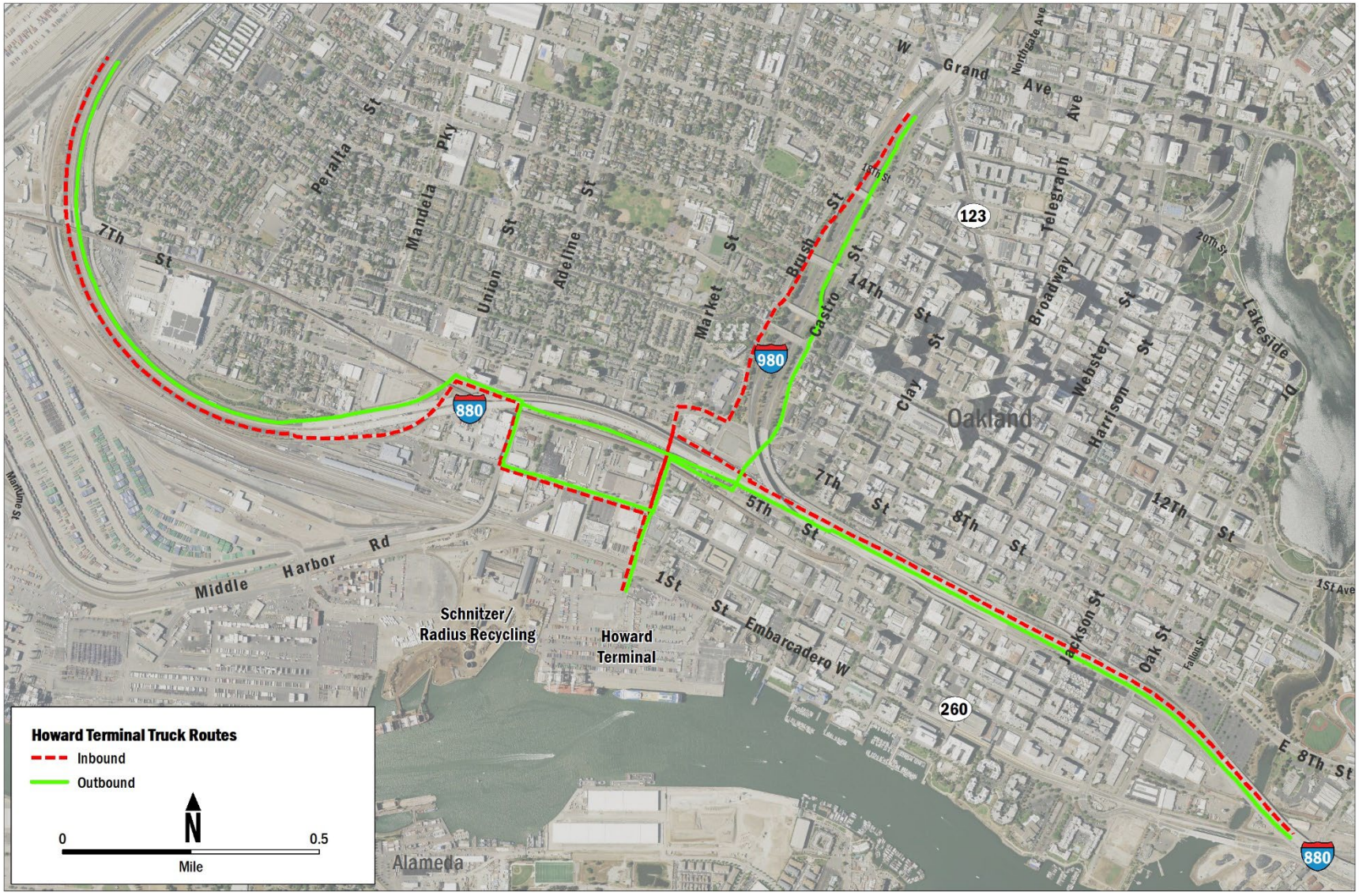


**Figure 3.14-4 Truck Routes for the Alameda Site**

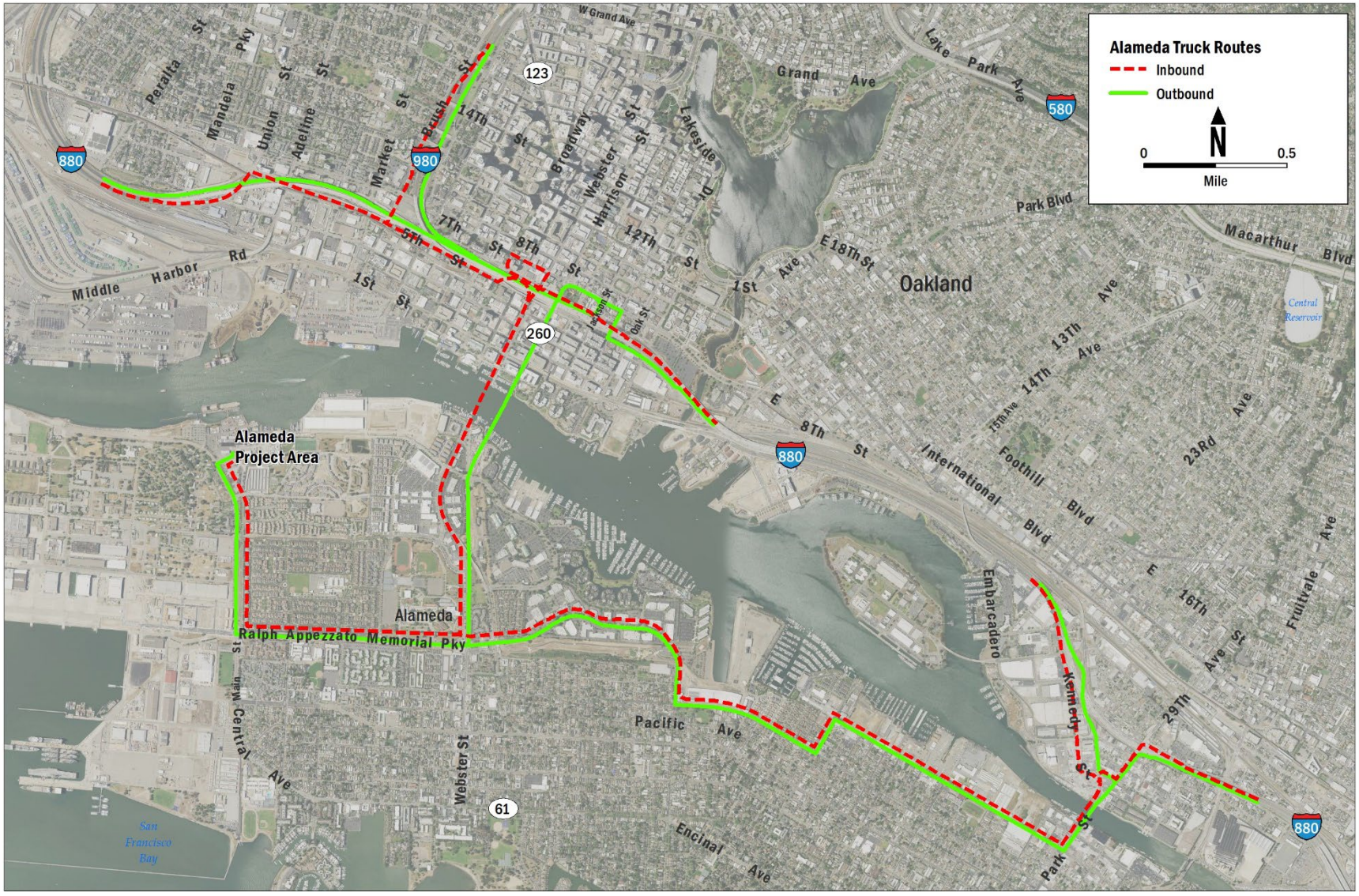
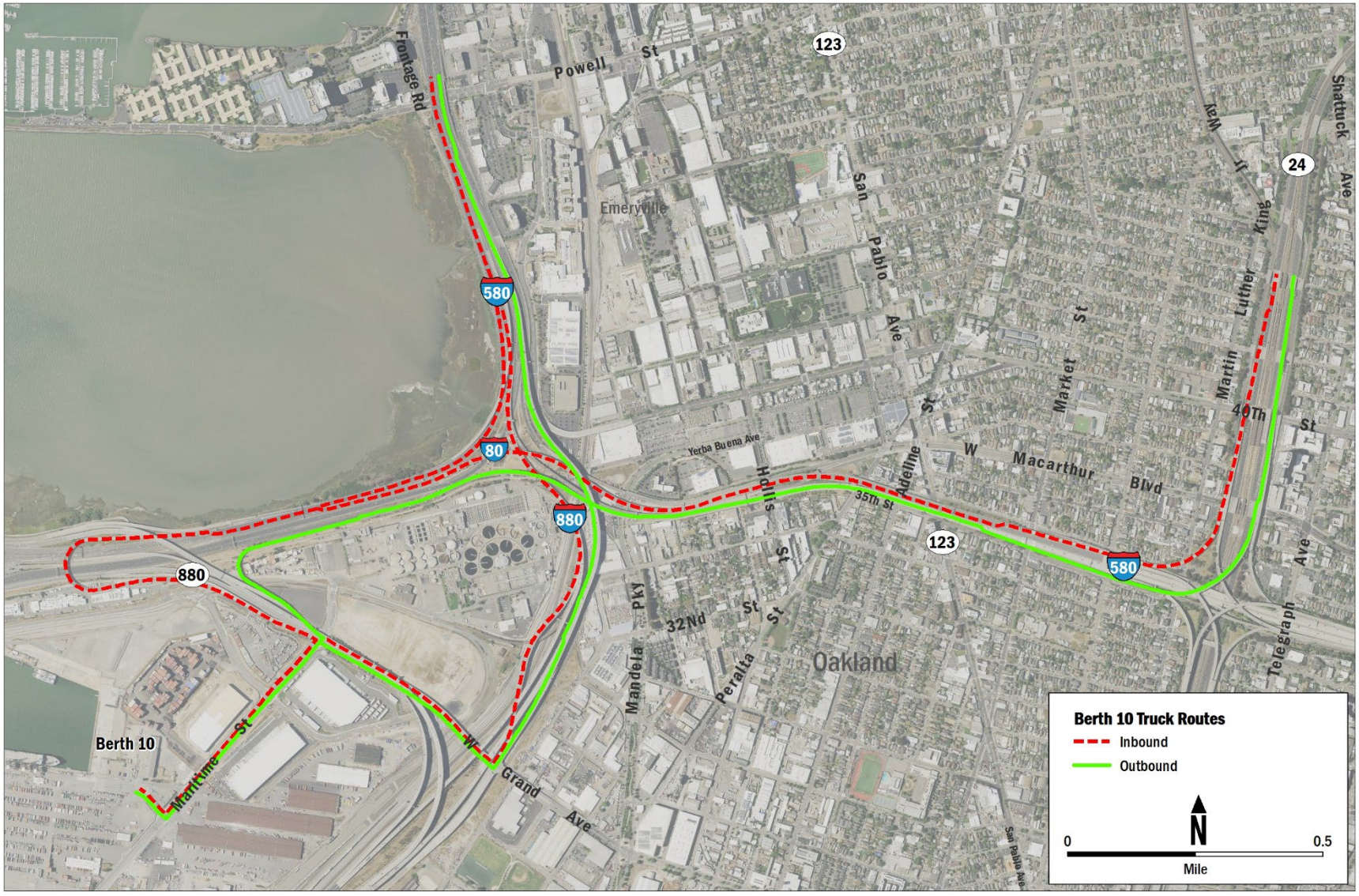


**Figure 3.14-5 Truck Routes for Berth 10**



City of Oakland local truck routes in the OHTB analysis area include the following roadways:

- Maritime Street north of 7th Street and south of West Grand Avenue
- West Grand Avenue between Maritime Street and Northgate Avenue
- 7th Street west of Wood Street

### *Public Transit Services*

Local bus service in Oakland and Alameda is provided by the Alameda–Contra Costa Transit District. High-frequency local and regional rail service is provided by BART (with the closest stations at West Oakland, 12th Street/Oakland City Center, and Lake Merritt), supplemented by less-frequent regional and intercity mainline rail services on the Amtrak *Capitol Corridor* and *San Joaquins*, with the closest stations at Oakland (Jack London Square) and Emeryville.

There are no existing transit services in the immediate vicinity (i.e., within reasonable walking distance) of the Oakland/northern side of the IHTB. The closest bus services are the following (AC Transit 2023):

- Line 12: Martin Luther King Jr. Way – Temescal – Grand
  The 12 operates along Broadway and continues to Embarcadero West, Webster Street, and 2nd Street to/from Amtrak's Oakland (Jack London Square) station. Its closest stops are at Embarcadero West/Broadway, approximately 0.5 mile away.
- Line 62: 7th Street – San Antonio – 23rd Avenue
  The 62 operates along the 7th Street/8th Street couplet, with the closest stops at 7th Street/Market Street, 7th Street/Jefferson Street (eastbound only), and 8th Street/ Jefferson Street (westbound only).
- Line 72: Hilltop – Contra Costa College – San Pablo
- Line 72M: Macdonald – San Pablo
- Line 72R: San Pablo Rapid
  The 72, 72M, and 72R are the closest services, operating on Broadway through Downtown Oakland and following a clockwise loop via 3rd Street, Clay Street, and 2nd Street to a terminus at 2nd Street/Washington Street, the closest stop to Howard Terminal at approximately 0.5 mile away.

The closest bus services to the Alameda/southern side of the IHTB include the following:

- Line 96: Alameda Point – 14th Avenue – Dimond
  The 96 operates along Mitchell Avenue and 5th Street, with the closest stops at 5th Street/Singleton Avenue, 5th Street/Mitchell Avenue (northbound only), and 5th Street/Diller Street (southbound only).
- Line 19: Buena Vista – Fruitvale
  The 19 operates along Marina Village Parkway in the vicinity of the Alameda Site, with the closest stops at Marina Village Parkway/Mariner Square Loop (eastbound only) and Marina Village Parkway/Mariner Square Drive.
- Additional routes farther away at bus stops at the Webster Street/Stargell Avenue intersection, including the 20 (Dimond – Fruitvale – South Shore), 51A (Broadway – Santa Clara), 851 (College – Broadway All Nighter), O (Santa Clara – Encinal Transbay), and W (High – South Shore Transbay).

There are no existing transit services in the immediate vicinity (i.e., within reasonable walking distance) of the Outer Harbor Proposed Project sites (i.e., OHTB, Berth 26, and Berth 10). The closest bus service is the NL (MacArthur Transbay Limited), which runs along West Grand Avenue. The closest NL stops to the Outer Harbor Proposed Project sites are along West Grand Avenue at Mandela Parkway, approximately 1.25 miles from Berth 10.

### *Bicycle Facilities*

There are existing and planned bikeways in the vicinity of the IHTB and OHTB. Nearby existing and proposed bikeways in the vicinity of the IHTB are summarized in **Table 3.14-1** for Oakland, and in **Table 3.14-2** for Alameda. Nearby existing and proposed bikeways in the vicinity of the Outer Harbor Proposed Project sites are summarized in **Table 3.14-3**.

**Table 3.14-1 Existing and Proposed Bikeway Network – Inner Harbor Turning Basin (Oakland) Vicinity**

| Bikeway Class | Oakland Routes |
|---|---|
| Class I (bike path) | • Bay Trail: Water Street/Clay Street to Estuary Park<br>• *Bay Trail: Water Street/Clay Street to Embarcadero West/Filbert Street (proposed)*<br>• *Howard Terminal portions of Bay Trail (proposed as part of the proposed Oakland Waterfront Ballpark District Project) (proposed)*<br>• *Water Street: Martin Luther King Jr. Way to Clay Street (proposed)*<br>• *Brush Street: 2nd Street to Embarcadero West (proposed)*<br>• *Clay Street: Embarcadero West to waterfront (proposed)*<br>• *Washington Street: Embarcadero West to waterfront (proposed)* |
| Class II (bike lane) | • Brush Street: 3rd Street to 2nd Street<br>• 2nd Street: East of Brush Street<br>• Market Street: North of 3rd Street<br>• Clay Street: Embarcadero West to Water Street<br>• Washington Street: North of 3rd Street<br>• *Clay Street: 3rd Street to 2nd Street (proposed)*<br>• *Washington Street: 2nd Street to Embarcadero West (proposed)* |
| Class IIB (buffered bike lane) | • 3rd Street: Brush Street to Mandela Parkway/5th Street<br>• Clay Street: 2nd Street to Embarcadero West<br>• *Broadway: 6th Street to Embarcadero West (proposed)* |
| Class III (bike route) | • Martin Luther King Jr. Way: North of Embarcadero West |
| Class IV (cycle track) | • *Market Street: North of Embarcadero West (proposed)*<br>• *Martin Luther King Jr. Way: North of Embarcadero West (proposed)*<br>• *3rd Street: Market Street to Oak Street (proposed)* |

Note: Italicized text represents proposed routes.

Source: City of Oakland 2022

**Table 3.14-2 Existing and Proposed Bikeway Network – Inner Harbor Turning Basin (Alameda)**

| Bikeway Class | Alameda Routes |
|---|---|
| Class I (bike path) | • Posey Tube (substandard)<br>• Mariner Square Drive: Mitchell Avenue/Marina Village Parkway to Atlantic Avenue<br>• *Bay Trail: Mariner Square Marina to Alameda Main Street Ferry Terminal (proposed)* |
| Class II (bike lane) | • Mitchell Avenue: East of Bette Street<br>• Marina Village Parkway<br>• 5th Street/East Campus Drive: South of Mitchell Avenue<br>• Mariner Square Loop: South of Mitchell Avenue<br>• Singleton Avenue: 5th Street to Annapolis Circle<br>• Willie Stargell Avenue: Webster Street to 5th Street<br>• *Mitchell Avenue: Bette Street to Main Street (proposed)*<br>• 5th Street: Mitchell Avenue to waterfront (proposed)<br>• *Willie Stargell Avenue: West of 5th Street (proposed)* |
| Class III (bike route) | • Willie Stargell Avenue: West of 5th Street |

Source: Bike Walk Alameda 2022; City of Alameda 2010

**Table 3.14-3 Existing and Proposed Bikeway Network – Outer Harbor**

| Bikeway Class | Oakland Routes |
|---|---|
| Class I (bicycle path) | • Maritime Street: North of 7th Street<br>• 7th Street: West of Bay Street<br>• Burma Road: South of Bay Bridge Trail<br>• *West Grand Avenue: Maritime Street/Wake Avenue to Wood Street (proposed)* |
| Class II (bicycle lane) | • Admiral Toney Way: East of Maritime Street<br>• Burma Road: West of Bay Bridge Trail |

Source: City of Oakland 2022

Bikeway facilities can be classified based on their level of separation from vehicle traffic with Class I facilities being the most separated facilities:

- **Class I facilities (bicycle paths)** are off-street paved paths completely separated from vehicle traffic, often designed for shared use between bicyclists and pedestrians.
- **Class II facilities (bicycle lanes)** are on-street facilities designated specifically for bicyclists using pavement markings (striping and stencils). Some Class II facilities

(referred to as Class IIB) offer an added level of protection through use of a buffer zone between bicyclists and vehicle traffic.

- **Class III facilities (bicycle routes)** are lanes shared with vehicle traffic, usually denoted by signage or pavement markings.
- **Class IV facilities (separated bicycle lanes or "cycle tracks")** are on-street bicycle lanes separated from motorized traffic through grade separation, flexible posts, inflexible physical barriers, on-street parking, or other means.

In addition to bikeway facilities, a regional bike-sharing transportation service—Bay Wheels—operates in Oakland, including in the vicinity of the IHTB. Based on point-to-point trips with bikeshare docking stations, the closest Bay Wheels bikeshare stations to the IHTB are at Jack London Square (Clay Street south of Embarcadero West), Webster Street/2nd Street, and Market Street/8th Street. Currently, Bay Wheels does not serve the City of Alameda. The City of Alameda is evaluating bikeshare programs. There are no bikeshare stations in the immediate vicinity of the Outer Harbor Proposed Project sites; the nearest bikeshare station is at the West Oakland BART station.

### *Pedestrian Facilities*

Given that Howard Terminal on the Oakland/northern side of the IHTB is in the Seaport, pedestrian facilities and access in the immediate vicinity are limited. The heavy industrial nature of this area means that pedestrian activity is generally low (City of Oakland 2017). Direct pedestrian access to/from the IHTB Oakland Proposed Project sites is provided by Embarcadero West, with the nearest crossing opportunities across the UPRR railroad tracks at Market Street and Martin Luther King Jr. Way. West of Clay Street, sidewalks are in poor condition. There are no sidewalks present along Embarcadero West, west of Martin Luther King Jr. Way, with only a south-side sidewalk provided east of Martin Luther King Jr. Way until Clay Street. Crosswalk markings are missing in some locations.

East of Clay Street, the land use mix transitions to commercial and mixed use, generally with good pedestrian facilities and access. Crosswalk markings at some locations use high-visibility designs, although many less-used crossings remain unmarked. Several at-grade crossings and three grade-separated pedestrian bridges are available for pedestrians to cross the UPRR tracks.

Pedestrian facilities and access along the Alameda side of the IHTB are generally good, with sidewalks provided along both sides of most streets. In the residential communities immediately southeast of the Alameda Site, many intersections include crosswalk markings and traffic-calming treatments such as bulb-outs.

Near the Outer Harbor Proposed Project sites, pedestrian facilities and access are limited due to the prevalence of industrial uses in the immediate vicinity, the extensive freeway infrastructure for the MacArthur Maze and connecting freeways, and the UPRR and BNSF tracks. Sidewalks and/or multi-use paths with Americans with Disabilities Act-compliant curb ramps and crosswalk treatments have been installed along most of the length of Maritime Street. A multi-use path is also provided along 7th Street in the Seaport. Sidewalks are unimproved in many other locations in the Seaport, but pedestrian activity is low due to the heavy industrial nature of the area.

### *Freight Rail Facilities*

The Port's maritime facilities are served by UPRR mainline tracks running north-south as part of the Martinez Subdivision, which extends from the Seaport north to Richmond and beyond, and the Niles Subdivision, which extends south from the Seaport to Hayward and beyond. There are two major intermodal rail facilities in the Seaport, including Railport Oakland (operated by UPRR) and the Oakland International Gateway/Joint Intermodal Terminal (operated by BNSF Railway)—and a manifest and support yard (the Seaport Logistics Complex and Outer Harbor Intermodal Terminal [OHIT], occupying land formerly part of the Oakland Army Base).

Howard Terminal is immediately adjacent to the UPRR's Niles Subdivision, which includes two mainline tracks and an additional third track (siding and yard lead) operating at-grade down the center of Embarcadero West. The Amtrak *Capitol Corridor* and *San Joaquins* passenger service uses the UPRR mainline tracks in the vicinity of the Seaport. At-grade crossings across the UPRR tracks are provided at Market Street, Martin Luther King Jr. Way, and Clay Street.

There are no freight rail facilities in the vicinity of the Alameda side of the IHTB.

There are no freight rail facilities in immediate proximity to the OHTB and Berth 10, although the UPRR Martinez Subdivision and the Seaport Logistics Complex/OHIT are a short distance away to the south and east. Grade separation is provided between the railroad tracks and major local roadways serving the area, including West Grand Avenue and 7th Street. As for freight rail facilities in the immediate proximity to the IHTB and Howard Terminal, there is no grade separation between the railroad tracks and the Proposed Project site.

### *Emergency Access*

Emergency access for the IHTB and OHTB Proposed Project sites is generally provided by the existing roadway network.

For Howard Terminal, the nearest Oakland Fire Department station is Station No. 2, at 47 Clay Street (south of Embarcadero West), just east of the Howard Terminal; there are no other Oakland Fire Department stations within 0.5 mile. Oakland Police Department headquarters are at 455 7th Street (at Broadway), approximately 0.5 mile from Howard Terminal; there are no other Police Department stations within 0.5 mile. The Oakland Police Department has several police boats docked at Roosevelt Pier at the waterfront end of Water Street and Clay Street, approximately 1,500 feet east of the IHTB.

There are no hospitals within 0.5 mile of Howard Terminal. The closest hospitals are the Alta Bates Summit Medical Center Summit Campus (2.5 miles away at 350 Hawthorne Avenue) and the Kaiser Permanente Oakland Medical Center (3 miles away at 3600 Broadway).

There are no emergency service facilities within 0.5 mile of the Alameda Site. The closest Alameda Fire Department station is Station No. 2, at 635 Pacific Avenue (1.5 miles away, west of Webster Street). The closest and only Alameda Police Department station is the headquarters building, at 1555 Oak Street (3.3 miles away at Lincoln Avenue). The closest hospital is Alameda Hospital, at 2070 Clinton Avenue (3.2 miles away at Willow Street).

There are no emergency service facilities within 0.5 mile of the OHTB and Berths 10 and 26. The closest Oakland Fire Department station is Station No. 3, 3.2 miles away at 1445 14th Street (at Castro Street). The closest Oakland Police Department station is the headquarters building at

455 7th Street. The closest hospitals are the Alta Bates Summit Medical Center Summit Campus (5 miles away) and the Kaiser Permanente Oakland Medical Center (5 miles away).

### *Waterway Navigation*

#### Commercial Cargo Transport

Existing cargo transport facilities and navigation conditions at the Seaport are described in Section 2.2, Existing Site Conditions and Uses.

#### Passenger Ferry Services

There are two passenger ferry terminals in the analysis area: the Oakland terminal, at 10 Clay Street in Oakland's Jack London Square area, east of the IHTB; and the Alameda Main Street terminal, at 2990 Main Street on Alameda, west of the IHTB. Ferry service to both terminals is operated by the San Francisco Bay Area Water Emergency Transportation Authority (WETA) as San Francisco Bay Ferry. Service to both terminals is operated most often as a combined Oakland and Alameda route, with service 7 days a week to/from the Downtown San Francisco Ferry Terminal. Ferries on this route operate through the Inner Harbor Channel and the IHTB.

Twenty daily round trips are provided on weekdays, although only some of the trips serve Alameda (with the remainder terminating at Oakland). On weekends and holidays, 15 daily round trips are provided, with all trips serving both Oakland and Alameda, except for one westbound trip serving only Oakland.

#### United States Coast Guard

To the east of the IHTB in Brooklyn Basin lies Coast Guard Island Alameda, only accessible by Coast Guard Island Bridge off of Dennison Street and the Embarcadero in Oakland. USCG vessels that support U.S. security and maritime safety operations are berthed at the island and access San Francisco Bay by way of the Inner Harbor Channel and the IHTB.

#### Marinas

There are several public and private marinas in operation in the Oakland-Alameda estuary to the east of the IHTB that accommodate the berthing and operation of privately owned recreational boats, which may traverse through the IHTB and Channel. From west/north to east/south, they are Jack London Square Marina, Portobello Marina, 5th Avenue Marina, Embarcadero Cove Marina, and Union Point Marina on the Oakland side of the estuary; and Mariner Square and Drystack Marina, ISB, Dock Q, Marina Village Yacht Harbor, Fortman Marina, Grand Marina, and Alameda Marina on the Alameda side of the estuary.

## 3.14.2. Regulatory Setting

### *Federal*

#### United States Coast Guard

Under 14 United States Code (USC) and 33 USC, and other portions of the Code of Federal Regulations (CFR), the USCG has authority for maritime law enforcement on the navigable waters of the United States, as well as responsibilities for search and rescue. Title 33: Navigation and Navigable Waters, Part 162: Inland Waters Navigation Regulations identifies regulations for navigation by both commercial and noncommercial vessels.

### Inland Navigational Rules Act of 1980

The Inland Navigational Rules Act of 1980 (Public Law 96-591, 94 Stat. 3415, 33 CFR Part 83), more commonly known as the Inland Rules, governs many rivers, lakes, harbors, and inland waterways. The International Regulations for Preventing Collision at Sea have also been incorporated into federal regulations (Public Law 95-75, 91 Statute 308, 33 USC Sections 1-8). Together, these regulations (known as the Rules of the Road) govern open bodies of water to promote navigational safety, including requirements for steering and sailing practices, navigation lights and day-shapes, and sound signals for both good and restricted visibility.

### Regulated Navigation Areas

The USCG has established regulated navigation areas (RNAs) in the San Francisco Bay region to reduce vessel congestion where maneuvering room is limited. These RNAs increase navigational safety by organizing traffic flow patterns; reducing meeting, crossing, and overtaking situations between large vessels in constricted channels; and limiting vessel speed. The RNAs apply to all large vessels, defined as any power-driven vessels of 1,600 or more gross tons, or tugs with a tow of 1,600 or more gross tons. For large vessels meeting this definition, a 15-knot (approximately 17 miles per hour) speed limit applies in specific areas of San Francisco Bay, including the Oakland Inner and Outer Harbor Channels, as prescribed in 33 CFR 165.1181.

### Ports and Waterways Safety Act of 1972

The Ports and Waterways Safety Act of 1972 (Title 33, Chapter 25, Section 1221) authorized the USCG to establish, operate, and maintain vessel traffic services for ports, harbors, and other waters subject to congested vessel traffic. As a result, in 1972, the USCG established the Vessel Traffic Service (VTS) for San Francisco Bay, and designated traffic lanes for inbound and outbound vessel traffic, specified separation zones between vessel traffic lanes, and set up rules to govern vessels entering and leaving ports. The VTS, which is on Yerba Buena Island, controls marine traffic throughout the San Francisco Bay Area. Although some small and private vessels are not required to coordinate their movements by contacting the VTS, the VTS monitors all commercial, United States Navy, and private marine traffic in San Francisco Bay and local coastal waters. All vessels operated for disposal of dredged material are required to participate in the USCG VTS.

### America's Marine Highway Program

The Marine Highway Program was established by Section 1121 of the Energy Independence and Security Act of 2007 to reduce landside congestion through the designation of Marine Highway Routes. Section 405 of the Coast Guard and Maritime Transportation Act of 2012 further expanded the scope of the program beyond reducing landside congestion to efforts that generate public benefits by increasing the use or efficiency of domestic freight or passenger transportation on Marine Highway Routes between ports in the United States. Marine Highway M-5 serves commercial navigation channels, ports, and harbors along the U.S. West Coast from San Diego north to the border with Canada. San Francisco Bay also includes a portion of Marine Highway M-580, a spur of M-5 serving Northern California that includes the San Joaquin and Sacramento Rivers.

## *State*

### Senate Bill 743

Senate Bill (SB) 743 shifted priorities for measuring transportation-related environmental impacts away from congestion and level of service and toward vehicle miles traveled (VMT). SB 743 eliminates traffic delay as an environmental impact in the CEQA Guidelines. The bill was passed in 2013 and implemented in 2018. The goals of SB 743 include promoting policies that combat climate change by reducing greenhouse gas emissions and particulates; encourage infill

development and a diversity of uses instead of sprawl; and promote multi-modal transportation networks, providing clean, efficient access to destinations and improving public health through active transportation. As noted in the Technical Advisory on Evaluating Transportation Impacts in CEQA (Office of Planning and Research 2018), VMT refers to the amount and distance of automobile travel attributable to a project. Heavy-duty truck VMT is not required to be evaluated. The Technical Advisory recommends that for land use projects a per capita or per employee VMT that is 15 percent below that of existing development may be a reasonable threshold. In making this recommendation, the Office of Planning and Research recognized that land use development projects (i.e., those involving residential, office, and retail proposals) tend to have the greatest influence on VMT as a result of permanent trips generated during operations. For other types of projects, lead agencies should consider the purposes in Public Resources Code Section 21099(b)(1) (i.e., promote reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses) in applying a threshold of significance.

### California Harbors and Navigation Code

The California Harbors and Navigation Code vests authority with the Department of Boating and Waterways to regulate matters of navigational safety for the state's boating public. The California Department of Boating and Waterways was formed in 1979 through the consolidation of functions previously held by a number of divisions in the Departments of Natural Resources, Motor Vehicles, and Parks and Recreation. The code established a comprehensive set of state laws and regulations governing the equipment and operation of vessels on all waters of the state.

## *Regional*

### Plan Bay Area 2040 and Regional Goods Movement Plan

Plan Bay Area 2040 is the combined Regional Transportation Plan and Sustainable Communities Strategy for the nine-county Metropolitan Transportation Commission (MTC) region. Plan Bay Area 2040 is the first regional plan that allocates discretionary funds toward the regional goods movement plan (the San Francisco Bay Area Goods Movement Plan). The plan prioritizes increasing efficiency at the Port, aiming to reduce rail–truck conflicts and bottlenecks at interchange areas along the truck network. The three main strategies are modernizing infrastructure through grade separation and highway improvements; clean fuels and impact reduction through the Freight Emissions Reduction Action Plan; and smart deliveries and operations in the form of active traffic management through communications infrastructure (MTC 2016, 2017).

### The San Francisco Bay Area Seaport Plan

The San Francisco Bay Area Seaport Plan, first adopted in 1996, is the product of a cooperative planning effort of MTC and the BCDC. The Seaport Plan constitutes the maritime element of MTC's Regional Transportation Plan, and is incorporated into BCDC's San Francisco Bay Plan, where it is the basis of the Bay Plan port policies. The MTC uses the Seaport Plan to assist in making project funding decisions and managing the metropolitan transportation system; BCDC uses the Seaport Plan to help guide its regulatory decisions on permit applications, consistency determinations, and related matters. The Seaport Plan identifies the following goals pertinent to transportation (BCDC and MTC 2012):

- Ensure continuation of the San Francisco Bay port system as a major world port and contributor to the economic vitality of the San Francisco Bay region;
- Provide for efficient use of finite physical and fiscal resources consumed in developing and operating; and

- Provide for integrated and improved surface transportation facilities between San Francisco Bay ports and terminals and other regional transportation systems.

In 2019, BCDC initiated a process to update the Seaport Plan. The intent of the update is to:

- Remove outdated information and update and simplify the Plan's policies.
- Introduce new topic areas to align the Seaport Plan with BCDC's ongoing work on issues like climate change and environmental justice.
- Provide more flexibility for the ports and better clarity for permittees and permit staff.
- Amend the Port Priority Use Area boundaries to reflect shifts in cargo activity.
- Realign the Seaport Plan to better reflect the scope of BCDC's authority and encourage regional coordination.

The updated Draft Seaport Plan was released for review and comment on June 12, 2023. BCDC's Seaport Plan Advisory Committee met on July 25, 2023, to consider the Draft Seaport Plan and provided a recommendation to BCDC to consider adoption of the Plan. A public hearing is scheduled for November 2023.

### San Francisco Bay Area Water Emergency Transportation Authority

WETA was established by SB 976 in 2007 to replace the San Francisco Bay Water Transit Authority, which was created in 1999. WETA has been authorized by the State of California to oversee and operate a public water transit system in the San Francisco Bay Area, and to coordinate maritime emergency response for water transportation operations in the Bay Area. WETA created and adopted an Emergency Response Plan for the San Francisco Bay Area. This plan integrates and complements the emergency plans of other agencies to facilitate mobility in the San Francisco Bay Area following a major disaster.

### Bay Trail Gap Closure Implementation Plan

The Bay Trail Gap Closure Implementation Plan sets priorities for future work to complete the vision of a 500-mile Bay Trail network around San Francisco Bay. In 2005, MTC and the Association of Bay Area Governments conducted a study of the Bay Trail network that identified gaps in the Bay Trail network, scored and prioritized them, developed cost estimates for future construction, and presented an overall timeframe for completion of the full 500-mile vision of the Bay Trail. The purpose of the Bay Trail Gap Closure Implementation Plan is to build upon the work from 2005 to identify and evaluate existing missing segments of Bay Trail (trail gaps) and prioritize their construction in the remaining build-out of the Bay Trail. Development of the plan was initiated in July 2022 and is expected to be completed in 2024.

## *Local*

### Alameda County Goods Movement Plan

The Alameda County Goods Movement Plan, published by the Alameda County Transportation Commission in 2016, aims to modernize the Port to accommodate new and larger post-Panamax vessels, create a more robust intermodal rail network to service the Port, and address roadway surface degradation (Alameda County Transportation Commission 2016).

### West Oakland Truck Management Plan

The West Oakland Truck Management Plan was released in May 2019 (City of Oakland and Port of Oakland 2019) as a joint effort between the City of Oakland and the Port to implement a mitigation measure from the Oakland Army Base Redevelopment Environmental Impact Report.

The goals of the plan are to reduce disruptions to residents and businesses of West Oakland from truck circulation and truck parking, and to increase safety along designated truck routes. Ten strategies resulted from the planning process, and the City and Port committed to implement them in a span of 5 years:

- Strategy 1: Improve safety at street intersections near the Port
- Strategy 2: Improve truck routing
- Strategy 3: Update the network of truck routes and truck-prohibited streets
- Strategy 4: Improve truck route signage
- Strategy 5: Conduct traffic enforcement spot-checks
- Strategy 6: Use urban design to promote use of truck routes
- Strategy 7: Improve training for issuing parking tickets
- Strategy 8: Change parking regulations
- Strategy 9: Consider increasing truck parking fines
- Strategy 10: Conduct targeted parking enforcement

On April 19, 2022, Oakland City Council adopted updates to the truck parking regulations in West Oakland, in accordance with Strategy 8, prohibiting truck parking in West Oakland except on a limited number of blocks in industrial areas away from residences and parks. Although updates to the truck route network (Strategy 3) were proposed at the same time, Oakland City Council did not pass the updates to the truck route network, and instead asked for more community process before returning the updates to City Council. The City and Port are currently working on an approach to fulfill this request.

### City of Oakland General Plan

The Oakland General Plan comprises numerous elements, and those containing policies relevant to transportation resources are contained primarily in the Land Use and Transportation Element (LUTE). The City's Bicycle Master Plan and Pedestrian Master Plan, and subsequent updates to these plans (described below), are incorporated into the General Plan.

The following policies are included in the LUTE (City of Oakland 1998) pertaining to truck routes:

- **Policy T1.6: Designating Truck Routes**. An adequate system of roads connecting port terminals, warehouses, freeways and regional arterials, and other important truck destinations should be designated. This system should rely upon arterial streets away from residential neighborhoods.
- **Policy T1.8: Re-Routing and Enforcing Truck Routes**. The City should make efforts to re-route truck traffic away from neighborhoods, wherever possible, and enforce truck route controls.

As noted in Section 3.14.1, local truck routes in Oakland are defined in the California Vehicle Code and Oakland Municipal Code.

In July 2019, the City adopted "Let's Bike Oakland!" (City of Oakland 2019), an update to the City's 2007 Bicycle Plan. The Let's Bike Oakland plan is organized around four goals: access; health and safety; affordability; and collaboration. Let's Bike Oakland! includes an action plan with performance measures for increasing the number of people who bike, decreasing bicyclist crashes, and improving the quality of bikeways. In the Proposed Project vicinity, the City has completed the 7th Street Streetscape, and the West Grand Avenue Mobility Project and 7th Street Connector Project are in progress.

In 2017, the City completed Oakland Walks! (City of Oakland 2017), an update to the City's 2002 Pedestrian Plan to reflect Oakland's changing conditions, needs, and priorities. Oakland Walks! incorporates up-to-date information on existing conditions, the City's pedestrian vision and goals; and outlines a 5-year work plan of specific, high-priority and cost-effective improvements, programs, and policies.

### City of Alameda General Plan

The General Plan's Transportation Element includes a policy for implementing and maintaining a designated truck route map (City of Alameda n.d.). The Truck Route Network is designed to maintain a limited number of streets on which through truck traffic is allowed. Truck traffic is allowed to use non-truck-route streets when it is necessary to reach a destination. Truck drivers must use the truck route for as much of their trip as possible.

### City of Alameda Bicycle Master Plan

The City of Alameda Bicycle Master Plan was initially adopted by the Alameda City Council in 1999 and updated in 2010 to address the updated General Plan Transportation Element and climate protection plan, among other changes (City of Alameda 2010). The Plan includes a set of priorities for capital improvements as well as programmatic activities to support and enhance the bicycling environment.

### City of Alameda Pedestrian Plan

The City of Alameda Pedestrian Plan (2009b) covers streets and trails in the public right-of-way for pedestrian improvements, with the goal of improving pedestrian access in the City of Alameda. It prioritizes projects for implementation according to the following categories: education programs, island access, pedestrian districts/corridors, public walkways, safe routes to schools, sidewalk installations, street crossings, and trails.

## 3.14.3. Significance Criteria

Based on Appendix G of the CEQA Guidelines, the below questions (criteria) were analyzed and evaluated to determine whether the Proposed Project's impacts related to transportation are significant. Would the Proposed Project:

A. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

B. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b) addressing VMT?

C. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

D. Result in inadequate emergency access?

The criteria identified in Appendix G of the CEQA Guidelines primarily address considerations related to land-based transportation. Because the Proposed Project would involve construction in and modification of a federal commercial deep-draft navigation channel, the analysis also evaluated whether the Proposed Project would:

E. Change vessel traffic patterns, resulting in unplanned or regularly occurring delays, substantially adverse change in freedom of movement, increased safety risks, or introduction of safety hazards?

## *Approach to Analysis, Traffic Methodology and Assumptions*

Because the Proposed Project is an infrastructure construction project that is not a long-term generator of trips beyond those necessary for construction, unlike land development projects, which can have a substantial change in travel demand post construction, the impacts of the Proposed Project focus on the construction period. This analysis estimates the land-based traffic associated with construction of the Proposed Project and evaluates the potential impacts. Truck transport of dredged sediment from the widened portions of the turning basins during future maintenance dredging events is not anticipated because sediment testing results for previous USACE maintenance dredging episodes indicate that, in general, dredged materials are suitable for aquatic disposal and land-based transport of sediment during maintenance dredging is rare (USACE and RWQCB 2015). Additionally, the number of worker commute trips associated with future maintenance dredging events are not expected to change from baseline conditions. Therefore, land-based traffic associated with future maintenance dredging events is not further evaluated.

The potential waterway navigational effects during construction and operations and maintenance are discussed. This analysis evaluated whether the Proposed Project's in-water construction activities as well as operations and future maintenance dredging, including vessel movements, would interfere with the navigation of non-project vessel traffic, considering existing vessel traffic and other ongoing activities in the waterways where the Proposed Project construction would occur and along vessel transport routes.

### Traffic Methodology and Assumptions

Construction traffic estimates were developed for three primary trip types/purposes:

- Commute trips generated by construction workers (laborers and equipment operators);
- Mobilization and demobilization of equipment and machinery; and
- Dump truck trips to recycling facilities and landfills.

Construction traffic was calculated as a set of ADT values for labor, equipment, and truck hauling for each week of the construction schedule. These calculations assume land-based work would take place 5 days a week, with one shift lasting 8 to 10 hours/day. In contrast, dredging activities would be conducted 24 hours per day and 7 days a week. Specific assumptions for each trip type/purpose are described in more detail below.

### Worker Commutes

Each laborer and equipment operator are assumed to make two one-way trips per day: a morning commute trip to the site, and an afternoon commute trip from the site. This includes equipment operators for water-based equipment such as barges, dredges, and tugboats, who are conservatively assumed to commute to the site (as opposed to residing onboard the vessels) and then access the water-based equipment from landside. Dump truck drivers were not included in the laborer and equipment operator trip tally, because they would not commute in a personal vehicle to and from the Proposed Project sites. The trip estimation methodology conservatively assumes 100 percent of worker commute trips to the site are via personal vehicle with no public transit use, biking, or walking, and an average vehicle occupancy of one person, with no reductions for carpooling. Although it is likely that at least some workers commuting to the site may carpool, use public transit, or walk/bike, the assumptions made for this analysis are being used to conservatively bound the traffic impacts.

### Equipment Mobilization and Demobilization

To calculate the total number of trips associated with equipment and machinery mobilization and demobilization, the analysis assumed two round trips (four one-way trips) for each piece of land-based equipment (one round trip for delivery at the beginning of the corresponding construction phase and one round trip for withdrawal at the end of the construction phase). Therefore, equipment mobilization and demobilization trips are absolute values (and not daily values) because the equipment is assumed to remain at the site for the duration of the given construction phase. Water-based equipment (i.e., barges, dredging vessels, and tugboats) were excluded from this analysis because they are not deployed from land.

### Dump Trucks and Hauling

The total number of truckloads required for construction was based on the estimated volume of material (e.g., excavated soil and piles, concrete pavement, building debris), with the total number of truck trips estimated as one outbound trip to carry material to the disposal location, and a return trip empty back to the Proposed Project sites to receive another truckload. Dump trucks are assumed to move two to four truckloads (i.e., two to four round trips, or four to eight one-way truck trips) per day depending on the specific construction phase and haul destination (due to varying travel distances and times). Dump trucks were assumed to be loaded at a rate of one truck approximately every seven to eight minutes at two stockpile locations. This results in an effective loading rate of one truck every three to four minutes. Each dump truck is assumed to hold 10 cubic yards of material. Once loaded, the dump trucks would haul material either to a concrete and asphalt recycling facility (e.g., Argent Materials in Oakland), Keller Canyon Landfill (a Class II landfill) in Pittsburg, California, or to Kettleman Hills Landfill (a Class I landfill) in Kettleman City, California.

## *Construction Traffic Estimates*

This section summarizes the maximum construction traffic by trip type and maximum by Proposed Project site total construction ADT estimates that served as the basis for the impact analysis in Section 3.14.4. The maximum ADT values presented in **Table 3.14-4** represent the maximum estimated one-way travel trips for worker commutes, equipment mobilization, equipment demobilization, or dump truck trips in any given week during the total construction period for a given proposed construction work area. A dump truck ADT of 458, for example, corresponds to approximately 115 trucks making two round trips (or four one-way trips: two to the recycling facility or landfill, and two back to the site) daily. These maximum values for each trip type (purpose) are independent maximums and do not necessarily occur in the same week during the construction schedule. The maximum ADT values experienced at each construction area are presented in **Table 3.14-5**. These maximum ADT values represent the highest total ADT expected for a site (sum total across all trip purposes) in any single week across all weeks in the entire construction schedule. The maximum total ADT values should generally be considered conservative because the primary contributor to construction traffic is dump trucks, which will only be active during certain phases. Therefore, the ADT to each Proposed Project site on most days (e.g., days or phases without hauling activity) would be much lower than the maximum ADT values reported in **Table 3.14-4**.

**Table 3.14-4 Construction Traffic Estimated Maximum Average Daily Traffic by Trip Type**

| Construction Area/Site | Worker Commutes | Equipment Mobilization | Equipment Demobilization | Dump Trucks |
|---|---|---|---|---|
| Howard Terminal | 124 | 30 | 24 | 458 |
| In-Water Retaining Structure by Schnitzer/Radius Recycling Terminal | 16 | 6 | 6 | 4 |
| Alameda Site | 120 | 24 | 24 | 380 |
| Inner Harbor Sediments – Dredging | 52 | 2 | 2 | — |
| Berth 10 – Loading /Hauling of Inner Harbor Sediments | 56 | 4 | 4 | 152 |
| Outer Harbor Sediments – Dredging | 52 | — | — | — |
| Berth 26 Electrical Improvements | 10 | 6 | 6 | 4 |

Notes:

Maximum weekly ADT (average daily traffic) value for a trip type over the entire construction duration. Values for each trip type and site are independent maximums, they do not necessarily occur in the same week of the construction schedule. Trip numbers are one-way trips. A dump truck ADT of 458, for example, corresponds to approximately 115 trucks making two round trips (or four one-way trips, two to the recycling facility or landfill and two back to the site) daily.

**Table 3.14-5 Construction Traffic Estimated Maximum ADT by Proposed Project Work Area**

| Construction Area/Site | Maximum ADT |
|---|---|
| Howard Terminal | 576 |
| In-Water Retaining Structure by Schnitzer/Radius Recycling Terminal | 26 |
| Alameda Site | 524 |
| Inner Harbor Sediments – Dredging | 52 |
| Berth 10 – Loading /Hauling of Inner Harbor Sediments | 164 |
| Outer Harbor Sediments – Dredging | 52 |
| Berth 26 Electrical Improvements | 20 |

Note:

Maximum ADT (average daily traffic) values represent the highest total ADT expected for a site (summed across all trip purposes) in any single week across all weeks in the entire construction schedule. The Maximum ADT is not equivalent to the sum of the maximum weekly ADT by trip type for a site presented in **Table 3.14-4** because values for each trip type in **Table 3.14-4** are independent maximums, and do not necessarily occur in the same week during the construction at each site.

## *Topics Considered and Determined to Have No Impact*

The following topics are considered to have no impact related to the Proposed Project based on the Proposed Project characteristics and its geographical location. Therefore, these topics are not addressed further in this document for the following reasons:

- ***Conflict or Inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b).*** The Proposed Project would not result in an increase in VMT because it would not result in a permanent increase in the amount and distance of automobile travel. The Proposed Project would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b) and there would be no impact.
- ***Hazards due to Geometric Design Feature*** (Criterion C). The Proposed Project does not include physical changes to the land-based transportation and circulation system; therefore, the Proposed Project would not include any geometric design features or introduce incompatible uses that could substantially increase hazards for land-based transportation. Therefore, the Proposed Project would not result in an impact related to hazards from a geometric design feature.

## 3.14.4. Impact Analysis and Mitigation Measures

### *Impact TRA-1. Would the Proposed Project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities? (Criterion A) (Less than Significant with Mitigation)*

#### Impact Analysis

There would be a temporary increase in vehicle traffic (ADT) on local roadways serving the construction sites during the estimated two-year and four-month construction period. In general, construction-related traffic on a given roadway would dissipate with distance from the construction sites as traffic is distributed across multiple local street networks. Construction workers, for example, would be distributed throughout the region and can be expected to arrive at and depart from the sites using multiple possible local street routes. Equipment delivery trucks and dump trucks for material hauling would be less dispersed and would be expected to approximately follow the truck routes described in Section 3.14.1, and depicted in **Figure 3.14-3** through **Figure 3.14-5** to access the Proposed Project work areas. These routes are designed to quickly and efficiently connect with designated Citywide local truck routes, which are generally wider, higher-capacity arterial roadways and/or are in industrial areas where the effects of additional truck traffic would be substantially lower than for narrower, lower-capacity streets.

**Table 3.14-6** summarizes the typical daily capacity and existing ADT for key segments of local streets along the expected truck routes to/from each site for the IHTB construction and material hauling activities, focusing on those locations closest to the Proposed Project sites, where project-related construction traffic and associated effects would be most concentrated. The typical daily capacity is estimated as an hourly capacity of 900 vehicles per lane times the number of lanes on a roadway and multiplied by a typical traffic peaking factor of 10 times the hour capacity (Transportation Research Board 2016). As indicated in **Table 3.14-6**, the existing ADT in all cases is also below the existing capacity of the roadway.

**Table 3.14-6 Capacity and Existing ADT along Expected Truck Routes for IHTB Construction**

| Site | Roadway Segment | Lanes | Typical Daily Capacity[1] | Existing ADT | Maximum Site ADT | Percent Increase in ADT with Maximum Site ADT[2] |
|---|---|---|---|---|---|---|
| Howard Terminal | Market Street south of 3rd Street | 4 | 36,000 | 3,400 | 576 | 17% |
| | Market Street north of 3rd Street* | 4 | 36,000 | 3,100 | 576 | 18% |
| | 3rd Street west of Market Street* | 2 | 18,000 | 10,300 | 576 | 6% |
| | Adeline Street south of 5th Street* | 4 | 36,000 | 8,900 | 576 | 6% |
| Alameda Site | Main Street north of Willie Stargell Avenue | 2 | 18,000 | 6,000 | 524 | 9% |
| | Main Street south of Willie Stargell Avenue | 2 | 18,000 | 4,500 | 524 | 12% |
| | Ralph Appezzato Memorial Pkwy. west of Webster Street* | 4 | 36,000 | 13,600 | 524 | 4% |
| | **Via Webster/Posey Tubes** | | | | | |
| | Webster Street north of Atlantic Avenue* | 4 | 36,000 | 20,700 | 524 | 3% |
| | **Via Park Street Bridge** | | | | | |
| | Atlantic Avenue east of Constitution Way* | 2 | 18,000 | 8,300 | 524 | 6% |
| | Sherman Street north of Buena Vista Avenue* | 2 | 18,000 | 13,900 | 524 | 4% |
| | Buena Vista Avenue east of Sherman Street* | 2 | 18,000 | 12,900 | 524 | 4% |
| | Buena Vista Avenue west of Grand Street* | 2 | 18,000 | 11,100 | 524 | 5% |
| | Grand Street north of Buena Vista Avenue* | 2 | 18,000 | 4,900 | 524 | 11% |
| | Clement Avenue east of Grand Street* | 2 | 18,000 | 5,500 | 524 | 10% |
| | Clement Avenue west of Park Street* | 2 | 18,000 | 5,300 | 524 | 10% |
| | Park Street north of Blanding Avenue* | 4 | 36,000 | 29,700 | 524 | 2% |

| Site | Roadway Segment | Lanes | Typical Daily Capacity[1] | Existing ADT | Maximum Site ADT | Percent Increase in ADT with Maximum Site ADT[2] |
|---|---|---|---|---|---|---|
| Berth 10 (Loading and Hauling) | Maritime Street south of Burma Street | 4 | 36,000 | 4,600 | 164 | 4% |
| | West Grand Avenue east of Maritime Street* | 4 | 36,000 | 14,700 | 164 | 1% |

Notes:

[1] The typical daily capacity is estimated as an hourly capacity of 900 vehicles per lane times the number of lanes on a roadway and multiplied by a typical traffic peaking factor of 10 times the hour capacity (Transportation Research Board 2016).

[2] Calculated as maximum ADT by site divided by existing ADT.

*Existing ADT values are order-of-magnitude estimates derived from weekday peak-hour turning movement counts.

Source for Existing ADT: Alameda County Transportation Commission 2018; City of Alameda 2017; City of Oakland 2021b

Conservatively assuming that the maximum construction ADT values associated with the Howard Terminal, Berth 10, and Alameda Site construction (as shown in **Table 3.14-5**) are assigned, respectively, to each roadway segment in **Table 3.14-6**, the traffic increase would only represent approximately 1 percent to 18 percent of the existing ADT on these segments. This would add a maximum of approximately 110 vehicles per hour during the peak hour. In no case would the addition of the construction ADT on a segment cause that segment to exceed its existing capacity. In the case of major regional roadways such as freeways, construction traffic would represent an even smaller fraction of the overall existing ADT. For example, in the analysis area, I-880 has an existing ADT on the order of 123,700 vehicles (Caltrans 2021b), of which the highest maximum construction ADT across all sites (576) would represent 0.5 percent. Furthermore, because the maximum construction ADT associated with a site is a conservative value taken over the construction duration at the site, the actual contribution of the Proposed Project's construction traffic to the existing traffic levels on these roadways would be much lower on most days. For Howard Terminal, construction ADT would exceed 100 approximately 12 weeks during the approximate 12-month total construction duration at Howard Terminal. For the Alameda Site, construction ADT would exceed 100 approximately 40 weeks during the approximately 20-month total construction duration at the Alameda Site. The total duration for loading and hauling activities at Berth 10 (maximum ADT of 164) would be approximately four weeks. In addition, based on the construction sequencing, the maximum construction ADT values associated with the Howard Terminal, Berth 10, and Alameda Site would not occur at the same time. Therefore, even with the addition of the Proposed Project's maximum construction ADT values to regional roadways, those roadways would still be expected to operate well below their capacities, and their traffic circulation would not be substantially impacted by increased construction-related daily traffic.

Construction traffic associated with widening the OHTB would be substantially less than that for the IHTB, because, with the exception of the electrical infrastructure installation at Berth 26,

there is no land excavation or other landside construction activity required. The electrical infrastructure installation would involve a limited number of daily trips (maximum of 20, **Table 3.14-5**) over a three-month period, most of which would be worker trips (**Table 3.14-4**). The only trip type associated with dredging for the OHTB, which would occur over a total of eight months, would be worker commutes to the Outer Harbor staging site at Berth 10, which would have a maximum construction-related ADT value of 52 trips per day (**Table 3.14-5**). Existing ADT near West Grand Avenue is on the order of 34,500 vehicles daily (Caltrans 2021b), so the maximum construction ADT would represent approximately 0.2 percent of the total ADT on this segment.

Although the Proposed Project's construction-related traffic would not cause a substantial increase in existing ADT along roadways or cause an exceedance of roadway capacity, some localized effects along roadways closest to the Proposed Project construction sites may be expected. In particular, delivery and dump truck traffic, if not properly managed, could impact local roadway, bicycle and pedestrian circulation, and conflict with local plans, ordinances, or policies addressing the circulation system, resulting in a potentially significant impact.

### Level of Significance Before Mitigation

*Potentially Significant Impact.*

### Mitigation Measure

#### MM TRA-1: Traffic Control Plan (TCP)

The Port shall require the construction contractor, as a term of the construction contract, to develop a comprehensive construction traffic control plan (TCP) that includes measures to minimize the effects of Project-related construction traffic on overall circulation, including traffic, transit, bicycle, and pedestrian routes, safety, and emergency access.

Measures in the construction TCP would include at minimum the following:

- Site plans for ingress and egress locations showing existing signage/striping, speed limits, locations of proposed temporary traffic controls (e.g., signage, flaggers), and detours (if required), to minimize vehicle, bicycle and pedestrian conflicts and ensure safety for all travelers, particularly during periods of heavy hauling activity;
- Encourage passenger vehicle use of alternative routes (to avoid construction traffic);
- Identification and enforcement of designated truck haul routes. Enforcement may include compliance monitoring and reporting by the contractor;
- Advance written notification of neighboring residents, businesses, and other property owners, as well as the Cities of Oakland and Alameda and key stakeholders of any substantial increases in construction traffic (e.g., ramping up of hauling activity);
- Maintenance of adequate emergency access at the Project sites and general access for neighboring properties, at all times; and

- Designated construction worker parking locations and management plan (e.g., carpool/vanpool programs, and leased parking in remote/off-site parking facilities).

### Level of Significance After Mitigation

*Less-than-Significant Impact with Mitigation.*

Mitigation Measure TRA-1 would require the construction contractor to develop a comprehensive construction TCP that includes various measures to minimize the effects of the Proposed Project's construction traffic on overall circulation, including: temporary traffic controls, such as signage and flaggers, to minimize conflicts; identification and enforcement of designated truck haul routes; and advance notification of neighboring residents, businesses, and other property owners of any substantial increases in construction traffic. With the implementation of the required TCP, the volume and timing of construction traffic would be managed to avoid adversely affecting local roadway, bicycle, and pedestrian circulation, and the impact relative to potential conflicts with local plans, ordinances, or policies would be **less than significant**.

## *Impact TRA-2. Would the Proposed Project Result in inadequate emergency access? (Criterion D) (Less than Significant with Mitigation)*

### Impact Analysis

Throughout construction, localized portions of the Inner and Outer Harbor Channels and Turning Basins may have restricted access due to the presence of water-based construction equipment; however, the turning basins and channels are wide enough that emergency service vessels (e.g., USCG vessels, fire, and police boats) would have ample room to traverse the turning basin. The Inner and Outer Harbor Channels are 800 feet and 900 feet wide, respectively, and the Inner and Outer Harbor Turning Basins are 1,500 feet and 1,650 feet in diameter, respectively. Even if construction activity were to occupy 200 feet of the waterway, a minimum of 600 feet would be available for other vessels to pass, depending on the specific work location. Further, the Proposed Project's construction activity would occur along the perimeter of the turning basins and not in the middle of the existing navigation channels, which would minimize interference with other vessel traffic. In addition, vessels can slow down and stop when needed to let others have the right-of-way, and until there is enough room to traverse safely. For the purposes of navigation, a comparable activity to the Proposed Project's in-water construction is annual maintenance dredging of Oakland Harbor. During annual maintenance dredging, container vessels, passenger ferries, and USCG vessels are able to maneuver around dredging equipment operating in the Inner and Outer Harbor waterways and therefore would be expected to do so during Proposed Project construction and future maintenance dredging of the widened portions of the turning basins. Thus, the Proposed Project's impacts to waterside emergency access would be less than significant.

None of the Proposed Project sites or construction staging areas are in the immediate vicinity of any emergency service facilities. The removal of portions of Howard Terminal and the Alameda Site would occur entirely within these properties and would not occur on public roadways. Construction staging areas would be on Port-owned or private property and would not require restrictions or closures of any public roads. Similarly, construction activities at Berths 10 and 26

would be contained on Port property. Construction equipment and materials would enter and exit each site through existing roadways. However, the temporary increases in construction traffic in the immediate vicinity of the Proposed Project sites could interfere with emergency vehicle access, resulting in a potentially significant impact.

### Level of Significance Before Mitigation

*Potentially Significant Impact.*

### Mitigation Measure

#### MM TRA-1: Traffic Control Plan

### Level of Significance After Mitigation

*Less than Significant Impact with Mitigation.*

As discussed under Impact TRA-1, the construction contractor would be required to develop a comprehensive construction TCP that includes measures to minimize the effects of the Proposed Project's construction traffic on overall circulation, including maintaining adequate emergency access at the Proposed Project sites and general access for neighboring properties at all times. With the implementation of the required TCP, the volume and timing of construction traffic would be managed to avoid adversely affecting circulation on nearby roads and emergency access in the immediate vicinity of the Proposed Project sites would be maintained; therefore, the Proposed Project's residual impact on emergency response would be **less than significant**.

## *Impact TRA-3. Would the Proposed Project change vessel traffic patterns, resulting in unplanned or regularly occurring delays, substantial adverse change in freedom of movement, increased safety risks, or introduction of safety hazards? (Criterion E) (Less than Significant)*

### Impact Analysis

As described under Impact TRA-2, the IHTB and OHTB are wide enough to accommodate passage of other vessel traffic during the Proposed Project's construction. In addition, for widening the IHTB, in-water equipment would be located on the perimeter of the turning basin and not in the middle of the existing navigation channel, which would minimize interference with container vessel and other vessel traffic. Further, in-water work for Howard Terminal and the in-water bulkhead near the Schnitzer/Radius Recycling Terminal would be conducted during a different construction year than in-water work for the Alameda Site; therefore, equipment for these construction activities would not be operating on the northern and southern sides of the IHTB concurrently. In the OHTB, dredging would occur outside the limits of the existing navigation and channel and away from the Outer Harbor Terminal berths, and therefore would not be expected to interfere with vessel use of the Outer Harbor Channel and OHTB. In addition, vessels can slow down and stop when needed to let others have the right-of-way, and until there is enough room to traverse safely. For the purposes of navigation, a comparable activity to the Proposed Project's in-water construction is annual maintenance dredging of Oakland Harbor. During annual maintenance dredging, container vessels, passenger ferries, and USCG vessels are able to maneuver around dredging equipment operating in the Inner and Outer Harbor waterways

and therefore would be expected to do so during Proposed Project construction and future maintenance dredging of the widened portions of the turning basins.

The Proposed Project would comply with applicable vessel traffic and safety requirements. For example, the contractor would have to publish a Notice to Mariners including at a minimum: a description of project activities, work start and end dates, contractor contact information, vessel information, and the size and placement of construction equipment. In addition, the contractor would coordinate vessel activities with the Marine Exchange, USCG (via the VTS system), and San Francisco Bar Pilots. Dredging during construction would add to vessel movement in the vicinity, particularly during transport of material to beneficial reuse sites; however, this vessel traffic would be similar to that which has occurred during past annual maintenance dredging operations at the Seaport and would be negligible considering the existing volume of vessel movement in the Oakland Harbor and the greater San Francisco Bay.

Following construction, vessel movements would continue in the Oakland Harbor waterways per normal operations. The new in-water bulkhead structure near the Schnitzer/Radius Recycling Terminal would rise just above the mudline, would fall outside the navigational channel limit, and would be noted on navigation charts. Therefore, the Proposed Project would not introduce any permanent safety risks or hazards.

In summary, the Proposed Project would not result in regularly occurring delays, substantially adversely affect freedom of movement, increase safety risks, or introduce safety hazards. The Proposed Project's impacts on water-based transportation would be **less than significant.**

# 3.15. TRIBAL CULTURAL RESOURCES

Tribal cultural resources may include physical cultural items or may be places or contributing elements within a tribal cultural resources landscape, such as gathering places, sacred sites, landscape features, culturally significant plants, or other locations or items that are related to the religious and cultural practices, traditions, beliefs, lifeways, arts, crafts, or social institutions of a living tribal community. This category of resources under CEQA recognizes that tribes may have unique knowledge, expertise, and information about tribal cultural resources that is important to the self-identity of tribal groups and can only be identified by members of the relevant tribe, thus requiring consultation under CEQA pursuant to AB 52 (described under Section 3.15.2). Historical resources, unique archaeological resources, or nonunique archaeological resources may also be tribal cultural resources if they meet criteria outlined in PRC Section 21074, as further explained in Section 3.15.2. This section addresses tribal cultural resources; archaeological and historic cultural resources are addressed in Section 3.5.

## 3.15.1. Environmental Setting

This section summarizes the ethnographic background of the Proposed Project area and describes the Native American consultation efforts and archaeological assessment completed for the Proposed Project to identify potential tribal cultural resources in the APE for the Proposed Project, as defined in Section 3.5.1.

### *Ethnographic Background of Proposed Project Area*

As detailed in the Cultural Resources Inventory Report prepared for the Proposed Project (AECOM 2023; see Appendix D), the Proposed Project is in the *Chochenyo* territory of the Costanoan Indians. Costanoan is not a native term, but rather is derived from the Spanish word *Costanos*, meaning coast people. The term Ohlone is generally preferred by tribal groups representing the area and is more commonly used today.

### *Native American Consultation*

Native American consultation completed to date for the Proposed Project includes efforts by USACE in compliance with NEPA and Section 106 of the National Historic Preservation Act, and efforts by the Port in compliance with AB 52.

USACE initiated consultation efforts with the local Native American community on September 16, 2020, with a letter requesting participation in resource agency and tribal working group meetings pursuant to NEPA. These meetings, held virtually due to the global COVID-19 pandemic, were held on October 8, 2020; May 4, 2021; August 17, 2021; and September 29, 2022. All were attended by Kanyon Konsulting LLC – Cultural Representative of Indian Canyon Mutsun Band of Costanoan Ohlone People.

On June 22, 2021, AECOM, on behalf of USACE and the Port, electronically submitted an SLF and Native American Contacts List Request form to the California NAHC. The NAHC replied on July 15, 2021, providing both a list of Native American contacts and the results of the SLF review. The NAHC indicated that their review of the SLF was "positive," meaning that Native American resources may be in or near the Proposed Project APE and identified the Amah Mutsun Tribal

Band of Mission San Juan Bautista and the North Valley Yokuts as the parties to contact concerning this finding. The complete list of tribal groups identified by the NAHC is as follows:

- Amah Mutsun Tribal Band of Mission San Juan Bautista;
- Costanoan Rumsen Carmel Tribe;
- Indian Canyon Mutsun Band of Costanoan;
- Muwekma Ohlone Indian Tribe of the San Francisco Bay Area;
- North Valley Yokuts Tribe;
- the Ohlone Indian Tribe;
- Wuksache Indian Tribe/Eshom Valley Band; and
- the Confederated Villages of Lisjan.

On September 22 and 23, 2021, a second letter was sent by USACE to all of the groups identified in the July 15, 2021, response from the NAHC. This second letter requested any information these groups may have regarding properties, features, or materials in the Proposed Project area and immediate vicinity that may be of concern to the local Native American community.

USACE received one response to its letters from Kanyon Sayers-Roods, a representative of the Indian Canyon Mutsun Band of Ohlone. Ms. Sayers-Roods did not have specific information about resources in the area. As noted above, Ms. Sayers-Roods participated in the series of resource agency and tribal working group meetings that were initiated by USACE after the first round of outreach letters.

Although no Native American tribes have requested notification of proposed Port projects or consultation with the Port per AB 52, the Port sent out letters via electronic mail to all of the groups and individuals identified by the NAHC on May 19, 2023, requesting information regarding any known cultural and Native American resources in the vicinity of the Proposed Project, and inviting tribes to respond with a request for consultation within 30 days. This round of letters specifically referenced AB 52 and was sent out to ensure that the Port had met and exceeded their consultation requirements as the lead-CEQA agency. The Port received responses from the North Valley Yokuts Tribe and The Confederated Villages of Lisjan; however, no responses were received that identified specific properties, features, or materials in the Proposed Project area and immediate vicinity that may be of concern. No responses were received requesting consultation. Therefore, no potential tribal cultural resources were identified during the consultation process undertaken for the Proposed Project.

### *Archaeological Assessment*

No precontact archaeological resources, including those that could be considered tribal cultural resources, were identified in the APE during the cultural resources inventory effort completed for the Proposed Project (AECOM 2023). As described in Section 3.5.1, there is a low potential for intact (i.e., undisturbed, *in situ*) archaeological resources, precontact or otherwise, in the submerged (underwater) portions of the APE because any archaeological remains that may have once been present were likely removed from both the IHTB and OHTB during previous dredging events of sediment that would have been able to support human habitation. Such previous dredging efforts have occurred for development projects along the shoreline adjacent to the turning basins (e.g., Howard Terminal), for the initial creation of the navigation channels and

turning basins, for previous widening and deepening of the turning basins, and for regular maintenance of the turning basins, navigation channels, and berthing facilities (AECOM 2023).

## 3.15.2. Regulatory Setting

The following state laws are relevant to the protection of tribal cultural resources.

### *California Environmental Quality Act*

CEQA requires lead agencies to consider, as a separate category of environmental analysis, whether projects will impact tribal cultural resources. In some cases, tribal cultural resources are viewsheds, cultural landscapes, plant gathering areas, or other sacred spaces that are not readily identifiable to people outside of the tribe. In many cases, tribal cultural resources also include an archaeological component, such as artifacts, features, and sites (with or without human remains). PRC Section 21074 states the following:

a. "Tribal cultural resources" are either of the following:
    1. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
        A. Included or determined to be eligible for inclusion in the California Register of Historical Resources.
        B. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
    2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

b. A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

c. A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

### *California Health and Safety Code*

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the county coroner has examined the remains (Section 7050.5b). PRC Sections 5097.94 and 5097.98 also outline the process to be followed in the event that human remains are discovered. Upon determining or having reason to believe the remains are those of a Native American, the coroner must contact

the California NAHC within 24 hours (Section 7050.5c). The NAHC will notify the Most Likely Descendant (MLD). With the permission of the landowner, the MLD may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the MLD by the NAHC. The MLD may recommend means of treating or disposition of, with appropriate dignity, the Native American human remains, and any cultural or funerary items associated with Native American people.

### *Assembly Bill 52*

AB 52 (effective July 1, 2015) added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3 to CEQA, pertaining to consultation with California Native American tribes, consideration of tribal cultural resources, and confidentiality. AB 52 provides procedural and substantive requirements for lead agency consultation with California Native American tribes and consideration of impacts on tribal cultural resources, as well as examples of mitigation measures to avoid or minimize impacts to tribal cultural resources. AB 52 establishes that if a project may cause a substantial adverse change in the significance of a tribal cultural resource, that project may have a significant effect on the environment. Lead agencies must avoid damaging impacts to tribal cultural resources, when feasible, and shall keep information submitted by tribes confidential unless the information is deemed publicly available by the tribe.

AB 52 requires a lead agency to consult with California Native American tribes that are traditionally and culturally affiliated with the geographic area of a project if the tribe has requested, in writing, to be informed and consulted by the lead agency of proposed projects in that geographic area. Section 21080.3.1(d) states that the lead agency shall provide formal notification to the designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice. This shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency's contact information, and a notification that the California Native American tribe has 30 days to request consultation.

## 3.15.3. Significance Criteria

Based on Appendix G of the CEQA Guidelines, the following question (criterion) was analyzed and evaluated to determine whether the Proposed Project's impacts related to tribal cultural resources are significant. Would the Proposed Project:

A. cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

   i. listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k), or

   ii. a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

### *Methodology for Analysis*

Impacts to tribal cultural resources are assessed in consultation with affiliated Native American tribes, in accordance with PRC Section 21080.3. This analysis considers whether the Proposed Project would cause damaging effects to any tribal cultural resource in the APE. This analysis was based on consultation with the NAHC, including their review of the SLF, as well as tribal outreach to solicit input from the appropriate tribal entities, as identified by the NAHC, regarding any information these groups may have concerning potential resources of concern in the APE. Additionally, because precontact archaeological resources can themselves be considered tribal cultural resources, the potential for precontact archaeological resources to be present undisturbed in the sediment that would be removed during Proposed Project construction was evaluated. This sensitivity analysis was informed by the results of the records search and field survey completed for the Proposed Project as well as through the review of the site history and underlying geology.

## 3.15.4. Impact Analysis and Mitigation Measures

### *Impact TCR-1. Would the Proposed Project have a substantial adverse effect on a tribal cultural resource, defined in PRC Section 21074? (Criterion A) (Less than Significant with Mitigation)*

#### Impact Analysis

There are no previously recorded precontact archaeological resources that could be considered tribal cultural resources in the APE delineated for the Proposed Project. As a result of previous maintenance-and-development-related dredging in both the IHTB and OHTB, described in Section 3.5.1, the sediment that occurs in the APE delineated for the Proposed Project is unlikely to contain intact (i.e., undisturbed) precontact archaeological resources that could be considered tribal cultural resources. Future maintenance dredging of the widened areas of the turning basins would be confined to the removal of sediment accumulated since the last dredging event. Sediment deposited since the previous dredging activities would not contain undisturbed precontact archaeological resources that could be considered tribal cultural resources; therefore, maintenance dredging would not be expected to impact tribal cultural resources.

As detailed above, USACE and the Port have contacted all Native American groups and individuals listed by NAHC as potentially having information or concerns about tribal cultural resources in the Proposed Project vicinity. Of the responses received, none identified specific properties, features, or materials in the Proposed Project APE and immediate vicinity that may be of concern.

Although unlikely, it is possible that previously unrecorded tribal cultural resources could be inadvertently (accidentally) exposed during Proposed Project construction. If such resources were encountered, impacts to tribal cultural resources could be **potentially significant**.

#### Level of Significance Before Mitigation

*Potentially Significant Impact.*

## Mitigation Measure

### MM TCR-1: Inadvertent/Unanticipated Tribal Cultural Resources Discovery Protocols

If tribal cultural resources or potential tribal cultural resources are discovered during Project construction, the following actions shall be taken:

4. Dredging and excavation work, or any other activities at the locations and within 50 feet of the finds must halt.
5. The crew member(s) shall immediately notify the Project Construction Manager and the Port Project Manager.
6. Work can be shifted to other Project areas to avoid loss of work time. However, work shall only resume in the suspected area once the situation has been properly examined and assessed by a qualified archaeologist, and the Port has given notification that work may resume.

To ensure that the work force is aware of the regulatory protections afforded to tribal cultural resources, the potential impacts that could occur with the inadvertent discovery of previously unknown precontact archaeological resources during Project construction, how to recognize precontact archaeological resources that could be determined to also represent tribal cultural resources, as well as the procedures to be followed in the event of such a discovery, the Port shall provide a cultural resources awareness training to the Project's prime contractor and subcontractors involved with sediment and soil disturbing activities. The Port shall also provide a construction "ALERT" sheet for the Project prepared by a qualified archaeologist. The ALERT sheet shall contain, at a minimum, visuals that depict each type of precontact artifact that could potentially be encountered, as well as the procedures to be followed in the event of a potential discovery (see below), and the contact information of those Port personnel who are to be contacted in the event of a discovery. Prior to any soil-disturbing activities, each contractor shall be responsible for ensuring that the ALERT sheet is circulated to all field personnel. The ALERT sheet shall also be posted in a visible location at the Project site.

In the event that potential precontact archaeological resources are inadvertently discovered during Project construction, all activity within a 50-foot radius of the find shall be stopped, the appropriate Port personnel shall be notified as listed above, and a qualified archaeologist shall be retained by the Port to examine the find. Project personnel shall not collect or move any uncovered materials—whether suspected to be archaeological in nature or not. The archaeologist shall provide a preliminary evaluation of the find(s) to determine if a precontact archeological resources is represented; and if so, whether it meets the definition of a potential tribal cultural resource.

If the find(s) meet the definition of a potential tribal cultural resource under CEQA, then it shall be avoided and preserved in place (the preferred method if feasible). Feasibility of avoidance shall be determined with consideration of factors such as the nature of the find, Project design, costs, and other considerations. If avoidance is not feasible, as determined by the Port, the Port will consult the appropriate tribal entities as well as the qualified archaeologist to prepare a treatment plan that includes measures to reduce impacts to the

resource. The treatment plan measures may include, but need not be limited to, design changes to limit disturbance of the resource, minimizing processing of materials for reburial, minimizing handling of tribal cultural resources objects, leaving objects in place within the landscape, or returning tribal cultural resources objects to a location in the general vicinity of the Proposed Project where they will not be subject to future disturbance. Data recovery as well as the development of interpretive materials may also be deemed appropriate.

## Level of Significance After Mitigation

*Less than Significant Impact with Mitigation.*

In the event of an unanticipated discovery, implementation of Mitigation Measure TCR-1 would avoid substantial adverse impacts to tribal cultural resources by requiring work to stop within 50 feet of the find until it is properly evaluated by a qualified archaeologist and, if the discovery is determined to potentially represent a tribal cultural resource and avoidance is not feasible, requiring that tribal representatives be consulted regarding the appropriate treatment of the find. With implementation of Mitigation Measure TCR-1, the Proposed Project's impact to tribal cultural resources would be **less than significant**.

# 3.16. UTILITIES/SERVICE SYSTEMS

This section identifies existing utilities and service systems in the Proposed Project area; existing regulations, policies, and plans regarding utilities that are pertinent to the Proposed Project; and potential utilities and service system impacts of the Proposed Project.

## 3.16.1. Environmental Setting

The Proposed Project sites are in a primarily maritime industrial area in and along San Francisco Bay. The Proposed Project area is served by existing utility and service systems, including water, natural gas, sanitary sewer, electrical, stormwater, and telecommunications, each of which are described below, along with solid waste facilities.

### *Water*

Water supply to the City of Oakland, including the Port, and the City of Alameda is provided by the East Bay Municipal Utility District (EBMUD). EBMUD sources approximately 90 percent of its water from the Mokelumne River watershed in the Sierra Nevada. Water is transported approximately 90 miles to Alameda and Contra Costa County customers through a network of reservoirs, aqueducts, treatment plants, and distribution facilities. The remaining 10 percent is supplied from runoff in protected watershed lands in the East Bay (EBMUD 2023). Approximately 1.4 million people are currently served by EBMUD's water system in a 332-square-mile area extending from Crockett on the north, southward to San Lorenzo and portions of Hayward (including Oakland and Alameda), eastward to Walnut Creek, and south through the San Ramon Valley (including Alamo, Danville, and San Ramon) (EBMUD 2021).

There are underground existing water lines are at the Proposed Project sites and throughout the surrounding industrial, commercial, and urban development. Some water lines are designated as fire lines and include fire hydrants aboveground for use in the event of fires, and for use during construction of projects when needed. The water supply to the Port is from EBMUD. The Port provides water distribution infrastructure within its boundaries from EBMUD main distribution lines. Water lines are present in the landside property in Howard Terminal that would be removed by the Proposed Project; this area consists of a paved wharf structure that includes areas for parking and shipping container storage.

EBMUD provides water distribution infrastructure in Alameda, through which it supplies water. Private lines connect from properties to the EBMUD distribution system. Water lines are present in the landside property at the Alameda Site that would be removed by the Proposed Project. These lines serve the existing warehouses that would be partially demolished with Proposed Project implementation.

### *Wastewater*

EBMUD also provides wastewater treatment service for the City of Oakland, including the Port, and the City of Alameda. The EBMUD wastewater system serves approximately 740,000 people in an 88-square-mile area extending from Richmond in the north to San Leandro in the south. Wastewater is collected from municipalities and transported to the Main Wastewater Treatment Plant in Oakland via a wastewater interceptor system consisting of

large-diameter pipelines and pumping stations. Primary and secondary wastewater treatment at the Main Wastewater Treatment Plant is available for maximum flows of 320 mgd and 168 mgd, respectively. The average dry-weather flow from 2010 to 2019 at the Main Wastewater Treatment Plant was 54 mgd, and flows are projected to increase to 63 mgd by 2045 (EBMUD 2021). Treated effluent from the Main Wastewater Treatment Plant is discharged into San Francisco Bay. Wet weather flows are a concern when flows exceed the treatment capacity of existing facilities; EBMUD is currently working to meet new regulatory requirements from the USEPA and SWRCB to eliminate discharges due to high wet-weather flows (EBMUD 2020).

The Port and City of Oakland provide sewer collection infrastructure within the Seaport boundaries, while sewer treatment services are provided by EBMUD. Existing sewer collection lines and sewer laterals are located underground throughout the Seaport. A sewer lateral is the pipe that conveys sewage from a building's plumbing to the City sewer system. The Port and its tenants, where applicable, are responsible for the operation and maintenance of sewer lateral lines. The City of Oakland also maintains the main sewer lines within the Seaport. Sewer lines are present in the portion of Howard Terminal that would be removed with Proposed Project implementation.

The City of Alameda provides sewer collection services in the City before discharging to the EBMUD interceptor system. On January 1, 2015, Alameda became part of the EBMUD Regional Private Sewer Lateral Program. The property owner handles the maintenance and replacement of the upper sewer lateral (i.e., the part on private property). The City of Alameda maintains the lower sewer lateral, which is the part from the property line to the sewer main. Sewer lines are present in the portion of the Alameda Site that would be removed with Proposed Project implementation.

### *Stormwater*

Stormwater in the Proposed Project area is collected and conveyed to San Francisco Bay via storm drain inlets, catch basins, below-grade conveyance lines, overland flow, and outfalls. The Port and its tenants, where applicable, are responsible for the operation and maintenance of the local storm drainage system (including treatments systems) within its boundaries; however, the main stormwater lines are maintained by the City of Oakland. The City of Alameda is responsible for the operation and maintenance of the local storm drainage system within its boundaries.

Howard Terminal has two existing Port gravity stormwater pipelines (mains) conveying stormwater under Market Street and Martin Luther King Jr. Way to outfalls that discharge approximately halfway between the Embarcadero and southern limit of the existing wharf, where the outfalls meet the shoreline beneath the wharf structure. These mains convey stormwater runoff from areas in the Seaport stormwater drainage system, including, but not limited to, Port and private properties, and public rights-of-way (roadways) in the City of Oakland. Additionally, both mains convey stormwater from several catch basins and laterals that collect stormwater runoff in Howard Terminal. Stormwater lines and catch basins are present in the portion of Howard Terminal that would be removed with Proposed Project implementation.

Storm drain inlets and storm drain lines are present in the portion of the Alameda Site that would be removed with Proposed Project implementation.

The Proposed Project area (excluding the Inner and Outer Harbor Channels and Turning Basins, which are in the waters of the Bay) is mostly developed, and is covered by impervious surfaces that contribute stormwater runoff to the Bay.

### *Electrical Power, Natural Gas, and Telecommunications*

There is existing electrical power, natural gas, and telecommunications infrastructure in the Proposed Project area.

The Port operates its own municipal electrical utility (a Publicly Owned Utility) that serves Port property, including Oakland International Airport, the majority of the Seaport, and some portions of Port land between the Seaport and Airport. In 2021, the Port met approximately 50 percent of its energy demand through renewable sources, and natural gas amounted to only 0.1 percent of the total energy use (Port of Oakland 2023a).

The Port provides shore power for vessels docked at the Port, including container and layberth (long stay) vessels, which allows them to plug into the electric grid and turn off engines while docked. The electrical infrastructure runs from the Port's main substations to on-terminal substations, and from there to the terminal wharves. Power is extended down to the wharves, where vaults with electrical connections provide the outlets that supply electricity to the vessels (Port of Oakland 2023b).

Alameda Municipal Power, a Publicly Owned Utility, provides electrical service to Alameda, including the Alameda Site. Alameda Municipal Power has provided its customers with 100 percent clean power since 2020, including a mix of geothermal, hydroelectric, wind, and landfill recover (Alameda Municipal Power 2023).

PG&E provides natural gas service in the Cities of Oakland and Alameda. Underground gas lines are present on the northern portion of Howard Terminal, but not in or directly adjacent to the portion that would be removed with Proposed Project implementation. Underground gas lines are present in the portion of the Alameda Site that would be removed with Proposed Project implementation.

There are multiple telecommunications service providers in the Cities of Oakland and Alameda, including Xfinity and AT&T.

### *Solid Waste*

In the City of Oakland, municipal solid waste[91] is collected by Waste Management of Alameda County and transported to the Waste Management Davis Street Transfer Station in the City of San Leandro. From the transfer station, trucks haul most of the waste to the Altamont Landfill and Resource Facility, near the City of Livermore. A smaller percentage of solid waste generated in the area is transferred to Keller Canyon Landfill in Contra Costa County (City of Oakland 2015). The Altamont Landfill has a maximum permitted capacity of 124.4 million cubic yards; as of 2016, there was remaining capacity of 65.4 million cubic yards (CalRecycle 2023a). The Keller Canyon Landfill has a maximum permitted capacity of 75 million cubic yards, with a remaining capacity of approximately 60 million cubic yards as of 2013 (CalRecycle 2023b, Keller Canyon Landfill Company 2013).

[91] Residential and commercial garbage containing products like packaging, furniture, and clothing, and considered non-hazardous waste.

In the City of Alameda, municipal solid waste is collected by Alameda County Industries. Alameda residents and businesses divert 77 percent of their waste from the landfill through source reduction, recycling, and composting (City of Alameda 2023a).

For the purposes of this Draft EIR, the anticipated landfill to accept hazardous waste from the Proposed Project is the Kettleman Hills Class I landfill in Kings County. This landfill was identified as the Class I landfill nearest to the Proposed Project that is expected to have sufficient capacity at the time of the Proposed Project's construction. As of 2015, the Kettleman Hills landfill had maximum permitted capacity of 15.6 million cubic yards, and remaining capacity of approximately 4.9 million cubic yards (CalRecycle 2023c, Waste Management 2015).

The USACE and Port perform routine dredging of the Oakland Harbor Federal commercial waterway (includes turning basins) as well as the terminal berths, respectively, to maintain adequate depths for vessels to access and dock at the Port. Typically, dredged materials from maintenance dredging are either beneficially reused at nearby wetland areas, such as the Montezuma Wetlands Restoration Project on Suisun Bay, or relocated into the Pacific Ocean (San Francisco Deep Ocean Disposal Site).

## 3.16.2. Regulatory Setting

### *Federal*

There are no federal plans, policies, regulations, or laws related to utilities and service systems that would apply to the Proposed Project.

### *State*

#### State Water Code

Pursuant to the State Water Code, water suppliers providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually must prepare and adopt an urban water management plan (UWMP), and update it every five years. As part of a UWMP, water agencies are required to evaluate and describe their water resource supplies and projected needs over a 20-year planning horizon, including water conservation, water service reliability, water recycling, opportunities for water transfers, and contingency plans for drought events. EBMUD adopted its most recent UWMP in June 2021.

#### Assembly Bill 939

The California Integrated Waste Management Act of 1989, or Assembly Bill (AB) 939, established the Integrated Waste Management Board, required the implementation of integrated waste management plans, and mandated that local jurisdictions divert at least 50 percent of solid waste generated by January 2000. Later legislation mandates the 50 percent diversion requirement be achieved every year. Projects that would have an adverse effect on waste diversion goals are required to include waste diversion mitigation measures.

To help in the increase of diversion rates, each jurisdiction is required to create an integrated waste management plan. The plan must promote (in order of priority) source reduction, recycling and composting, and environmentally safe transformation and land disposal. Elements of the plan must be updated every five years. Alameda County adopted its integrated waste management plan in 2003; the most recent version of the plan was adopted in 2020.

### California Green Building Standards Code

In January 2010, the State of California adopted the California Green Building Standards Code (CALGreen), establishing mandatory green building standards for all buildings in California, including requirements for waste reduction and recycling. The code covers five categories: planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and indoor environmental quality. CALGreen, which is updated triennially, currently requires covered projects to recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition waste, or meet a similar local ordinance, whichever is more stringent (CalRecycle 2023d).

### Municipal Storm Water Program

Stormwater discharges from municipal separate storm sewer systems (MS4s) are regulated through the Municipal Storm Water Program. Municipalities with a population of 100,000 or more are covered by the Phase I Permit Program, while municipalities with a population less than 100,000 and nontraditional municipalities designated by the state are covered by the Phase II Permit Program. The SWRCB and the individual RWQCBs implement and enforce the Municipal Storm Water Program. The Small MS4 permit (MS4 NPDES Permit No. CAS000004 and Order No. 2013-0001-DWQ) issued by the SWRCB designates the Port as a Non-Traditional Small MS4. The RWQCB also issued a Municipal Regional Permit (MRP; Permit No. CAS612008 and Order No. R2-2015-0049) that contains comprehensive administrative and physical requirements to reduce the discharge of pollutants to the "maximum extent practicable" (e.g., BMPs, water quality monitoring), which applies to Alameda.

## *Regional and Local*

### EBMUD Regional Private Sewer Lateral Ordinance

EBMUD's Regional Private Sewer Lateral Ordinance establishes regulations for the inspection, testing, repair, replacement, and ongoing maintenance of private sewer laterals. The purpose of this ordinance is to provide for the operation and maintenance of EBMUD's wastewater conveyance and treatment facilities in a reliable and serviceable manner and to reduce infiltration and inflow into the regional sanitary sewer system. The ordinance applies in the City of Oakland and the City of Alameda, among other local municipalities. Property owners must obtain a certificate from EBMUD certifying that all of their private sewer laterals are leak-free when buying or selling a property, building or remodeling in excess of $100,000, or changing the size of the property's water meter.

### Port of Oakland Stormwater Ordinance (Ordinance No. 4311)

On January 15, 2015, the Port adopted a stormwater ordinance to comply with the provisions of the SWRCB's Phase II Permit. The purpose of the Ordinance is to protect and enhance the water quality of San Francisco Bay and its tributaries by reducing pollutants in stormwater discharge to the maximum extent practicable, and eliminating unauthorized non-stormwater discharges to the Port's storm drains (Larry Walker and Associates 2015).

### Port of Oakland Sewer System Ordinance (Ordinance No. 4113)

Port Ordinance No. 4113 prohibits discharge of wastewater that results in contamination, pollution, or nuisance. It also states that wastewater may be discharged into the Port sanitary sewer system as long as it meets the criteria outlined in the ordinance. The Ordinance states that the Board Port of Commissioners authorizes the Chief Engineer to develop, publish, and enforce

standards for design, construction, inspection, testing, and abandonment of the sanitary sewer system.

### Port of Oakland Lateral Sewer Ordinance (Ordinance No. 4474)

Port Ordinance No. 4474 requires Port tenants to comply with private sewer lateral regulations as referenced in City of Oakland Municipal and Planning Codes sections 13.08.590 through 13.08.620. This ordinance also gives directive for assessing and repairing Port-owned private sewer laterals, and requires Port staff to prepare a Port-wide Condition Assessment Plan to assess the condition of sewer pipes, and follow up with a Corrective Action Work Plan to bring all defective sewer pipes into compliance with the standards set forth in the EBMUD Regional Private Sewer Lateral Ordinance and City of Oakland Municipal Code Section 13.08.610.

### Sewer System Management Plans

In accordance with SWRCB Order No. 2022-0103, *Statewide General Waste Discharge Requirements General Order for Sanitary Sewer Systems*, the Port, EBMUD, and City of Alameda have developed Sewer System Management Plans to manage, operate, and maintain their respective wastewater collection systems (Port of Oakland 2020, EBMUD 2022, City of Alameda 2017). The Sewer System Management Plans contain goals and corresponding regulations, programs, and plans to ensure adequate capacity to convey flows in the respective sewer systems, including requirements for operations and maintenance; design and performance; overflow reporting and response; control of fats, oils, and grease; and system evaluation and capacity assurance.

### City of Oakland Municipal Code Chapter 15.34 and Green Halo Program

Chapter 15.34 of the Oakland Municipal Code outlines requirements for reducing waste and optimizing construction and demolition recycling. The City of Oakland requires projects subject to the Construction Demolition Recycling Ordinance to recycle 100 percent of inert materials (e.g., asphalt. concrete, rock, and excavation spoils) and 65 percent of all remaining materials. The Construction Demolition Recycling Ordinance applies to City and Port projects, even when a permit is not required. Affected projects include all new construction, renovations/alterations/ modifications with construction values of $50,000 or more, and all demolition. A Waste Reduction and Recycling Plan (WRRP) is required to be prepared for City review and approval under this ordinance. The WRRP must specify the methods by which the project will divert construction and demolition debris waste from landfill disposal in accordance with current City requirements. Reporting of material reuse, recycling, and disposal is tracked through the City's Green Halo Systems Portal.

### City of Oakland General Plan

The City of Oakland General Plan (City of Oakland 1996) contains the following policy that is relevant to utilities and service systems and the Proposed Project:

- Policy CO-4.1: Water Conservation. Emphasize water conservation and recycling strategies in efforts to meet future demand.

### City of Alameda General Plan

The City of Alameda General Plan (City of Alameda 2022) contains the following policies that are relevant to utilities and service systems and the Proposed Project:

- Policy HS12: City Buildings and Infrastructure. Continue to strengthen and rehabilitate city buildings and infrastructure, including but not limited to wastewater systems and pump stations, stormwater systems and pump stations, and electric system and facilities

to ensure that the City can respond effectively to seismic events and to provide resilience and long-term functionality.

- Policy HS19: Public Infrastructure. Protect and upgrade public infrastructure, including, but not limited to streets, wastewater systems and pump stations, stormwater systems and pump stations and electric systems and facilities to ensure capacity and resilience during storm events, high tides, and groundwater and sea level rise, to decrease the chance of flooding of nearby streets, utilities, and private property.
- Policy HS31: Underground Utilities. Require new development to underground utilities to minimize disruption by fire or other natural disasters.

## 3.16.3. Significance Criteria

Based on Appendix G of the CEQA Guidelines, the below questions (criteria) were analyzed and evaluated to determine whether impacts related to utilities and service systems are significant. Would the Proposed Project:

A. Require or result in the construction of new or expanded water supply, wastewater collection or treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

B. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

C. Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

D. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

E. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

### *Methodology for Analysis*

The Proposed Project would not introduce any new facilities that would result in a permanent increased demand on any utility or service system. Therefore, the following analysis generally focuses on potential impacts on utilities and service systems from physical disturbance and relocation, and utility use and solid waste disposal during construction. This analysis considered known locations of existing utility infrastructure; estimated water, wastewater, and solid waste disposal requirements during construction, and applicable regulations and plans governing utilities and solid waste management as summarized in Section 3.16.2.

## 3.16.4. Impact Analysis and Mitigation Measures

### *Impact UTL-1. Would the Proposed Project require or result in the construction of new or expanded water supply, wastewater collection or treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? (Criterion A) (Less than Significant)*

**Impact Analysis**

The Proposed Project does not involve the addition of new facilities that would increase demand for water, wastewater, or natural gas or telecommunications services; therefore, the Proposed Project would not result in the construction of new or expanded water, wastewater, natural gas, or telecommunications facilities. In addition, the Proposed Project would not result in an increase of impervious surfaces, and therefore would not require new or expanded stormwater drainage or treatment systems. Howard Terminal is covered under the MS4 Phase II Permit; therefore, replacement of more than 5,000 square feet of impervious surface would require design features for post-construction treatment and runoff reduction, which would improve runoff flows and water quality post-construction.

The small volume of water required during construction (primarily for dust control on access roads, work sites, and staging areas, and for washing equipment) would be obtained from existing water sources provided by EBMUD (this could include use of recycled water for non-potable construction uses), which has available supplies to meet the Proposed Project's demand, in combination with other local and regional commitments (see discussion under Impact UTL-2). No additional water facilities would be required to accommodate construction of the Proposed Project.

Only small volumes of wastewater (e.g., from portable toilets or a construction trailer wastewater holding tank) would be generated by construction workers, which would range in number from approximately 8 to 90, depending on concurrent construction activities, throughout project construction; the estimated volume of sanitary wastewater that would be generated during construction is 250,000 gallons. In addition, dewatering may be required during landside excavation activities and the wastewater could be discharged to the sanitary sewer as authorized by the RWQCB and/or EBMUD. The estimated volume of construction dewatering for Howard Terminal is approximately 117,550 gallons per day, for a total volume of approximately 2.35 million gallons. The estimated volume of construction dewatering for the Alameda Site is approximately 45,450 gallons per day, for a total volume of approximately 4.77 million gallons. Wastewater would be disposed of at the Main Wastewater Treatment Plant, which has capacity for secondary treatment of 168 mgd of dry-weather flow, and would have millions of gallons of treatment capacity remaining following projected increases through 2045. As stated in Section 3.16.1, wet weather flows are a concern when flows exceed the treatment capacity of existing facilities. However, standard EBMUD permit conditions restrict special wastewater discharges, such as from dewatering, during a rain event or within 24 hours of a rain event; a rain event is defined as any precipitation greater than a drizzle. The Proposed Project would be required to comply with this condition and therefore would not contribute to an exceedance of wastewater treatment capacity during wet-weather flows. The Proposed Project

would not require additional wastewater facilities to accommodate the minimal wastewater volumes generated during construction.

The Proposed Project includes electrical infrastructure installation adjacent to the OHTB at Berth 26 to support electrical dredging in this area. A lineup of electrical switchgear would be installed adjacent to the nearest existing substation, Substation SS-C-57, which is approximately 270 feet southeast from the water's edge at Berth 26, in an existing developed area of the Port. Environmental impacts associated the installation of the infrastructure, such as emissions from construction equipment and potential soil erosion, would be minimal considering the small construction footprint and relatively short construction duration (3 months) for this component.

As described in Chapter 2 and above in Section 3.16.1, existing utility lines are present in the landside portions of Howard Terminal and the Alameda Site that would be removed with Proposed Project implementation. Specific utility replacement/relocation needs would be identified and addressed during the Proposed Project pre-construction engineering and design phase. Existing utility lines, including electric, gas, water, stormwater, and sanitary sewer, that would be impacted by the Proposed Project at the Alameda Site and Howard Terminal would be cut and capped, and/or relocated in adjacent available landside areas. Site alterations may also include removal, replacement, or redesign of drainage infrastructure such as curbs and gutters due to upland excavation and reconfiguration of the shoreline. Any utility replacements or relocations would be implemented in accordance with all applicable mitigation measures and regulatory requirements identified throughout this document. Therefore, the Proposed Project's impacts related to relocation or construction of utilities would be **less than significant**.

### *Impact UTL-2. Would the Proposed Project have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years? (Criterion B) (Less than Significant)*

#### Impact Analysis

Water would be used during construction of the Proposed Project, primarily for dust control on access roads, work sites, and staging areas, and for washing equipment. The estimated volume of water that would be needed for the Proposed Project construction is 2.5 million gallons total over the two-year and four-month construction period. As described above, EBMUD would supply the water used during construction; this could include use of recycled water for non-potable construction uses. In its 2020 UWMP, EBMUD concluded that there is sufficient water supply to support projected increased demand in its service area through 2030 under normal, single dry, or multiple dry-water years. However, even with aggressive water conservation and recycling programs, current water supplies are insufficient to meet projected customer demands through 2040 during multi-year droughts. EBMUD is working to identify supplemental water supplies and additional recycled water programs; new water supplies would come from water transfers, groundwater storage, and regional supply projects. Near-term shortfalls can be met through contracts with the United States Bureau of Reclamation for water deliveries from the Central Valley Project during dry and critically dry periods. Construction of the Proposed Project is anticipated to be completed prior to 2030, and the construction water demand would not exceed available water supplies under any of these scenarios. Therefore, Proposed Project's impacts on water supplies would be **less than significant.**

### *Impact UTL-3. Would the Proposed Project result in a determination by the wastewater treatment provider, which serves or may serve the Project, that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments? (Criterion C) (Less than Significant)*

#### Impact Analysis

As described above under Impact UTL-1, small volumes of wastewater (e.g., from portable toilets or a construction trailer wastewater holding tank) would be generated during construction of the Proposed Project; the estimated volume of sanitary wastewater that would be generated during construction is 250,000 gallons. In addition, dewatering may be required during landside excavation activities and the wastewater could be discharged to the sanitary sewer as authorized by the RWQCB and/or EBMUD. The estimated volume of construction dewatering for Howard Terminal is approximately 117,550 gallons per day, for a total volume of approximately 2.35 million gallons. The estimated volume of construction dewatering for the Alameda Site is approximately 45,450 gallons per day, for a total volume of approximately 4.77 million gallons. Wastewater would be treated at the Main Wastewater Treatment Plant, which has treated average dry-weather flows of 54 mgd in recent years and has a maximum secondary treatment capacity of 168 mgd. The Main Wastewater Treatment Plant therefore has available capacity to treat the volumes generated during construction. As stated in Section 3.16.1, wet weather flows are a concern when flows exceed the treatment capacity of existing facilities. However, standard EBMUD permit conditions restrict special wastewater discharges, such as from dewatering, during a rain event or within 24 hours of a rain event; a rain event is defined as any precipitation greater than a drizzle. The Proposed Project would be required to comply with this condition and therefore would not contribute to an exceedance of wastewater treatment capacity during wet-weather flows. Therefore, the wastewater impacts of the Proposed Project would be **less than significant.**

### *Impact UTL-4. Would the Proposed Project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? (Criterion D) (Less than Significant)*

#### Impact Analysis

**Table 3.16-1** shows the estimated amount of excavated terrestrial and dredged material that would be generated by the Proposed Project. All material suitable for beneficial reuse would be placed at a beneficial reuse site for the protection, restoration, or creation of aquatic wetland habitats. The material that is not suitable for beneficial reuse would be taken to either to a Class I permitted landfill or a Class II permitted landfill, depending on the characterization of the waste as hazardous or non-hazardous. For the purposes of this Draft EIR, the anticipated landfills to accept material from the Proposed Project include the Kettleman Hills Class I permitted landfill and the Keller Canyon Class II permitted landfill; these landfills were identified as the Class I and Class II landfills nearest to the Proposed Project that are expected to have sufficient capacity at the time of the Proposed Project's construction.

**Table 3.16-1 Estimated Amounts of Excavated Terrestrial and Dredged Material and Placement Location**

| Material | Volume (Cubic Yards) | Placement Location |
|---|---|---|
| Potentially hazardous materials requiring Class I landfill placement | 10,900 | Kettleman Hills Landfill |
| Non-hazardous materials requiring Class II landfill placement | 187,400 | Keller Canyon Landfill |
| Materials suitable for beneficial reuse as foundation/non-cover material (not acceptable for direct contact with water) | 1,712,300 | Beneficial use site, foundation material |
| Materials suitable for beneficial reuse as cover material (acceptable for direct contact with water) | 454,400 | Beneficial use site, cover material |
| Dredged rock from portion of rock dike (at Howard Terminal) and existing slope protection (at Alameda) | 82,600 | Beneficial reuse site, recycling/ reuse |
| **Total** | **2,447,600** | |

In addition to excavated soil and dredged sediment, solid waste would be generated from demolished structures (warehouses, pavement, piles, and bulkheads). An estimated 124,400 cubic yards of demolition waste would be recycled. Demolition waste not suitable for recycling would be transported to an appropriate landfill with adequate capacity, such as Kettleman Hills or Keller Canyon. For example, Kettleman Hills and Keller Canyon landfills have remaining disposal capacity of 4.9 and 60 million cubic yards, respectively, which would be sufficient to accommodate the Proposed Project's estimate 10,900 cubic yards of Class I material and 187,400 cubic yards of Class II material. Therefore, the Proposed Project would not generate solid waste in excess of local or state standards, or in excess of the capacity of existing infrastructure. Additionally, the Proposed Project would not impair the attainment of any solid waste reduction goals. It would comply with applicable local management and reduction regulations related to solid waste, which support the 50 percent waste reduction goal mandated by state law (AB 939), through recycling of demolition materials and beneficial reuse of dredged material, as further discussed under Impact UTL-5. Therefore, the Proposed Project's impact with respect to this criterion would be **less than significant.**

## *Impact UTL-5. Would the Proposed Project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? (Criterion E) (Less than Significant)*

### Impact Analysis

As described under UTL-4, all suitable material would be placed at a beneficial reuse site, and suitable construction demolition debris and materials would be diverted from landfills and recycled in compliance with state and local regulations. Chapter 15.34 of the City of Oakland Municipal Code was enacted to meet and further the goals of AB 939, and the Proposed Project would be consistent with requirements of Chapter 15.34 as well as AB 939, which requires a minimum diversion of 50 percent of solid waste from landfills. Additionally, the City of Alameda requires construction and demolition debris to be recycled in accordance with CALGreen (City of Alameda 2023b). A waste management plan would be submitted to the City of Alameda as part of the building demolition permit process in its jurisdiction. These submittals would identify who would haul the construction and demolition debris material, where it would be processed, and how reuse of materials would meet applicable standards. By complying with these local regulations, the Proposed Project would not conflict with other state or federal management and reduction regulations related to solid waste, and the impact would be **less than significant.**

# 4. CUMULATIVE IMPACTS

A cumulative impact is an impact caused when a proposed project combines with other past, present, and probable future projects (CEQA Guidelines Section 15130[a][1]). Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time (CEQA Guidelines Section 15355[b]). Under CEQA, an EIR must discuss the cumulative impacts of a project when the project's incremental contribution to the group effect is "cumulatively considerable."

## 4.1. APPROACH TO ANALYSIS

To meet the adequacy standard established by Section 15130 of the CEQA Guidelines, an analysis of cumulative impacts must contain the following elements:

- an analysis of related past, present, and probable future projects or planned development that would affect resources in the project area similar to those affected by the proposed project;
- a summary of the environmental effects expected to result from those projects; and
- a reasonable analysis of the combined (cumulative) impacts of the relevant projects.

The cumulative impacts analysis must evaluate a project's potential to contribute to any significant cumulative impacts identified, and it must discuss feasible options for mitigating or avoiding any contributions assessed as cumulatively considerable. The discussion of cumulative impacts is not required to provide as much detail as the discussion of the effects attributable to the project alone. Rather, the level of detail is to be guided by what is practical and reasonable.

Two approaches to a cumulative impact analysis are discussed in CEQA Guidelines Section 15130(b)(1): (a) the analysis can be based on a list of past, present, and probable future projects producing related or cumulative impacts; or (b) a summary of projections contained in a general plan or related planning document can be used to determine cumulative impacts. The analysis presented in this EIR employs the list-based approach identified earlier as approach (a).

The criterion for considering whether a project is reasonably foreseeable and probable in this Draft EIR is whether the project has been defined in adequate detail—either through the completion of publicly available preliminary evaluations, feasibility studies, or draft environmental and engineering documents—to inform understanding of potential project impacts. Projects that were only in the preliminary development phase without sufficient descriptions, operations criteria, or general locations to enable meaningful environmental review at the time that the Proposed Project's Notice of Preparation was published were not considered further. Projects were identified based on review of cumulative projects considered for other recent proposed projects at the Seaport (e.g., Eagle Rock Aggregates and the Oakland Waterfront Ballpark District at Howard Terminal) and through review of major development projects identified by the City of Oakland and the City of Alameda.

## 4.2. CUMULATIVE PROJECTS

**Table 4.2-1** lists the other past, present, and reasonably foreseeable projects considered in the cumulative analysis for the Proposed Project. This list includes projects that are likely to result in impacts similar to those of the Proposed Project. The list of projects generally includes those close to the Proposed Project area (i.e., those that could result in overlapping impacts, such as air quality, energy, transportation and circulation, or noise and vibration); or other projects along San Francisco Bay that could result in overlapping impacts to resources, such as biological resources, hydrology, and water quality. The spatial extent for analysis of cumulative impacts varies by resource and is equivalent to the geographic extent of impacts that would result from the Proposed Project. Future projects identified are those expected to be constructed or implemented prior to or potentially overlapping with construction of the Proposed Project, which is estimated to start in 2027 and be completed by 2029.

The cumulative impact evaluation assumes that the impacts of past and present projects are represented by baseline conditions (as described in Section 3.1, Introduction to Environmental Analysis); such projects include the Oakland Harbor Navigation Improvement (-50-Foot) Project and ongoing maintenance dredging at the Seaport, which have contributed to baseline conditions at the Proposed Project sites. Additional projects at the Port were completed as part of the Oakland Army Base Area Redevelopment. Cumulative impacts are considered in the context of baseline conditions alongside reasonably foreseeable future projects.

The following sections present the evaluation of cumulative impacts for each resource topic analyzed in detail in Chapter 3 of this Draft EIR.

**Table 4.2-1 Plans and Probable Future Projects for Cumulative Impact Analysis**

| Plan or Project Name | Description | Status |
|---|---|---|
| **Oakland Projects** | | |
| Port-wide cargo throughput per the 2002 Oakland Army Base Area Redevelopment Plan<br>Port | Port's target cargo throughput is 4.05 million twenty-foot equivalent units per year. | Due to recession, cargo has not yet reached target throughput. |
| Replace Outer Harbor Berths per the 2002 Oakland Army Base Area Redevelopment Plan<br>Port | This project involves replacement of Berths 21, 20, 10, 9, and 8 with a new Berth 21. | This project is part of the 2002 Oakland Army Base Area Redevelopment Plan; the San Francisco Bay Conservation and Development Commission Seaport Plan; and the Port's long-term development plan. |
| 7th Street Grade Separation East Project per the 2002 Oakland Army Base Area Redevelopment Plan<br>Port | This project involves realignment and reconstruction of the existing railroad underpass and multi-use path along 7th Street between west of Interstate 880 and Maritime Street. This will increase vertical and horizontal clearances for trucks to current standards and provide a separate pedestrian/bicycle pathway. | Approved; construction is anticipated to commence in late 2023, with an anticipated 30-month construction duration. |
| Eagle Rock Aggregates Oakland Terminal at Outer Harbor<br>Port | Eagle Rock Aggregates proposes to construct and operate the Eagle Rock Aggregates Oakland Terminal Project, a marine terminal at the Port that would import, store, and distribute bulk construction aggregates (i.e., sand and gravel). This project will take place at the Port's Outer Harbor Terminal. It would use Berth 22 for vessel and barge operations; and approximately 18 acres of Berth 20, 21, and 22 backlands (land directly adjacent to a vessel berth) for stockpiling and distribution of construction aggregates. | This project has been approved and is in the pre-construction phase. |

| Plan or Project Name | Description | Status |
|---|---|---|
| **Oakland Projects (Cont'd)** | | |
| California Waste Solutions Recycling Facility | California Waste Solutions proposes to build a new recycling facility at 2008 Wake Avenue in the Gateway Industrial District and relocate its existing recycling facilities in the West Oakland community to the new location. The proposal consists of a two-story, 170,765-square-foot recycling facility including approximately 6,000 square feet of administrative office space, and approximately 1,600 square feet of educational/observation areas. The new facility is intended to receive, process, and transfer up to 850 tons per day of residential and commercial recycling material. | Construction is anticipated to commence after receipt of building permits in 2023.. |
| Custom Alloy Scrap Sales | Custom Alloy Scrap Sales proposes construction and operation of a state-of-the-art recycling center on a 10-acre area of the Gateway Industrial District; it would relocate operations at existing West Oakland facilities to the new facility. | Construction is anticipated to commence in 2025 and be completed by 2027. Relocation of existing operations to the new facility is to occur from 2027 to 2030. |
| Downtown Oakland Specific Plan<br>City of Oakland | This Plan encompasses approximately 930 acres in downtown Oakland, generally bound by 27th Street to the north; Brush and Market Streets to the west; and the Jack London estuary waterfront and Embarcadero West to the south. The Plan will provide a roadmap for the area's development over the next 20 years, through policy guidance on land use, transportation, housing, economic development, public spaces, cultural arts, and social equity. | The Draft Plan/EIR was circulated in 2019. The Final Plan/EIR has not yet been finalized. |
| West Oakland Specific Plan<br>City of Oakland | A mixed-use plan to redevelop vacant and/or underutilized commercial and industrial properties in West Oakland. The planning area encompasses approximately 1,900 acres. | The Plan was approved in 2015 and assumes buildout by 2035. |

| Plan or Project Name | Description | Status |
|---|---|---|
| Oakland Waterfront Ballpark District at Howard Terminal | This project encompasses 55 acres of Howard Terminal. Proposed development includes a 35,000-person capacity Major League Baseball park, up to 1.77 million square feet of commercial development, up to 3,000 residential units, a 400-room hotel, and a performance venue with a capacity of approximately 35,000 individuals. | The Final EIR was certified in 2022. |
| Brooklyn Basin Marina Expansion Project | This project is a modification of the previously approved 64.2-acre project analyzed under the 2009 Brooklyn Basin EIR. The previously approved project includes 64.2 acres of land area and 7.95 acres of water surface for marina facilities and 167 boat slips. The approved project will redevelop the site to house up to 3,100 dwelling units, 200,000 square feet of ground-floor retail/commercial space, and 31 acres of parkland, trails, and open space. The project modifications would add 158 boat slips and approximately 10 acres of water surface to the project site. | The Draft Supplemental EIR for Marina Expansion was issued in 2021. The approved project consists of four phases and one sub-phase. The master developer and site developers are delivering Phases 1 and 2 of the approved project while the City of Oakland considers the request for project modifications. Certain portions of the project could be developed from 2025 to 2031, and other portions to 2038. |
| 500 Kirkham Project | This project is a mixed-use development with 1,032 residential units, including 85 affordable units, and nearly 35,000 square feet of ground-floor retail and commercial space. | A development agreement with the City of Oakland is pending. |
| Jack London Square Redevelopment Sites D, F2, and F3 (Site D is at Broadway/Embarcadero West; Site F2 is at Harrison Street and Embarcadero West; and Site F3 is at Alice Street/Embarcadero) | This project involves mixed-use retail/dining/hotel redevelopment. | This project has been approved. |

| Plan or Project Name | Description | Status |
|---|---|---|
| **Alameda Projects** | | |
| Alameda Housing Authority North Housing | This project involves development of up to 586 units of permanent supportive housing, affordable senior housing, and affordable family housing along Bette Street between Mosley and Singleton Avenues. | Planning entitlements and environmental review have been approved. |
| Landing at Bay 37 | Multi-family residential development including picnic areas, a playground, a public dock, walking paths along the waterfront. | This project is under construction. |
| Alameda Point Project | This project involves mixed-use development, with commercial, residential, open space, recreational, retail uses and shoreline development. | The first phase of development (Site A) is under construction. |
| Encinal Terminals | This project involves residential mixed-use waterfront development at 1521 Buena Vista Avenue, along Alameda's northern waterfront. Development will consist of up to 589 new housing units; a marina with up to 160 boat slips and a harbormaster's office; between 30,000 and 50,000 square feet of commercial/office and restaurant uses; and more than 3 acres of waterfront-related public open space and parks. | Planning entitlements and environmental review have been approved. |
| **Oakland and Alameda Project** | | |
| San Francisco Bay Trail Projects Multi-agency | This project would create a trail and facilities that connect the San Francisco Bay Trail, including in downtown Oakland and around Alameda Point. | Previously planned segments that have been identified are being evaluated to confirm the build-out, and for prioritization purposes prior to build-out. |

Notes:

EIR = Environmental Impact Report
Port = Port of Oakland

## 4.3. AESTHETICS

### *Impact C-AES-1. Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative aesthetic impacts. (Less than Significant)*

#### Impact Analysis

The Proposed Project would result in less-than-significant aesthetic impacts related to temporary views of construction activities, materials, and equipment by recreational and commercial boaters and San Francisco Bay Ferry boats in the vicinity of the turning basins, as well as recreationists along shoreline areas that have a view of either turning basin (e.g., the City of Alameda's Estuary Park, Judge John Sutter Regional Shoreline Park [Gateway Park]) or Berth 10. Although construction equipment would be visible throughout the duration of construction, the Seaport and other maritime facilities along the Oakland and Alameda shorelines already sustain considerable maritime industrial activity, and the dredging and construction equipment associated with the Proposed Project would therefore appear as an extension of existing surrounding maritime industrial activities and would be considered visually compatible with existing uses. Of the reasonably foreseeable future projects, the only project in close proximity where construction activity may occur concurrently and would be visible at a similar scale from the same public vantage points as the Proposed Project is the proposed Oakland Waterfront Ballpark District at Howard Terminal. Similar to the views of the Proposed Project's construction activities, these effects from construction of the proposed Oakland Waterfront Ballpark District at Howard Terminal project would be temporary in nature and would appear as an extension of the surrounding maritime industrial activities at the Seaport. In addition, temporary views of various construction activities are common in an urban setting. Once constructed, the Proposed Project would result in minimal visual change compared to existing conditions and would make little to no contribution to cumulative aesthetic impacts that may occur due to nearby development projects, including the proposed Oakland Waterfront Ballpark District at Howard Terminal project. Cumulative projects, such as the proposed Oakland Waterfront Ballpark District at Howard Terminal, would also be required to undergo review for compliance with applicable design guidelines (depending on the proposed use and location), lighting standards, and other municipal code requirements to reduce aesthetic impacts. Therefore, cumulative impacts that may result from implementation of the Proposed Project would be **less than significant.**

## 4.4. AIR QUALITY

### *Impact C-AIR-1. Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to expose sensitive people to substantial pollutant concentrations. (Significant and Unavoidable)*

#### Impact Analysis

The communities surrounding the Proposed Project are known to have high levels of criteria pollutant emissions, cancer risk, and $PM_{2.5}$ concentrations due to existing sources, including from background levels from areas outside of the local community as well as sources in the local community. This includes existing emissions from Seaport operations, major roadways, railyards and railways, trucking operations, and industrial activity such as cement mixing and metal recycling located in the local community. For a discussion of past health risk assessments in the West Oakland Community, see Section 3.3.1. These existing community exposures are above BAAQMD's cumulative significance thresholds, and the Proposed Project impacts to these health impacts would increase the existing exposure. Additional projects in the local community such as the Eagle Rock Aggregates facility, proposed Oakland Waterfront Ballpark District at Howard Terminal project, and residential development projects in Alameda, would also increase the cumulative exposure to pollutant concentrations. Even with implementation of all strategies in the WOCAP, health impacts to the local community are projected to remain above the BAAQMD CEQA significance thresholds due to the transport of pollutants in the air from areas outside of West Oakland, as well as the community's proximity to near several major freeways, railyards, Seaport, truck warehousing, and other industrial sources.

Several future projects have the potential to affect the health of residents in the vicinity of the Proposed Project, as described in Chapter 4, Cumulative Impacts. Some of these projects have included HRAs in their CEQA documentation such as the proposed Oakland Waterfront Ballpark District at Howard Terminal project, Eagle Rock Aggregates Project, and the Alameda Point Project, while others have not. To give a sense of the order of magnitude of the cumulative risk associated with past, present, and future conditions, those numbers that are readily available are presented in **Table 4.4-1**, and **Figure 4.4-1** shows the location of these projects. This section includes a qualitative discussion of how those estimates would potentially combine with information from the WOCAP HRA and the Proposed Project to characterize potential future health impacts.

Two key future projects at the Port of Oakland are the proposed Oakland Waterfront Ballpark District at Howard Terminal and the Eagle Rock Aggregates Oakland Terminal Project. In addition, the Port has been awarded grants to begin infrastructure improvements aimed at electrification of the Seaport and related equipment. On the Alameda side, key projects with HRA information include the Alameda Point Project and other existing large sources in Alameda, including Bay Ship and Yacht, which leases land and waterfront space to various vessel and water support services, and Northern California Power Agency, which operates two natural gas combustion turbines rated at 25 MW each. All of these projects completed CEQA

**Table 4.4-1 Cumulative Health Impacts**

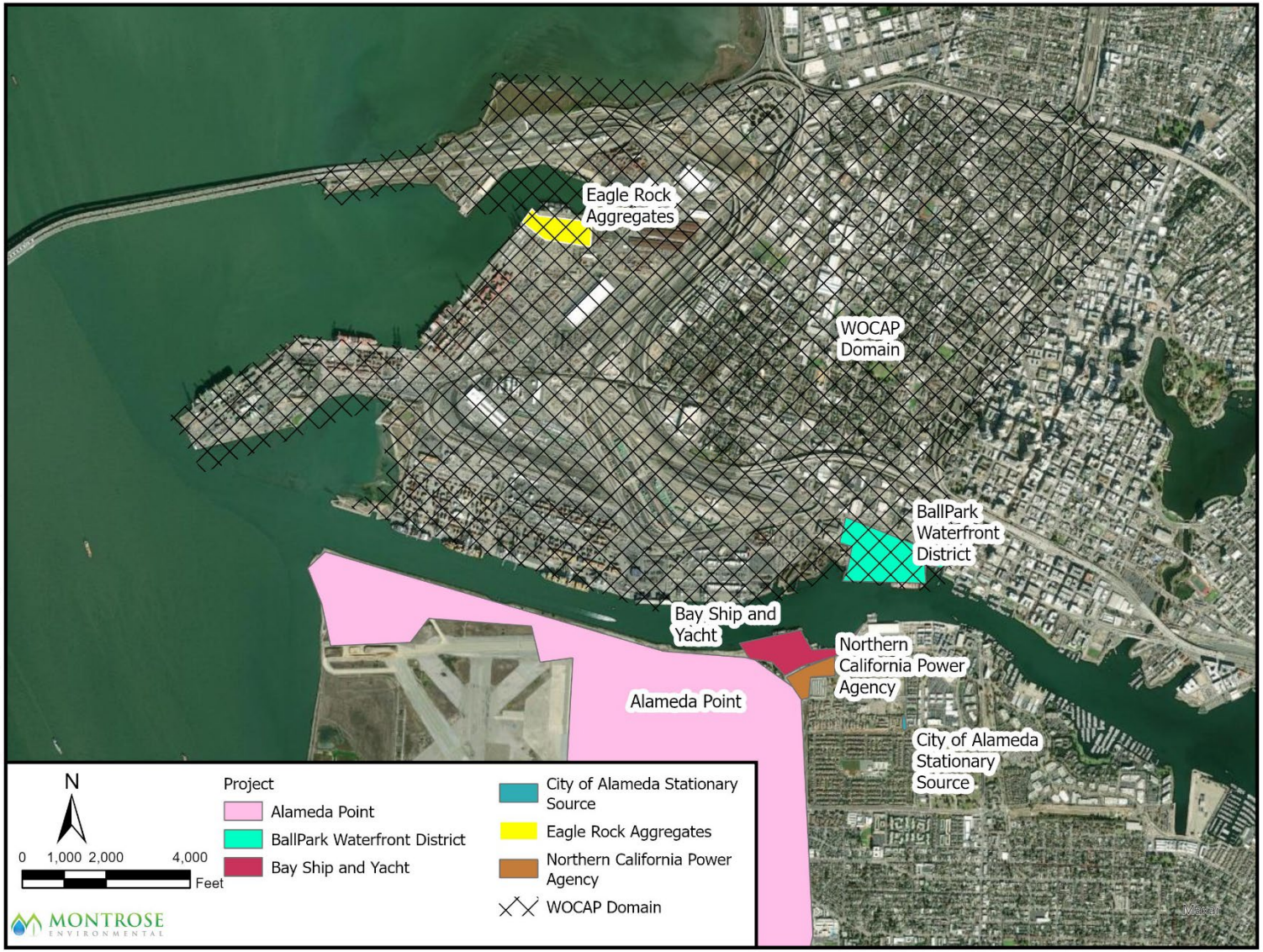
| Project | Excess Lifetime Cancer Risk (in one million) | $PM_{2.5}$ Concentration ($\mu g/m^3$) |
|---|---|---|
| WOCAP HRA | 724 | 8.61 |
| Waterfront Ballpark at Howard Terminal | 6.5 | 0.19 |
| Eagle Rock Aggregates | 7.2 | 1.1 |
| Alameda Point Project | 4 | 0.15 |
| Bay Ship and Yacht | 157 | 0.47 |
| Northern California Power Agency | 37.01 | 3.3 |
| City of Alameda Stationary Sources | 0.26 | 0.0 |
| Mitigated Proposed Project[1] | 11.34 | 0.006 |
| Total | 947.31 | 13.824 |
| Significance Threshold | 100 | 0.8 |

Note:

[1] This is the maximum residential location based on existing residential near Alameda.

HRA = Health Risk Assessment
$\mu g/m^3$ = micrograms per cubic meter
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
WOCAP = West Oakland Community Action Plan

**Figure 4.4-1 Cumulative Project Locations**



analyses that included HRAs or were included in BAAQMD's stationary source screening map,[92] which is an estimate by BAAQMD of the potential health impacts from these facilities. Sources in BAAQMD's stationary source screening map for West Oakland were already included in the WOCAP and are not specifically called out in this cumulative analysis. Although details for individual receptors are not available for comparison to the Proposed Project's maximum reported receptors, the values from these HRAs can give context to the overall change in cumulative risk. The proposed Oakland Waterfront Ballpark District at Howard Terminal reported a net mitigated excess lifetime cancer risk of 6.5 in one million at the existing off-site maximum exposed resident. This cancer risk would be additive to those receptors identified for the Proposed Project near Howard Terminal. The Eagle Rock Aggregates Oakland Terminal Project reported a mitigated excess lifetime cancer risk of 7.2 in one million at the maximum exposed residence. This cancer risk would be additive to those receptors identified for the Proposed Project nearest to the Outer Harbor Turning Basin construction. Alameda Point reported a mitigated excess lifetime cancer risk of 4 in one million at the maximum exposed resident. This cancer risk would be additive to those receptors identified in the Proposed Project nearest to Alameda construction. BAAQMD listed Bay Ship and Yacht and Northern California Power Agency as sources in Alameda that were not included in WOCAP, with reported excess lifetime cancer risks of 157 and 27.01 in one million, respectively, obtained from BAAQMD's stationary source screening map.[93] These cancer risks would be additive to those receptors identified in the Proposed Project nearest to Alameda construction.

It is difficult to properly indicate and combine the results of different HRAs due to differences in methodology and not having the underlying details to properly combine values for specific individual receptors. Although the WOCAP HRA covers the sources in West Oakland and impacts on West Oakland primarily, many of these sources would also impact Alameda residences, although to a lesser extent. There are some additional Alameda sources not included in the WOCAP that would further add to the existing cumulative health impacts in West Oakland and Alameda. Some of these sources that would add to the risk outlined in the WOCAP HRA include the vessels for Bay Ship and Yacht, industrial stationary sources in Alameda, and construction activities associated with residential projects near the Inner Harbor. **Table 4.4-1** shows the potential health impacts on a cumulative basis when considering the values reported in the WOCAP HRA, sources not included in the WOCAP HRA, and available planned projects in the nearby communities since the development of WOCAP and the Proposed Project. This summary table gives a general sense of the order of magnitude of the cumulative health impacts. It is an overestimation of risk, because in most cases, only the maximum reported cancer risk can be combined without adding the risk at individual and specific locations. For instance, the Proposed Project cancer risk is in Howard Terminal, and the maximum cancer risk from Eagle Rock Aggregates was closer to the OHTB, and if the actual risk was added at each of these separate locations a smaller number than 71 in one million would be reached. On the converse side, adding the Proposed Project cancer risk to the Waterfront Ballpark at Howard Terminal would be less of an overestimate, because these projects are occurring in similar locations, and the maximum cancer risk near Howard Terminal such as the Phoenix Lofts would be additive;

[92] BAAQMD's Stationary Source Screening map can be found at: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=845658c19eae4594b9f4b805fb9d89a3.

[93] The screening map is available online at https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=845658c19eae4594b9f4b805fb9d89a3.

therefore, the 15 in one million (6.5 from the proposed Oakland Waterfront Ballpark District at Howard Terminal plus 8.29 for the Proposed Project at Phoenix Lofts) may be close to the actual cancer risk for these two combined projects.

Mitigation Measure AIR-1 would reduce construction health impacts to the extent feasible. Construction impacts would not be ongoing and would not contribute to future health impacts in the community once construction is completed. Even though temporary, the health impacts from the Proposed Project's construction would combine with existing health impacts and further worsen the existing impact, because it would exceed the BAAQMD CEQA thresholds, and would therefore be considered cumulatively considerable. Operation of the Proposed Project would not be anticipated to result in health impacts substantially different than the No-Project future baseline scenario with in-water activities, estimated to decrease based on changes to vessel fleet mix and number of vessel calls. The operation of the Proposed Project would not be substantially different than presented in the future year estimates in the WOCAP HRA, because growth was assumed and the 2029 future forecast would be similar to the 2030 forecast used in the first year of operation of the Proposed Project.

Because the Proposed Project, when combined with cumulative sources in the community, would result in high levels of health impacts, this would remain **significant and result in a cumulatively considerable impact.**

## 4.5. BIOLOGICAL RESOURCES

### *Impact C-BIO-1. Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative biological impacts. (Less than Significant with Mitigation)*

#### Impact Analysis

The geographic scope of potential cumulative impacts on biological resources encompasses the species occurrences, habitats, and sensitive natural communities that are biologically linked to the Proposed Project vicinity. For biological resources, the geographic scope of analysis is based on species distribution and habitat availability. The analysis considers potential effects at different scales for different species, with the analysis generally concentrating on resources that occur in San Francisco Bay or on the Oakland-Alameda Estuary waterfront.

Construction of the Proposed Project would result in temporary effects on aquatic wildlife and special-status species (fish, marine mammals, and birds), including temporary impacts to foraging and species health due to temporary increases in turbidity; temporary disturbance and loss of benthic and aquatic habitat; alteration of behavior due to underwater noise from pile removal and installation; and potential exposure to contaminants in resuspended sediment. Although unlikely, mechanical dredging could also entrain fish, potentially resulting in mortality. Other reasonably foreseeable development projects along the waterfront, such as the proposed Oakland Waterfront Ballpark District at Howard Terminal, Brooklyn Basin Marina Expansion Project, and Encinal Terminals, could also involve similar activities that could result in similar short-term impacts. The in- and over-water construction activities associated with these projects

could result in potentially significant cumulative impacts related to underwater noise (e.g., alteration of behavior of fish and marine mammals) and dredging (e.g., increases in turbidity, disturbance, or loss of benthic habitat) if construction activities for these projects were to occur concurrently with those for widening the turning basins.

Construction of the Proposed Project would be conducted in a manner to minimize potential impacts to wildlife and aquatic habitats, including confining in-water work to the June 1 through November 30 salmonid construction window and mitigation measures to minimize water quality and habitat degradation from the construction of the Proposed Project. The beneficial reuse of suitable sediment at a wetland restoration site would offset loss of habitat value resulting from the project's impact to subtidal benthic habitat.

With compliance with existing laws, regulations, and required permits and approvals from NMFS, USFWS, RWQCB, and BCDC, and implementation of Mitigation Measures BIO-1A, BIO-1B, BIO-1C, and BIO-2, the Proposed Project would have less-than-significant impacts on biological resources. Other projects involving dredging and construction in or adjacent to the marine environment would be subject to the same laws and regulatory oversight as the Proposed Project, which would minimize or avoid substantial biological resources impacts. In addition, most of the cumulative projects are also subject to CEQA review and would be subject to types of avoidance, minimization, and mitigation measures similar to the Proposed Project to lessen impacts on biological resources.

### Level of Significance Before Mitigation

*Potentially Significant Impact.*

### Mitigation Measures

**MM BIO-1A: Silt Curtains (also MM HYD-1)**

**MM BIO-1B: Worker Education Program**

**MM BIO-1C: Pile-Driving–Related Measures**

**MM BIO-2: Eelgrass Surveys**

### Level of Significance After Mitigation

*Less than Significant Impact with Mitigation.*

The Proposed Project would include Mitigation Measures BIO-1A, BIO-1B, BIO-1C, and BIO-2, requiring use of silt curtains during in-water construction in areas where sediment contains chemical contaminants with potential to cause adverse water quality conditions, as determined through the pre-construction sediment quality characterization, and within 250 meters (820 feet) of eelgrass beds, as determined by the pre-construction eelgrass survey ; a worker education program; preconstruction surveys for nesting birds and establishing buffers for pile driving activities during the nesting season; preparation and implementation of a hydroacoustic and biological monitoring plan; and use of "soft start" technique, wood cushion block, and bubble curtain if impact pile driving is required; and pre- and post-construction surveys for eelgrass and compensatory mitigation if needed to achieve no net loss. With implementation of Mitigation Measures BIO-1A, BIO-1B, BIO-1C, and BIO-2, the Proposed Project's contribution to cumulative biological resources impacts would be considered **less than cumulatively considerable, and therefore less than significant**.

## 4.6. CULTURAL RESOURCES

### *Impact C-CUL-1. Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative impacts on historical resources (NRHP and/or CRHR listed or eligible to be listed), including both historic architecture and archaeological resources, including those with human remains. (Less than Significant with Mitigation)*

#### Impact Analysis

The geographic scope for cumulative effects on historical resources, including built environment as well as archaeological resources and human remains, includes the Oakland and Alameda waterfronts from the IHTB to the Bay Bridge, where the Proposed Project could cause disturbance and/or impact to historical resources. This geographic scope includes a similar environmental setting for historical resources. The Proposed Project would have no impact on historical resources (NRHP and/or CRHR listed or eligible to be listed cultural resources or a resource otherwise determined to be a locally significant historical resource), and therefore would not contribute to cumulative impacts on historical resources.

The Proposed Project would not have an impact on known archaeological resources, including those that could contain human remains. Therefore, there would be no cumulative impact to known cultural resources.

Similar to the Proposed Project, cumulative projects in the vicinity could have a significant impact on previously undocumented archaeological resources inadvertently discovered during project implementation. The potential impacts of the Proposed Project, when considered together with similar impacts from other probable future projects in the vicinity, could result in a significant cumulative impact on undiscovered archaeological resources and human remains.

#### Level of Significance Before Mitigation

*Potentially Significant Impact.*

#### Mitigation Measure

**MM CUL-2: Inadvertent/Unanticipated Archaeological Cultural Resources Discovery Protocols**

**MM CUL-3: Inadvertent/Unanticipated Discovery of Human Remains**

#### Level of Significance After Mitigation

*Less than Significant Impact with Mitigation.*

Implementation of Proposed Project Mitigation Measures CUL-2 and CUL-3 would require that work stop within 50 feet of an unanticipated find until it is properly evaluated by a qualified archaeologist; and, as warranted and if avoidance is not feasible, appropriate treatment of the resource is implemented in accordance with applicable laws. In addition, most of the cumulative projects are also subject to CEQA review and would be subject to similar types of inadvertent discovery measures. Therefore, with implementation of Mitigation Measures CUL-2 and CUL-3, the Proposed Project's contribution to cumulative impacts on archaeological resources, including those that contain human remains, would be considered **less than cumulatively considerable, and therefore less than significant**.

# 4.7. ENERGY

## *Impact C-ENE-1. Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative energy impacts. (Less than Significant with Mitigation)*

### Impact Analysis

Proposed Project construction would require the use of diesel and gasoline. Amounts of gasoline and diesel fuel that would be consumed during Proposed Project construction are well within the amount of fuel supplies available in the region for use and would not cause any shortages of these fuels that would be needed for other projects. The Northern California region produced an annual average of 6,138,527 thousand gallons of gasoline and 2,363,161 thousand gallons of diesel over the 5--year period of 2018--2022, and the three-year construction demand is less than 0.0002 percent of the region's gasoline production throughput, and less than 0.03 percent of the region's diesel production throughput (CEC 2023a).

The electricity use under the Proposed Project construction would be managed by Port Utilities, including working with AMP and PG&E. The use of electricity might affect Port tenants' electricity supply provided by the Port based on availability of electricity supply for other operations with similar power loads, such as OGV shore power, and would affect the electricity supply of the City of Alameda. If the Proposed Project is approved, it may not be able to eliminate all potential impacts without mitigation, including limits of electricity supply and potential brownouts. Implementation of Mitigation Measure ENE-1 would ensure that in the event of peak electricity demand overloads that could lead to insufficient temporary electricity supplies (either from California Independent System Operator (CAISO)-related requests or requests from AMP), the electrical dredging operations would switch from electricity use to diesel use temporarily to help decrease electricity demand and assist in avoiding potential brownouts or other consumer curtailment of energy supply. This would also eliminate the Proposed Project's contribution to electrical demand during alert events. Once the peak electricity demand event has been alleviated, the dredging would resume using electricity. The Port historically has received similar authorizations from the state during extreme heat events to suspend at-berth shore power requirements to alleviate similar peak electricity demands. The Port would comply with all authorizations received from the state to suspend shore power in the future, which would be anticipated to occur under both the Proposed Project Future baseline scenario as well as the No Project Future baseline scenario. The electricity use projected for Proposed Project construction (shown in **Table 3.6-4**), when combined with electricity use of other current and reasonably foreseeable projects, is within the ranges being considered by the CEC in its energy and electricity planning needs for the state, as outlined in the CEC's Integrated Energy Policy Reports, and is within the ranges of electricity needs outlined in the Port's 2020 and Beyond Plan and subsequent feasibility plans as well as the California Sustainable Freight Action Plan. Proposed Project construction would not consume electricity in high enough quantities to affect the current planning by the CEC. The CEC has noted the overall need for additional electricity generation supplies, particularly peak demand supplies in the state. Because the Proposed Project would eliminate its contribution to electrical demand if needed during Project construction, and during operation would curtail its energy demand to comply with emergency orders from the state (which would be the same with and without the Proposed Project and would not be significant on its own), the impact would be **less than cumulatively considerable, and therefore less than significant**.

## 4.8. GEOLOGY/SOILS

### *Impact C-GEO-1. Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative impacts to geology, soils, seismicity, or paleontological resources. (Less than Significant with Mitigation)*

#### Impact Analysis

The geographic scope of analysis for cumulative geologic impacts encompasses and is limited to the Proposed Project landside sites and the area immediately adjacent to these sites. This is because impacts relative to geologic hazards are generally site-specific. For example, the effect of erosion would tend to be limited to the localized area of a project and could only be cumulative if erosion occurred as the result of two or more adjacent projects that spatially overlapped. In addition, impacts relative to geologic hazards are generally time-specific. Geologic hazards could only be cumulative if two or more geologic hazards occurred at the same time, as well as overlapping at the same location.

The Proposed Project would have less than significant impacts related to seismic hazards, unstable geologic units and soils, and expansive soils. New bulkheads that would be installed as part of the Proposed Project would comply with all applicable building code and engineering regulations, including seismic standards. Of the reasonably foreseeable future projects, only the proposed Oakland Waterfront Ballpark District at Howard Terminal is immediately adjacent to the Proposed Project and could overlap with the Proposed Project's implementation. The proposed Oakland Waterfront Ballpark District at Howard Terminal project would be required to comply with the CBC and City of Oakland building regulations and standards, which by design are intended to reduce the cumulative seismic and geologic hazard risks from buildings and structures. Therefore, cumulative effects related to seismic and other geologic hazards would be less than significant.

Because the Proposed Project and proposed Oakland Waterfront Ballpark District at Howard Terminal project could overlap in construction, there would also be potential cumulative impacts related to soil erosion during construction. However, as with the Proposed Project, the proposed Oakland Waterfront Ballpark District at Howard Terminal project would be required to prepare and implement an SWPPP (required for construction projects that have a disturbance area greater than 1 acre) that includes measures to control runoff and prevent erosion (City of Oakland 2021). Therefore, significant erosion impacts at Howard Terminal would not occur.

Similar to the Proposed Project, cumulative projects in the vicinity could have a significant impact on paleontological resources inadvertently discovered during project implementation. The potential impacts of the Proposed Project, when considered together with similar impacts from other probable future projects in the immediate vicinity, could result in a significant cumulative impact on paleontological resources.

#### Level of Significance Before Mitigation

*Potentially Significant Impact.*

### Mitigation Measure

#### MM GEO-5: Inadvertent Discovery of Paleontological Resources

### Level of Significance After Mitigation

*Less than Significant Impact with Mitigation.*

Implementation of Proposed Project Mitigation Measure GEO-5 would require that work stop within 50 feet of an unanticipated find until it is properly evaluated by a qualified paleontologist; and, as warranted and if avoidance is not feasible, appropriate treatment of the resource is implemented in accordance with current professional standards. In addition, most of the cumulative projects are also subject to CEQA review and would be subject to similar types of inadvertent discovery measures if determined to have potential to encounter paleontological resources. Therefore, with implementation of Mitigation Measure GEO-5, the Proposed Project's contribution to cumulative impacts on geologic and paleontological resources would be considered **less than cumulatively considerable, and therefore less than significant**.

## 4.9. GREENHOUSE GAS EMISSIONS

### *Impact C-GHG-1. Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative GHG impacts. (Less than Significant with Mitigation)*

### Impact Analysis

GHG emissions are, by their nature, cumulative impacts. Consequently, the cumulative analysis is the same as the discussion concerning project-level impacts. The Proposed Project's GHG emissions would be less than significant; construction emissions would be offset by the carbon sequestration of the beneficial reuse of the dredged sediment and are further reduced with implementation of Mitigation Measure GHG-1. Operation emissions are not anticipated to change for landside operations, and in-water GHG emissions are estimated to be reduced compared to the No-Project future baseline scenario. GHG emissions from Seaport operations would decrease due to increased efficiencies and turnover of existing vessel, equipment, and truck fleets with and without the Proposed Project due to existing regulations. Therefore, the Project would not make a cumulatively considerable contribution to a significant cumulative impact. Therefore, the Project's contribution to cumulative impacts related to GHG emissions and energy would be **less than cumulatively considerable, and therefore less than significant with mitigation.**

## 4.10. HAZARDS AND HAZARDOUS MATERIALS

### Impact C-HAZ-*1.* *Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative hazards and hazardous materials impacts. (Less than Significant with Mitigation)*

#### Impact Analysis

As previously discussed, the Proposed Project is not within 0.25 mile of a school, 2 miles of an airport, or in or near a fire hazard severity zone. Therefore, the Proposed Project would not contribute to cumulative impacts related to these topics, which are not discussed further.

The geographic scope of analysis for cumulative hazards and hazardous materials impacts encompasses and is limited to the Proposed Project sites and immediately adjacent areas. This is because impacts relative to hazards and hazardous materials are generally site-specific and depend on the nature and extent of the hazardous materials release, and existing and future soil and groundwater conditions. For example, hazardous materials incidents tend to be limited to a smaller and more localized area surrounding the immediate spill location and extent of the release and could only be cumulative if two or more hazardous materials releases were to occur in the same location. In addition, hazardous materials impacts are generally time-specific. Most hazardous materials impacts could only be cumulative if they occurred at the same time. Of the reasonably foreseeable future projects, only the proposed Oakland Waterfront Ballpark District at Howard Terminal is immediately adjacent to the Proposed Project and could potentially overlap with the Proposed Project's implementation.

The construction activities for all cumulative projects would be subject to the same regulatory requirements discussed for the Proposed Project for compliance with existing hazardous materials regulations, including spill response during construction, disposal of hazardous materials, and being located on sites with residual contamination from previous land uses. Cumulative projects that have spills of hazardous materials and/or residual contamination from previous land uses would be required to remediate their respective sites to the same established regulatory standards as the Proposed Project. This would be the case regardless of the number, frequency, or size of the release(s). The responsible party associated with each spill would be required to remediate site conditions to the same established regulatory standards. The residual less-than-significant effects of the Proposed Project would not combine with the potential residual effects of cumulative projects to cause a potential significant cumulative impact because residual impacts would be highly location-specific, would not spatially overlap, and would be remediated to be below regulatory standards. For the above reasons, the Proposed Project, in combination with cumulative projects, would not cause or contribute to a cumulatively considerable impact with respect to the transportation, storage, use, disposal, or accidental release of hazardous materials, and impacts would be less than significant.

Construction for two or more projects that occur at the same time and use the same roads, including the adjacent proposed Oakland Waterfront Ballpark District at Howard Terminal, could cause traffic interference with emergency access, response, or evacuation, resulting in a potentially significant cumulative impact.

**Level of Significance Before Mitigation**

*Potentially Significant Impact.*

**Mitigation Measure**

**MM TRA-1: Traffic Control Plan (refer to Section 3.14)**

**Level of Significance After Mitigation**

*Less than Significant Impact with Mitigation.*

However, as with the Proposed Project, the proposed Oakland Waterfront Ballpark District at Howard Terminal project would be required to prepare and implement a traffic control plan that includes measures to maintain traffic flow and prevent interference with emergency access (City of Oakland 2021). Similar traffic management measures would apply to most of the other cumulative projects through the CEQA review or local jurisdiction permitting processes. Therefore, with implementation of Mitigation Measure TRA-1, the Proposed Project's contribution to cumulative impacts with respect to emergency access, response, or evacuation, would be considered **less than cumulatively considerable, and therefore less than significant.**

## 4.11. HYDROLOGY/WATER QUALITY

### *Impact C-HYD-1. Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant hydrology and water quality impacts. (Less than Significant with Mitigation)*

The geographic scope for cumulative hydrology and water quality impacts is the Oakland-Alameda estuary. The Proposed Project would include construction activities that could result in degradation of surface waters in combination with other reasonably foreseeable development projects that are located along the Oakland and Alameda waterfront, such as the proposed Oakland Waterfront Ballpark District at Howard Terminal, Brooklyn Basin Marina Expansion Project, and Encinal Terminals. Potentially significant cumulative water quality impacts could result from increases in turbidity (if projects are constructed concurrently), disturbance and release of contaminated sediment, or accidental release of hazardous materials such as diesel fuel from construction equipment. Significant cumulative impacts related to surface water quality degradation could also contribute to a significant cumulative impact related to conflicts with the RWQCB's Basin Plan.

Both the widening of the IHTB and the proposed Oakland Waterfront Ballpark District would involve construction at Howard Terminal within an active DTSC-regulated site. All ground-disturbing activities at Howard Terminal for both projects would occur in coordination with DTSC to ensure that construction activities are properly managed such that significant cumulative impacts associated with existing contamination would be avoided to protect human health and the environment, including surface waters and groundwater.

The Proposed Project is unlikely to result in more than negligible effects to upland drainage patterns, groundwater recharge, or potential pollutant release due to project inundation (including inundation from storm events, tsunami or seiche, or sea level rise). Therefore, the Proposed

Project would not have a potentially significant contribution to cumulative impacts related to these criteria.

With compliance with existing laws, regulations, and required permits and approvals, and implementation of Mitigation Measure HYD-1, the Proposed Project is expected to result in less-than-significant impacts on water quality. Other projects involving dredging and construction in or adjacent to the marine environment would be subject to the same laws and regulatory oversight as the Proposed Project, which would minimize or avoid substantial water quality or hydrology impacts. In addition, most of the cumulative projects are also subject to CEQA review and would be subject to similar types of avoidance, minimization, and mitigation measures as the Proposed Project to lessen water quality impacts.

### Level of Significance before Mitigation

*Potentially Significant Impact.*

### Mitigation Measure

#### MM HYD-1: Silt Curtains

### Level of Significance After Mitigation

*Less than Significant Impact with Mitigation.*

The Proposed Project would include Mitigation Measure HYD-1: Silt Curtains to minimize potential water quality impacts resulting from mobilization of material containing elevated levels of chemical contaminants during in-water construction. With implementation of Mitigation Measures HYD-1, the Proposed Project's contribution to cumulative impacts on hydrology and water quality would be considered **less than cumulatively considerable, and therefore less than significant**.

## 4.12. LAND USE

### *Impact C-LUP-1. Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative land use impacts. (Less than Significant)*

### Impact Analysis

The cumulative geographic context for land use plans and policy considerations for the development of the Proposed Project consists of the Proposed Project sites, in addition to the surrounding areas including the Seaport, Jack London Square, Downtown Oakland, West Oakland, and the north shore of Alameda.

The Proposed Project is in a geographic area with active navigation channels, marine terminals, and ancillary operations that is a part of an integrated warehouse and transportation industrial logistics network. Although the proposed Oakland Waterfront Ballpark District at Howard Terminal Project is proposed in the same area, there is no neighborhood or "community" surrounding Howard Terminal that would be physically divided. On Alameda to the south of the IHTB, light industrial and maritime uses adjacent to the IHTB are surrounded primarily by single- and multi-family residential development and parks. Cumulative development on the

north shore of Alameda combined with the Proposed Project would not physically divide an established community; rather, it would continue the existing development pattern with a mix of residential and maritime uses. Therefore, the Proposed Project would not contribute to a cumulative effect with regard to the physical division of an established community.

Determinations regarding conformity with BCDC regulations for the Proposed Project would be Project-specific and would not influence or be influenced by other regional developments. The Port PUA designation of Howard Terminal was removed in June 2022. Regardless of the status of Port PUA designation of Howard Terminal, the Proposed Project would not preclude the continued use of this or other sites for water-related industrial or Port activities, and there would be no conflict with BCDC policies. The Proposed Project would protect these public trust lands in support of water-related commerce and navigation because of improved navigational safety. Additionally, the Proposed Project would increase the water surface area and volume of San Francisco Bay due to the net reduction of Bay fill. The proposed Oakland Waterfront Ballpark District at Howard Terminal Project EIR also included analysis of a "maritime reservation scenario" that considered impacts of the Ballpark Project under a scenario where the Port could elect to take back up to approximately 10 acres at the southwestern corner of the Howard Terminal site to accommodate expansion of the IHTB (City of Oakland 2021). Therefore, the impacts of the Proposed Project would not combine with the Ballpark Project to the extent that a significant land use impact would occur. Therefore, the Proposed Project would not cause, contribute to, or combine with potential conflicts of cumulative projects to result in a compounded adverse environmental effect.

Additionally, all other cumulative development has been, or will be, subject to development guidance contained in the applicable general plan, prescribed by zoning, and other applicable land use plans to avoid conflicting with plans adopted to avoid or mitigate environmental effects.

Based on each of these considerations, it is not anticipated that the Proposed Project, together with other past, present, or reasonably foreseeable future development in the area, would result in a cumulative impact with respect to conflicts with land use, plans, and policies adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, the Proposed Project's contribution to cumulative impacts related to conflicts with land use plans and policies would be **less than significant**.

## 4.13. NOISE

### *Impact C-NOI-1. Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative noise and vibration impacts. (Less than Significant)*

#### Impact Analysis

The geographic scope of analysis for cumulative noise and vibration construction impacts encompasses sensitive receptors within approximately 2,000 feet of the Proposed Project sites.[94]

[94] This screening threshold distance was developed based on stationary source noise attenuation equations (Caltrans 2013) and the combined noise level generated by pile driving for a given project (assuming impact pile driver and a

Beyond 2,000 feet, the contributions of noise from other projects would be greatly attenuated through both distance and intervening structures, and their contribution would be expected to be minimal. This geographical scope may also be conservatively applied to operational noise from stationary source impacts, which are generally less substantial than construction noise. As noted under Impact NOI-1, the closest sensitive receptors to the OHTB are approximately 5,000 feet (approximately 1 mile) away; therefore, the analysis of cumulative effects is focused on the IHTB. Based on a list of reasonably foreseeable future projects in the vicinity of the proposed IHTB widening area that could contribute to cumulative construction noise, one of these projects (Landing at Bay 37) is currently under construction and is anticipated to have completed the noisiest phases of construction[95] before construction of the Proposed Project. Therefore, this project would not cumulatively combine with Proposed Project construction, which is anticipated to begin in 2027. Of the remaining cumulative projects, six of them would be within the 2,000-foot geographic scope of analysis:

- Downtown Oakland Specific Plan
- West Oakland Specific Plan
- Jack London Square Redevelopment Sites D, F2, and F3
- Alameda Housing Authority North Housing
- San Francisco Bay Trails Project
- Oakland Waterfront Ballpark District at Howard Terminal

### Cumulative Construction Noise and Vibration

Individual projects developed under the Downtown Oakland Specific Plan, the West Oakland Specific Plan, or the Jack London Square Redevelopment are subject to the City of Oakland's Standard Conditions of Approval 61 through 65 and 69, addressing construction noise and vibration. The environmental documents for these plans found that subsequent development would not result in a significant cumulative noise and vibration impact during construction with implementation of City's Standard Conditions of Approval for construction noise and vibration.

Construction of the Alameda Housing Authority North Housing Project would comply with the City of Alameda's limitations on construction hours and would therefore be consistent with the City's noise ordinance, which exempts construction noise during daytime hours.

The San Francisco Bay Trails projects would result in minor construction activity to accommodate relatively short segments of trail extensions, which would not be expected to contribute substantially to local noise levels in those areas.

The proposed Oakland Waterfront Ballpark District at Howard Terminal would construct a mixed-use development and Ballpark immediately adjacent to the portion of Howard Terminal that would be demolished for the IHTB widening. The environmental documents for the proposed Oakland Waterfront Ballpark District project estimated a maximum noise level during pile-driving activities of 86 dBA at the Phoenix Lofts, which is above the City of Oakland's daytime noise criteria of 65 dBA. The project-level analysis for the IHTB widening estimates a

crane) at a distance of 50 feet. Using the attenuation equations, the maximum noise level of 101 A-weighted decibels (dBA) would diminish to below 65 dBA, $L_{eq}$ at 2,000 feet, which is therefore used as the geographic scope.

[95] The earliest phases of a construction project, which may involve demolition, excavation, pile driving, and foundation work, are generally associated with the highest noise levels. Later phases occurring once the building skin is in place are generally not a source of noise complaints.

noise level of 66 dBA. In the unlikely event that pile-driving activities for both projects were to occur simultaneously, the cumulative noise level at the Phoenix Lofts would be 86.1 dBA, which would still exceed the City's daytime noise standard of 65 dBA. However, the incremental contribution of 0.1 dBA from the Proposed Project would not be cumulatively considerable. Therefore, although the proposed Oakland Waterfront Ballpark District at Howard Terminal would have a significant construction noise impact, the Proposed Project would not contribute meaningfully to that significant noise impact. The cumulative impact would be **less than significant**.

With respect to construction-related vibration, vibration impact analysis is based on instantaneous PPV levels, and worst-case groundborne vibration levels from construction are generally determined by whichever individual piece of equipment generates the highest vibration levels. Unlike the analysis for average noise levels, in which noise levels of multiple pieces of equipment can be combined to generate a maximum combined noise level, instantaneous PPV levels do not combine in this way. The vibration levels from construction of the Proposed Project would be well below the applicable 0.5 PPV thresholds. Vibration from construction of other cumulative projects, even if those projects are in close proximity, would not combine to raise the maximum PPV because there would be sufficient distance as well a substantial unlikelihood of simultaneous vibration peaks from separate construction sites. For these reasons, the impact of construction vibration from construction of cumulative projects near the Proposed Project would be highly localized and would not be anticipated to combine to further increase vibration levels. The cumulative impact would be **less than significant**.

### Cumulative Operational Noise

With respect to cumulative operational noise impacts, the project-level analysis for the Proposed Project found that there would not be a perceptible change in noise levels during vessel turning activities or future maintenance dredging with wider turning basins. Therefore, once constructed, the Proposed Project would not contribute meaningfully to any noise impacts of other cumulative development projects. The cumulative impact would be **less than significant**.

## 4.14. RECREATION

### *Impact C-REC-1. Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative impacts on recreation. (Less than Significant)*

### Impact Analysis

The geographic scope of potential cumulative impacts on recreation encompasses the recreation resources identified in the vicinity of the Proposed Project, as described in Section 3.13.1. Implementation of the Proposed Project would result in less-than-significant recreation impacts. Depending on the ultimate construction timelines of the reasonably foreseeable future projects, there may be overlap with the Proposed Project. Construction of cumulative projects, such as the proposed Oakland Waterfront Ballpark District at Howard Terminal, could similarly discourage recreational use of nearby facilities (e.g., the City of Alameda's Estuary Park) due to potential noise, dust, and visual effects. However, like the Proposed Project, this would be a temporary effect, and there are numerous other recreational facilities nearby that could be used in the

interim. Increased use of nearby facilities due to the Proposed Project and cumulative developments would be temporary and is unlikely to result in substantial physical deterioration of these facilities or require construction or expansion of recreational facilities. Therefore, the Proposed Project's cumulative recreation impacts would be **less than significant.**

## 4.15. TRANSPORTATION

### *Impact C-TRA-1. Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative transportation impacts. (Less than Significant with Mitigation)*

#### Impact Analysis

Cumulative land use development plans and projects (e.g., 500 Kirkham Project in Oakland, Alameda Point Project) would generally increase traffic, transit, bicycle, and pedestrian activity in the landside project areas surrounding the turning basin sites in Oakland and Alameda and may result in minor changes to circulation patterns (e.g., new or modified street alignments). Other cumulative projects would involve improvements to the transportation network near and within the Seaport (e.g., 7th Street Grade Separation East Project) or would facilitate additional recreational vessel use in the Oakland–Alameda estuary (e.g., Brooklyn Basin Marina Expansion Project, Encinal Terminals).

The Proposed Project would improve navigation conditions in Oakland Harbor but would not result in any physical changes to the landside transportation network or increase operations-related automobile, truck, or container vessel trips beyond current forecasts. Therefore, the Proposed Project's potential to contribute to cumulative impacts is limited to the construction period.

The Proposed Project would be constructed in an area that is undergoing additional construction, including housing and commercial development in Downtown Oakland as well as Alameda. Construction for two or more projects that occur at the same time and use the same roads, including the adjacent proposed Oakland Waterfront Ballpark District at Howard Terminal, could cause traffic congestion and interference with emergency access, resulting in a potentially significant cumulative impact.

#### Level of Significance Before Mitigation

*Potentially Significant Impact.*

#### Mitigation Measure

**MM TRA-1: Traffic Control Plan**

#### Level of Significance After Mitigation

*Less than Significant Impact with Mitigation.*

As with the Proposed Project, the proposed Oakland Waterfront Ballpark District at Howard Terminal project would be required to prepare and implement a traffic control plan that includes measures to maintain traffic flow and prevent interference with emergency access (City of

Oakland 2021). Similar traffic management measures would apply to most of the other cumulative projects through the CEQA review or local jurisdiction permitting processes. Therefore, with implementation of Mitigation Measures TRA-1, the Proposed Project's contribution to cumulative impacts with respect to transportation and circulation, including emergency access, would be considered **less than cumulatively considerable, and therefore less than significant.**

## 4.16. TRIBAL CULTURAL RESOURCES

### *Impact C-TCR-1. Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative impacts on tribal cultural resources. (Less than Significant with Mitigation)*

#### Impact Analysis

The geographic scope for cumulative effects on tribal cultural resources includes the Oakland and Alameda waterfront from the IHTB to the Bay Bridge, where the Proposed Project could cause disturbance and/or impact the setting of tribal cultural resources. This geographic area includes a similar environmental setting for precontact archaeological and ethnohistoric resources.

The Proposed Project would not have an impact on known precontact archaeological resources that could represent tribal cultural resources. Native American consultation efforts for the Proposed Project have not identified tribal cultural resources in the APE delineated for the Proposed Project. Therefore, the Proposed Project would not contribute to cumulative impacts on known tribal cultural resources.

Similar to the Proposed Project, cumulative projects in the vicinity could have a significant impact on previously undiscovered precontact archaeological resources that are considered tribal cultural resources. The potential impacts of the Proposed Project, when considered together with similar impacts from other probable future projects in the vicinity, could result in a significant cumulative impact on undiscovered precontact archaeological resources that may represent tribal cultural resources.

#### Level of Significance Before Mitigation

*Potentially Significant Impact.*

#### Mitigation Measure

##### MM TCR-1: Inadvertent/Unanticipated Tribal Cultural Resources Discovery Protocols

#### Level of Significance After Mitigation

*Less than Significant Impact with Mitigation.*

Implementation of Proposed Project Mitigation Measure TCR-1 would require that work stop within 50 feet of an unanticipated find until it is properly evaluated by a qualified archaeologist and, if the archaeologist determines that the find potentially represents a tribal cultural and

avoidance is not feasible, that tribal representatives be consulted regarding the appropriate treatment of the find. In addition, most of the cumulative projects are subject to CEQA review would be subject to similar types of inadvertent discovery measures. Therefore, with implementation of Mitigation Measure TCR-1, the Proposed Project's contribution to cumulative impacts on precontact archaeological resources that represent potential tribal cultural resources would be considered **less than cumulatively considerable, and therefore less than significant**.

## 4.17. UTILITIES

### *Impact C-UTL-1. Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to result in significant cumulative impacts on utilities and service systems. (Less than Significant)*

#### Impact Analysis

The Proposed Project would result in less-than-significant utilities and service system impacts during construction from use of water, generation of wastewater and solid waste, and relocation of utilities. The reasonably foreseeable future projects, which would be expected to be serviced by the same utility providers as the Proposed Project, could have similar construction impacts related to utilities that would overlap with those from the Proposed Project. For example, the proposed Oakland Waterfront Ballpark District at Howard Terminal would also impact existing utilities at Howard Terminal and could overlap in construction with the Proposed Project. Through local jurisdiction building permit review, utility providers would be notified by project proponents prior to construction to coordinate any necessary relocations and ensure impacts to existing utility lines are minimized to the extent feasible, and disruptions to service are avoided. Cumulative projects in the area would also be required to comply with existing regulations, such as the State Water Code, AB 939, and CALGreen, to minimize utility and service system impacts. Most of the cumulative projects would also be required to assess their respective operational demand on utilities, comply with existing regulations relevant to utilities, and identify mitigations to reduce any impacts. Regardless, the Proposed Project would not place new or increased permanent demand on existing utility infrastructure and providers. Therefore, cumulative impacts on utilities and service systems that may result from implementation of the Proposed Project would be **less than significant.**

# 5. ALTERNATIVES

This chapter describes CEQA requirements for an alternatives analysis; summarizes the Proposed Project's objectives and significant impacts relative to identifying potentially feasible alternatives that avoid or substantially lessen the significant impacts; provides the methodology used to select alternatives to the Proposed Project; discusses alternative concepts that were considered but rejected from further study and the reasons for elimination; and provides a detailed description of each of the selected alternatives carried forward for evaluation and analysis of the environmental impacts of each of these alternatives compared to the Proposed Project. The chapter concludes with identification of the environmentally superior alternative, as required by CEQA.

## 5.1. CEQA REQUIREMENTS FOR ALTERNATIVE EVALUATION

CEQA Guidelines Section 15126.6(a) states that an EIR must describe and evaluate a reasonable range of alternatives to a project. An EIR is not required to consider every conceivable alternative to a project or alternatives that are infeasible.

Under CEQA, "feasible" is defined as capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors (CEQA Guidelines Section 15364). The concept of "feasibility" also encompasses the question of whether a particular alternative promotes the underlying goals and objectives of a project. CEQA Guidelines Section 15126.6(f)(1) states that the factors that may be taken into account when addressing the feasibility of alternatives include site suitability; economic viability; availability of infrastructure; general plan consistency; other plans or regulatory limitations; jurisdictional boundaries (projects with a regionally significant impact should consider the regional context); and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or the site is already owned by the proponent).

An EIR must evaluate the comparative merits of the alternatives and include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project (CEQA Guidelines Section 15126.6(d)).

## 5.2. PROPOSED PROJECT

The identification of potential alternatives to the Proposed Project considered the Proposed Project objectives and significant impacts that would result from the Proposed Project, as summarized below.

### 5.2.1. Proposed Project Objectives

As described in Chapter 2, "Project Description," the purpose of the Proposed Project is to provide navigational improvements that address inefficiencies and suboptimal conditions currently experienced by vessels in the Oakland Harbor. Section 2.4 identifies the objectives of the Proposed Project as follows:

- Optimize transit efficiencies for commercial deep draft vessels across the entire Seaport for both the current and the projected increase in the frequency of calls to the Seaport by long vessels;
- Maintain the Port's competitiveness as the principal ocean gateway for international cargo shipments in Northern California;
- Improve flexibility for commercial deep draft vessels calling the Seaport to connect to shore power to reduce their emissions while at berth in alignment with the Port's vision of a zero emissions Seaport;
- Improve conditions for vessel maneuvering and safety, including reducing environmental risk associated with existing maneuvering limitations; and
- Modernize essential waterway infrastructure to fully accommodate the projected fleet mix of vessels calling the Seaport.

## 5.2.2. Significant Environmental Impacts of the Proposed Project

The Draft EIR identifies significant and unavoidable impacts after implementation of mitigation measures associated with air quality and noise as summarized below (see Chapter 3, Environmental Analysis for detailed analysis).

- Estimated health impacts from construction emissions would conflict with the Bay Area Air Quality Management District's (BAAQMD) clean air plan, West Oakland Community Action Plan (WOCAP), and City of Alameda General Plan. (Impact AIR-1)
- Construction emissions would result in $NO_X$ emissions that exceed the BAAQMD thresholds of significance, which would also be cumulatively considerable when combined with existing community exposures and emissions from reasonably foreseeable future projects. (Impact AIR-2 an Impact C-AIR-1)
- Construction emissions would result in cancer risks and $PM_{2.5}$ concentrations that exceed the BAAQMD thresholds of significance, which would also be cumulatively considerable when combined with existing community exposures and emissions from reasonably foreseeable future projects. (Impact AIR-3 and Impact C-AIR-1)
- Nighttime dredging construction noise impacts on some sensitive receptors in the Landing at Bay 37 residential development in Alameda would be significant and unavoidable. In addition, should development and occupation of Howard Terminal residences occur prior to construction of the Proposed Project, daytime pile-driving and nighttime dredging construction noise impacts on these sensitive receptors would be significant and unavoidable. (Impact NOI-1)

Other impacts from carrying out the Proposed Project would be less than significant or could be reduced to a less-than-significant level through implementation of mitigation measures, as described throughout Chapter 3 of this Draft EIR.

## 5.3. ALTERNATIVES DEVELOPMENT PROCESS

The alternatives development process for the Proposed Project was two-part. First, during the USACE feasibility study planning process for the Oakland Harbor Turning Basins Widening, alternatives to achieving the objectives of the study were considered and screened as documented in the USACE's *Oakland Harbor Turning Basins Widening Revised Draft Integrated Feasibility Report and Environmental Assessment* (Revised Draft IFR/EA; 2023). Second, the Port considered additional alternatives taking into account the Proposed Project objectives and the ability of alternatives to substantially lessen one or more of the significant effects under CEQA, as discussed in Section 5.5.

Initially, a variety of nonstructural/operational measures and structural measures were considered during the USACE feasibility study planning process, as described in Chapter 4 of the Revised Draft IFR/EA. Nonstructural/operational measures would have the potential to improve navigation within the Oakland Harbor without the physical modification of the channels. Nonstructural and operational measures considered included alternative sites for, or means of, commerce delivery; increasing tugboat assistance; and improving vessel scheduling of timing vessel transits. The nonstructural/operational measures considered were eliminated from further consideration because 1) no additional feasible port terminal sites have been identified or proposed for cargo routing or handling for the region; and 2) tug assistance and vessel scheduling and timing of transits are already measures being implemented at the Seaport, and it was determined that further improvements to achieve the objectives of the study could not be met through these means. Structural measures are those measures that modify the physical attributes of the navigation channels; structural measures considered included channel deepening and turning basin or channel widening. Because the Seaport is not depth constrained, deepening was not considered further. Widening the turning basins would allow for more efficient and safer maneuvering of container vessels within Oakland Harbor; therefore, this measure was carried forward for further consideration.

Several alternative footprints for widening the turning basins were developed and evaluated as described further in Section 5.4.1 of this chapter. The footprints' costs, benefits, environmental impacts, and impacts to businesses were considered in determining the preferred footprints for widening the IHTB and OHTB. These preferred footprints were used to develop the final array of alternatives that were carried forward for the NEPA effects analysis presented in the Revised Draft IFR/EA. The USACE's Recommended Plan (preferred alternative) identified in the Revised Draft IFR/EA is the Port's Proposed Project analyzed in this Draft EIR.

As indicated above, in identifying alternatives to the Proposed Project, the Port considered the Proposed Project objectives and the ability of alternatives to substantially lessen one or more of the Proposed Project's significant effects under CEQA. For this Draft EIR, the alternatives development process consisted of the following steps:

- Define the alternatives to allow a comparative evaluation.
- Evaluate each alternative in the context of the following criteria:
    - the extent to which the alternative would accomplish most of the basic goals and objectives of the Proposed Project;

  - the extent to which the alternative would avoid or lessen one or more of the identified significant environmental effects of the Proposed Project;
  - the potential feasibility of the alternative, considering site suitability, economic viability, availability of infrastructure, general plan consistency, and consistency with other applicable plans and regulatory limitations; and
  - the requirement of the State CEQA Guidelines to consider a "no project" alternative and to identify, under specific criteria, an "environmentally superior" alternative in addition to the "no project" alternative. (State CEQA Guidelines Section 15126.6, subd. (e))

- Determine suitability of the proposed alternative for full analysis in the EIR. If an alternative is determined to be unsuitable provide justification for eliminating it from further consideration. Those alternatives that were found to be feasible and consistent with the Proposed Project objectives were reviewed to determine if the alternative had the potential to reduce the environmental impacts of the Proposed Project. Infeasible alternatives and feasible alternatives that did not clearly offer the potential to reduce any significant environmental impacts were removed from further analysis.

## 5.4. ALTERNATIVES CONSIDERED BUT NOT EVALUATED IN THE DRAFT EIR

As stated above, a range of alternative footprints for widening the turning basins (six for the IHTB and one for the OHTB) were considered as part of the USACE feasibility study planning process; these alternative footprints were screened in consultation with the Port and the San Francisco Bay Pilots (USACE 2023). **Table 5.4-1** summarizes footprints ultimately eliminated from further consideration and the reasons for their elimination to arrive at the Proposed Project footprints for widening the IHTB and OHTB that are evaluated within this Draft EIR. The alternative footprints that were eliminated are shown in **Figure 5.4-1** through **Figure 5.4-6**.

**Table 5.4-1 Alternative Footprints Eliminated from Further Consideration during USACE Feasibility Study Planning Process**

| Footprint Variation | Summary of Variation | Reason(s) for Elimination |
|---|---|---|
| Inner Harbor Variation 2: Shifted North (**Figure 5.4-1**) | Circular turning basin that is shifted north and overlays the existing IHTB. Variation 2 minimizes impacting uplands on the Alameda Site. | The amount of land required to implement Inner Harbor Variation 2 is significant and assumed to be contaminated, resulting in a higher cost. Additionally, the impacts to Schnitzer/Radius Recycling may be significant enough to prohibit their operation from continuing. Determined infeasible based on site suitability and economic viability. |
| Inner Harbor Variation 3: Centered* (**Figure 5.4-2**) | Circular turning basin that is shifted to be centered over the existing IHTB. Variation 3 minimizes impacts on landside areas. | Proximity to Schnitzer/Radius Recycling and Bay Ship & Yacht Co. may impact their business operational needs of these businesses. |
| Inner Harbor Variation 4: Non-Circular (**Figure 5.4-3**) | Non-circular turning basin that impacts more land at Howard Terminal while minimizing impacts to fast land at Alameda Site and Schnitzer/Radius Recycling. | A non-circular configuration would safety and maneuvering challenges for the bar pilots that would not otherwise be anticipated as compared to a circular turning basin option.<br>Estimated to produce less transit efficiency benefits than other variations (e.g., the time required to turn a vessel within the Inner Harbor Variation 4 turning basin would be greater than the time required to turn in a circular turning basin).<br>Eliminated based on limited ability to achieve the Proposed Project objectives compared to other alignment alternatives. |
| Inner Harbor Variation 5: New Location West of Existing (**Figure 5.4-4**) | Circular turning basin located west of the existing IHTB in the Middle Harbor, across from the Oakland International Container Terminal. | Estimated to have greater costs and have less transit efficiency benefits than the other Inner Harbor footprint alternatives. Considerable land impacts to Alameda and associated costs. Would result in berth restrictions at the Oakland International Container Terminal. Determined infeasible based on site suitability and economic viability. |

| Footprint Variation | Summary of Variation | Reason(s) for Elimination |
|---|---|---|
| Inner Harbor Variation 6: New Location Outside Middle Harbor (**Figure 5.4-5**) | A non-circular turning basin located west of the Inner Harbor Channel off Alameda Point and nearby Middle Harbor Shoreline Park. | Bar pilots indicated a turning basin in this location would leave vessels exposed to wind and currents, requiring additional operational restrictions, and would block the channel for other vessel traffic. Additionally, would likely require additional maintenance costs due to the currents increasing the sedimentation rate. Determined infeasible based on site suitability and economic viability. |
| Outer Harbor Variation 7: Shifted Northeast (**Figure 5.4-6**) | Circular turning basin shifted east of the existing OHTB. | Would require a shift in the channel centerline to north of the existing centerline; this is not optimal for the bar pilots to navigate. This footprint would also impact a larger footprint outside of the existing navigation channel than the other footprint considered for widening the OHTB, resulting in additional environmental impacts. Eliminated based on site suitability, economic viability, and environmental considerations. |

* Inner Harbor Variation 3: Centered was the recommended footprint for the IHTB widening in the USACE's Draft IFR/EA published in December 2021. In response to public comments received on the Draft IFR EA, the recommended footprint for the IHTB was changed to Inner Harbor Variation 1: Shifted East, which is the proposed footprint for the IHTB widening in the USACE's Revised Draft IFR/EA and this Draft EIR.

Source: USACE 2023

**Figure 5.4-1 Inner Harbor Variation 2 – Shifted North**

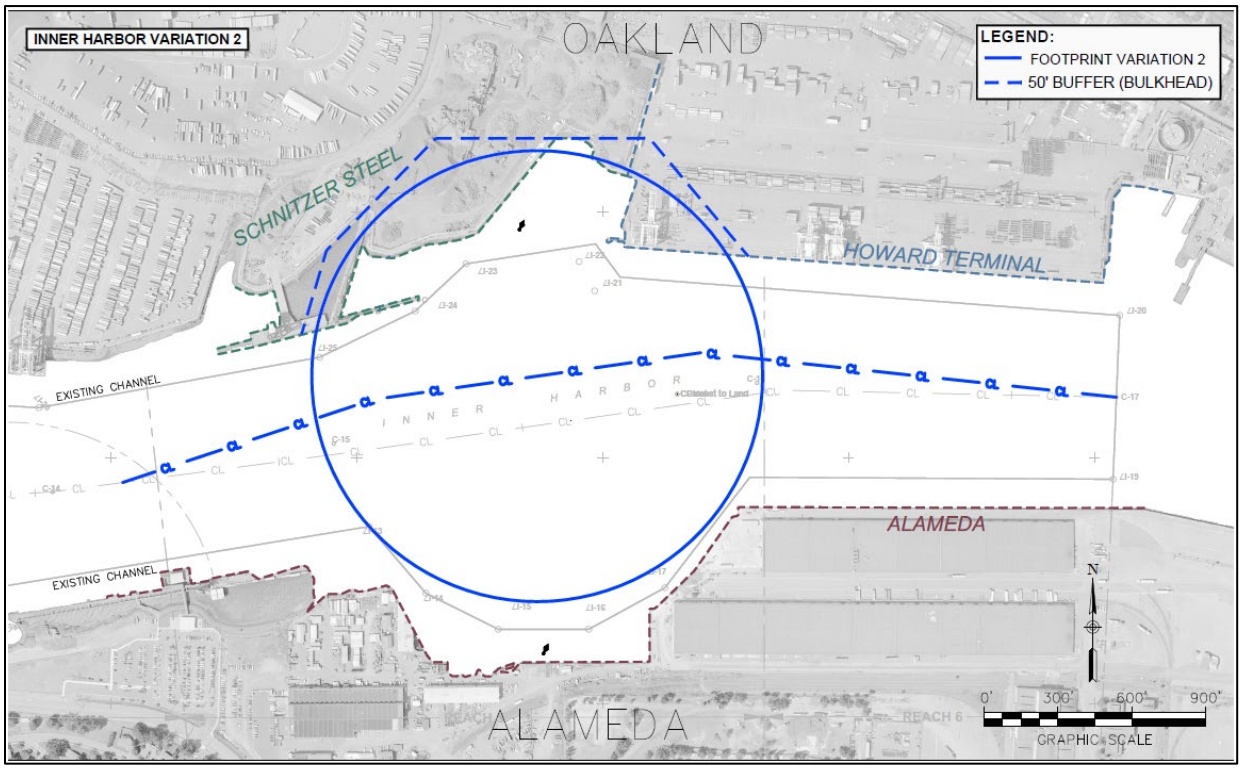



**Figure 5.4-2 Inner Harbor Variation 3 – Centered**



**Figure 5.4-3 Inner Harbor Variation 4 – Non-Circular**

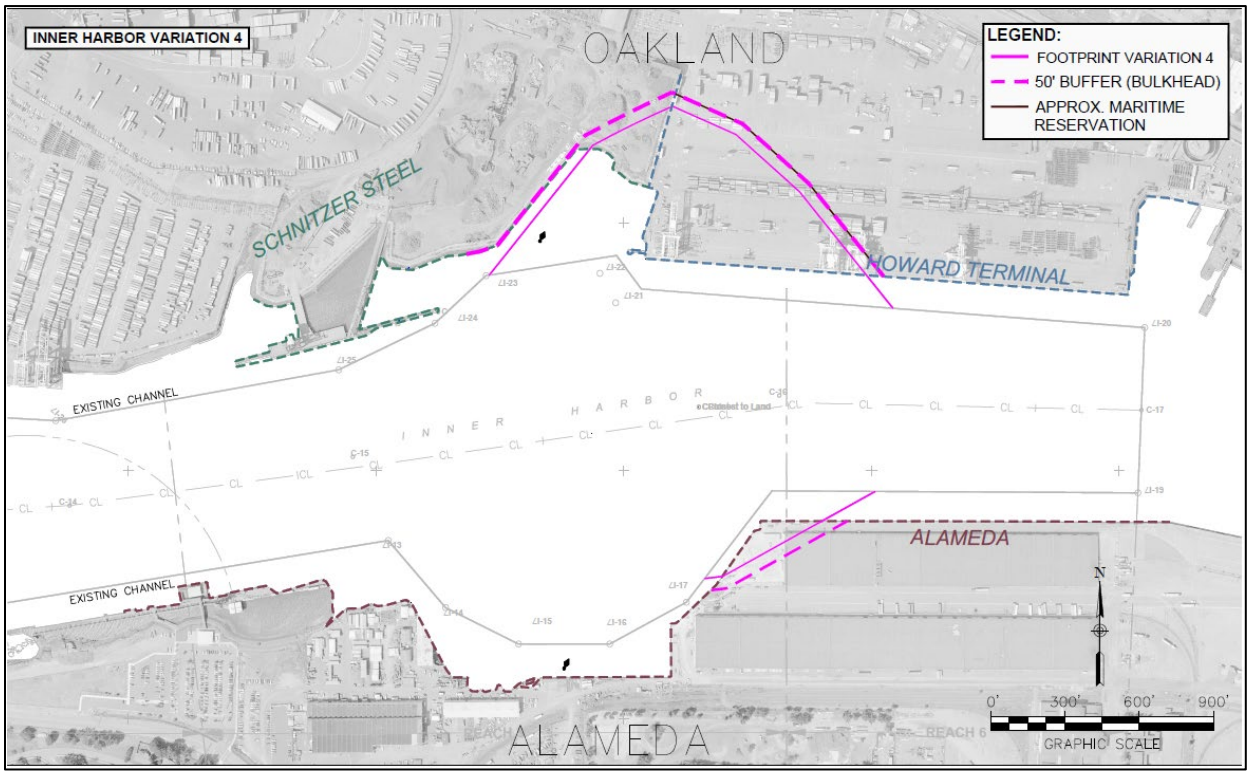



**Figure 5.4-4 Inner Harbor Variation 5 – New Location West of Existing**

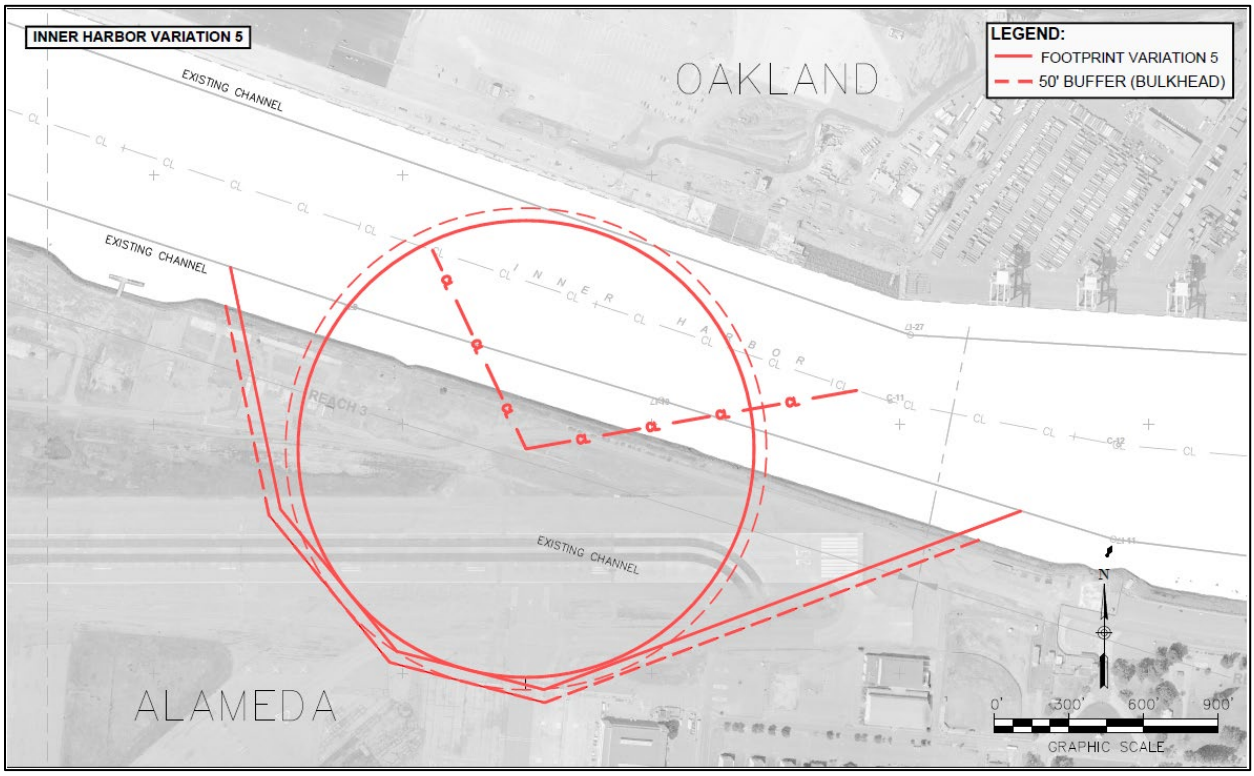


**Figure 5.4-5 Inner Harbor Variation 6 – New Location Outside Middle Harbor**

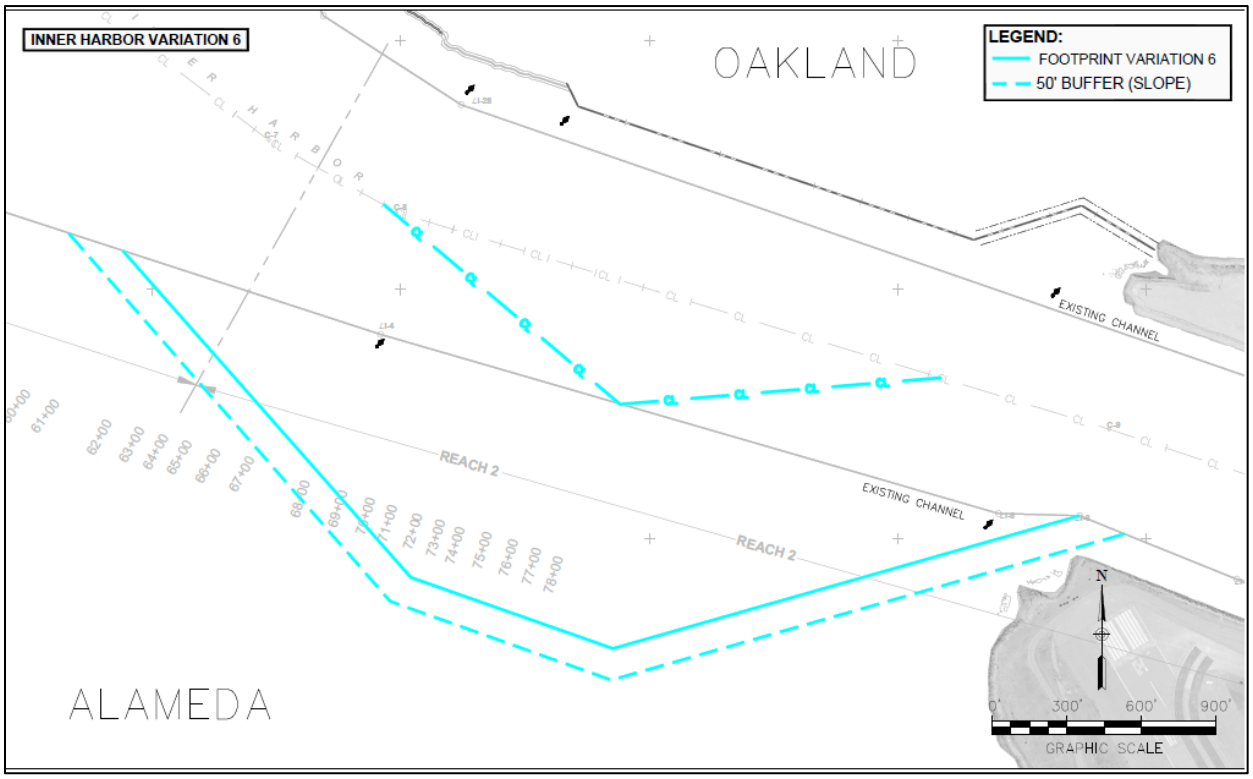
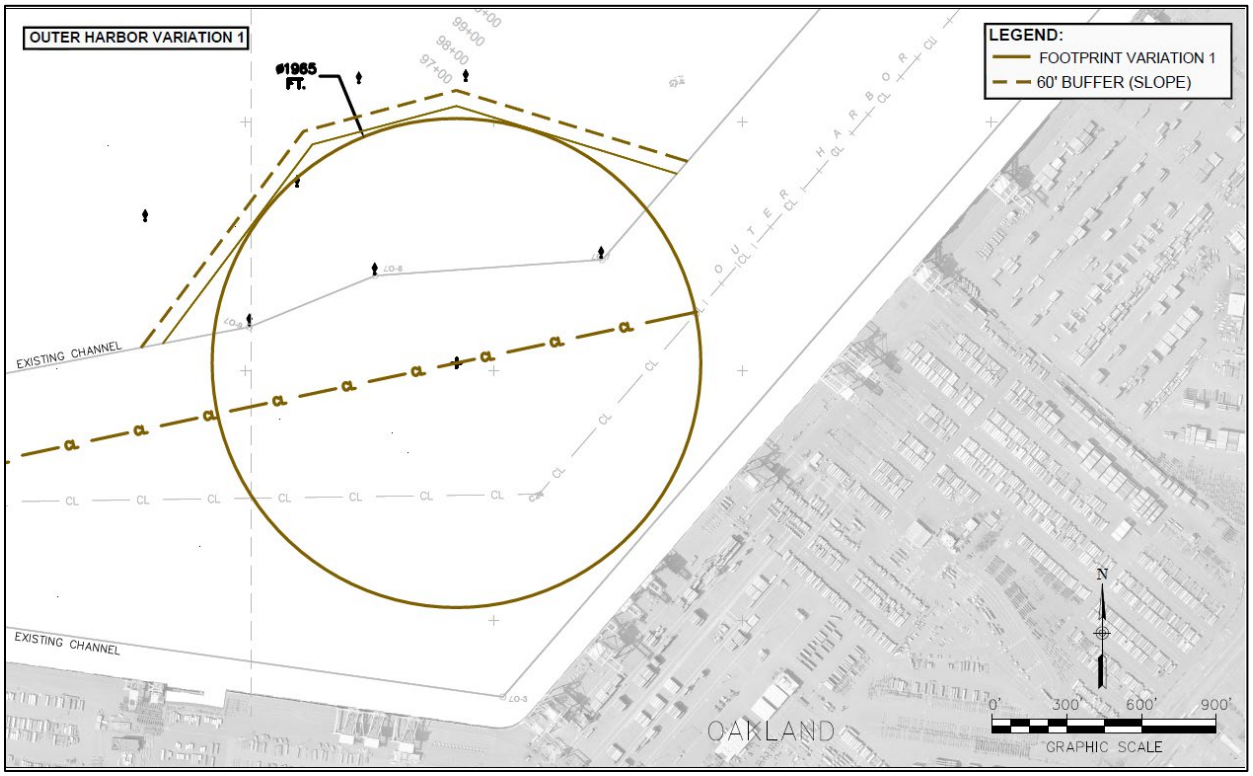



**Figure 5.4-6 Outer Harbor Variation 7 – Shifted East**



## 5.5. ALTERNATIVES EVALUATED IN THE DRAFT EIR

The following alternatives are evaluated in this Draft EIR:

- Alternative 1 – Widening of IHTB Only
- Alternative 2 – Widening of the OHTB Only
- Alternative 3 – Widening of the IHTB and OHTB with use of Diesel Dredges
- Alternative 4 – No Project Alternative

The No Project Alternative is evaluated as required by CEQA. Alternatives 1 through 3 were identified as potentially feasible that would meet at least some of the project objectives and would potentially avoid or substantially lessen one or more of the significant environmental effects of the Proposed Project. The following sections describe each of the alternatives carried forward for analysis and compares the potential environmental effects of each alternative to the potential environmental effects of Proposed Project that are examined in detail in Chapter 3 of this Draft EIR.

### 5.5.1. Alternative 1 – Widening of the IHTB Only

#### *Alternative Description*

Alternative 1 would involve expansion of the IHTB, as presently described as part of the Proposed Project; but would not involve any improvements or modifications to the OHTB. As with the Proposed Project, in-water improvements to the IHTB would include the widening of the existing IHTB from 1,500 feet to 1,834 feet, with a depth of -50 feet MLLW consistent with the existing depth of the IHTB; and removal of landside property at Howard Terminal and the Alameda Site.

Widening the IHTB only would limit the extent to which the project would achieve project objectives for improvements to navigational efficiency, flexibility for commercial deep-draft vessels to reduce emissions at berth, conditions for vessel maneuvering and safety, and modernizing essential waterway infrastructure for the benefit of the entire Seaport. Widening the IHTB only could disproportionately benefit Inner Harbor marine terminals and would limit the Port's ability to maintain competitiveness as the principal ocean gateway for international cargo shipments in Northern California. Although Alternative 1 partially meets project objectives, it does not meet all project objectives.

The intent of this alternative would be to reduce potentially significant impacts to energy by reducing the area requiring electric dredging.

#### *Impact Analysis*

Environmental analysis presented for Alternative 1 focuses on the evaluation of air quality, energy, and GHG impacts; these are the only resource topic areas for which widening the IHTB only could substantially change the impacts as compared to the Proposed Project.

Reduction of the Proposed Project footprint (e.g., removal of OHTB dredging and electrical infrastructure installation) would generally reduce the extent of construction-related impacts to other resource areas. However, as most of the Proposed Project's potentially significant impacts are associated with the proposed improvements to the IHTB, Alternative 1 would not change the significance of impacts or otherwise substantially change the analysis for the remaining resource topics presented in Chapter 3 of this Draft EIR; therefore, no additional comparative analysis is provided for these resource topics.

## Air Quality

Under Alternative 1, emissions of criteria air pollutants and toxic air contaminants would be less than under the Proposed Project because the construction emissions would only include those from widening the IHTB. **Table 5.5-1** presents the mitigated construction criteria pollutant emissions for Alternative 1, which are above BAAQMD's significance thresholds for $NO_X$ in Year 3 and below for all other criteria pollutants.

**Table 5.5-1 Mitigated Construction Emissions Summary for Widening of the IHTB Only – Pounds per Day**

| Project Construction Year | ROG | $NO_X$ | $PM_{10}$ (exhaust) | $PM_{2.5}$ (exhaust) |
|---|---|---|---|---|
| Year 1 (2027) | 1 | 12 | 2 | 2 |
| Year 2 (2028) | 2 | 25 | 3 | 2 |
| Year 3 (2029) | 4 | 56 | 6 | 6 |
| BAAQMD Significance Threshold | 54 | 54 | 82 | 54 |
| Above or Below Threshold | Below | Above | Below | Below |

Notes:

BAAQMD = Bay Area Air Quality Management District
$NO_X$ = oxides of nitrogen
$PM_{10}$ = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
ROG = reactive organic gases

As with the Proposed Project, Alternative 1 would result in significant and unavoidable air quality impacts due to: 1) conflict with BAAQMD's clean air plan, WOCAP, and the City of Alameda General Plan; 2) and construction emissions resulting in excess $NO_X$ emissions, cancer risks and $PM_{2.5}$ concentrations that exceed the BAAQMD thresholds of significance, which would also be cumulatively considerable when combined with existing community exposures and emissions from reasonably foreseeable future projects. The severity of these impacts would be the same for Alternative 1 as the Proposed Project because the Health Risk Assessment performed for the Proposed Project indicates these impacts are primarily due to the proximity of proposed and existing residences to the IHTB and the construction equipment being used for landside construction to widen the IHTB (refer to Impact AIR-3 in Section 3.3).

## Energy

Although widening the IHTB only would reduce power supply needs during construction and therefore also reduce the likelihood of electric dredging activities contributing to a brownout,[96] because of the overall limitations on the region's electrical grid the possibility of the proposed dredging activities contributing to a brownout during peak load times would still exist. In particular, Alameda has experienced brownouts during periods of peak power demand. Dredging would occur between June 1 and November 30, overlapping with the summer months when demand on the electrical grid is typically the highest. Alameda Municipal Power (AMP) is

[96] A brownout is a reduction in or restriction on the availability of electrical power in a particular area. Brownouts are partial outages while blackouts are a complete shutdown of electricity.

constrained in terms of existing available power supply and limitations in its ability to increase the available power supply to Alameda without upgrades to the transmission supply to the island. As with the Proposed Project, this alternative would need to implement Mitigation Measure ENE-1, requiring switching to diesel dredging in the event of peak electricity demand overloads that could lead to insufficient temporary electricity supplies either from CAISO-related requests or requests from AMP. Alternative 1 would reduce the severity of potential impacts on energy resources compared to the Proposed Project by reducing overall demand on available power supply for electric dredging. As with the Proposed Project, Mitigation Measure ENE-1 would eliminate Alternative 1's contribution to electrical demand during alert events, and the impacts to energy resources under Alternative 1 would be less than significant with mitigation.

#### Greenhouse Gases

Under Alternative 1, total GHG emissions from construction would be 8,272 metric tonnes $CO_2e$ compared to 14,090 metric tonnes $CO_2e$ under the Proposed Project, representing a decrease of 5,818 metric tonnes $CO_2e$ under Alternative 1. Because the IHTB widening accounts for approximately 58 percent of the Proposed Project's GHG emissions but only 38 percent of the dredged material is assumed to be suitable for beneficial reuse, the carbon sequestered as a result of wetland creation from of the beneficial reuse under Alternative 1 may not be a sufficient offset for the GHG emissions from construction to widen the IHTB. As noted under Impact GHG-1 in in Section 3.8.4, the order of magnitude of the carbon sequestration is uncertain and there would be a delay in time between GHG emissions from construction activities and carbon sequestration offset; however, Mitigation Measure GHG-1: Construction GHG Mitigation would be implemented for the Proposed Project, requiring the contractor to implement various construction-related GHG emission reduction measures to ensure that GHG emissions are minimized to the extent practicable. Because Alternative 1 would result in a reduction of GHG emissions compared to the Proposed Project and Mitigation Measure GHG-1 would also be required for Alternative 1, the significance of GHG emission impacts for Alternative 1 would not change from that under the Proposed Project (less than significant with mitigation).

## 5.5.2. Alternative 2 – Widening of OHTB Only

### *Alternative Description*

Alternative 2 would involve widening of the OHTB, as presently described as part of the Proposed Project in Chapter 2; but would not involve any improvements or modifications to the IHTB. As with the Proposed Project, in-water improvements to the OHTB would include dredging activities for the widening of the existing OHTB from 1,650 feet to 1,965 feet, with a depth of -50 feet MLLW. As with the Proposed Project, widening of the OHTB would not require the removal of landside property. Alternative 2 would not include any landside improvements aside from electrical infrastructure installation at Berth 26 to facilitate electric dredging. Under Alternative 2, dredging activities to widen the OHTB is assumed to be completed during the 2027 and 2028 in-water work windows instead during the 2028 and 2029 in-water work windows as under the Proposed Project.

Widening the OHTB only would limit the extent to which the project would achieve project objectives for improvements to navigational efficiency, flexibility for commercial deep-draft vessels to reduce emissions at berth, conditions for vessel maneuvering and safety, and modernizing essential waterway infrastructure for the benefit of the entire Seaport. Widening the

OHTB only could disproportionately benefit Outer Harbor marine terminals and would limit the Port's ability to maintain competitiveness as the principal ocean gateway for international cargo shipments in Northern California. Although Alternative 2 partially meets project objectives, it does not meet all project objectives.

The intent of this alternative would be to reduce adverse air quality and noise impacts to landside sensitive receptors as well as reduce adverse impacts to energy. Without the IHTB improvements, construction work would be limited to the Outer Harbor where there are no sensitive receptors nearby within approximately 5,000 feet (nearly 1 mile) of areas proposed for dredging.

### *Impact Analysis*

Environmental analysis presented for Alternative 2 focuses on the evaluation of topic areas where the potential for significant impacts differs as compared to the Proposed Project or where impacts would otherwise be substantially reduced compared to the Proposed Project: air quality, biological resources, energy, geology and soils, GHG, energy, hazards and hazardous materials, hydrology and water quality, and transportation.

Because it would not involve any construction in the Inner Harbor, Alternative 2 would also reduce the geographic extent of impacts for other resource topics (e.g., temporary aesthetic impacts during construction would be limited to the Outer Harbor). However, Alternative 2 would not change the significance of impacts or otherwise substantially change the analysis for the remaining resource topics presented in Chapter 3 of this Draft EIR; therefore, no additional comparative analysis is provided for these resource topics.

#### Air Quality

Under Alternative 2, emissions of criteria air pollutants and toxic air contaminants would be less than under the Proposed Project because the construction emissions would only include those for widening the OHTB. **Table 5.5-2** presents the mitigated construction criteria pollutant emissions for Alternative 2, which are above BAAQMD's significance thresholds for $NO_X$ emissions.

**Table 5.5-2 Mitigated Construction Criteria Pollutant Emissions for Widening of the OHTB Only – Pounds per Day**

| Project Construction Year | ROG | $NO_X$ | $PM_{10}$ (exhaust) | $PM_{2.5}$ (exhaust) |
|---|---|---|---|---|
| Year 1 (2027) | 0.08 | 0.58 | 0.02 | 0.02 |
| Year 2 (2028) | 5.11 | 58 | 14.76 | 4.61 |
| BAAQMD Significance Threshold | 54 | 54 | 82 | 54 |
| Above or Below Threshold | Below | Above | Below | Below |

Notes:

BAAQMD = Bay Area Air Quality Management District
$NO_X$ = oxides of nitrogen
$PM_{10}$ = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
ROG = reactive organic gases

As with the Proposed Project, Alternative 2 would result in significant and unavoidable air quality impacts due to: 1) conflict with BAAQMD's clean air plan, WOCAP, and the City of Alameda General Plan; 2) and construction $NO_X$ emissions that exceed the BAAQMD thresholds of significance, which would also be cumulatively considerable when combined with existing community exposures and emissions from reasonably foreseeable future projects. The severity of these impacts would be lower for Alternative 2 compared to the Proposed Project, because the $NO_X$ emissions are only slightly above the threshold. The Health Risk Assessment indicates that Alternative 2 would be below the BAAQMD threshold of significance for health risks. Alternative 2 would avoid some of the Proposed Project's significant and unavoidable air quality impacts related to construction emissions resulting in cancer risks and $PM_{2.5}$ concentrations that exceed the BAAQMD thresholds of significance, which would also be cumulatively considerable when combined with existing community exposures and emissions from reasonably foreseeable future projects. As stated above, the Health Risk Assessment that indicates these impacts under the Proposed Project are primarily due to the close proximity of proposed and existing residences to the IHTB and the construction equipment being used for landside construction to widen the IHTB. As Alternative 2 would not involve any improvements to the IHTB, these impacts would not occur.

### Biological Resources

Because no pile-driving would occur to widen the OHTB, the potentially significant impacts to special-status fish, birds and marine mammals from pile driving activities under the Proposed Project would not occur under Alternative 2. Consequently, Proposed Project Mitigation Measure BIO-1C: Pile-Driving Related Measures would not be required for Alternative 2. In addition, widening the OHTB is not expected to involve removal of sediment with elevated levels of chemical contaminants; therefore, there would be reduced potential for Alternative 2 to result in the impacts from resuspension of chemical contaminants in sediment on special-status fish compared to the Proposed Project, which is assumed to involve some disturbance of contaminated sediment in the IHTB based on historical data.

### Energy

Although widening the OHTB only would reduce power supply needs during construction and therefore also reduce the likelihood of electric dredging activities contributing to a brownout, because of the overall limitations on the region's electrical grid the possibility of the proposed dredging activities contributing to a brownout during peak load times would still exist. As with the Proposed Project, this alternative would need to implement Mitigation Measure ENE-1, switching to diesel dredging in the event of peak electricity demand overloads that could lead to insufficient temporary electricity supplies either from CAISO-related requests or requests from AMP. Alternative 2 would reduce the severity of potential impacts on energy resources compared to the Proposed Project, especially by eliminating the need for power from Alameda. As with the Proposed Project, Mitigation Measure ENE-1 would eliminate Alternative 2's contribution to electrical demand during alert events, and the impacts to energy resources under Alternative 2 would be less than significant with mitigation.

### Geology and Soils

Although the Proposed Project's impacts related to seismic hazards and unstable geologic units would be less than significant, potential impacts would be reduced under Alternative 2 because there would be no relocation of bulkheads, dredging would occur to the northwest of the existing

OHTB and away from the Berths 25-30 bulkhead (at the Outer Harbor Terminal), and landside construction would only involve electrical infrastructure installation requiring limited and shallow ground disturbance near Berth 26. Similarly, impacts related to soil erosion, while less than significant under the Proposed Project, would also be reduced under Alternative 2 because of the reduced landside construction footprint.

### Greenhouse Gases

Under Alternative 2, total GHG emissions from construction would be 5,708 metric tonnes $CO_2e$ compared to 14,090 metric tonnes $CO_2e$ under the Proposed Project, representing a decrease of approximately 8,492 metric tonnes $CO_2e$ under Alternative 2. Because all of the dredged material from the OHTB is expected to be suitable for beneficial reuse for wetland creation as cover or non-cover material, the carbon sequestered as a result of this beneficial reuse under Alternative 2 could offset the GHG emissions from construction, similar to the Proposed Project. As noted under Impact GHG-1 in Section 3.8.4, the order of magnitude of the carbon sequestration is uncertain and there would be a delay in time between GHG emissions from construction activities and carbon sequestration offset; however, Mitigation Measure GHG-1: Construction GHG Mitigation would be implemented for the Proposed Project, requiring the contractor to implement various construction-related GHG emission reduction measures to ensure that GHG emissions are minimized to the extent practicable. Because Alternative 2 would result in a reduction of GHG emissions compared to the Proposed Project and Mitigation Measure GHG-1 would also be required for Alternative 2, the significance of GHG emission impacts for Alternative 2 would not change from that under the Proposed Project (less than significant with mitigation).

### Hazards and Hazardous Materials

Although the Proposed Project's impacts related to disposal of hazardous materials would be less than significant, impacts would be reduced under Alternative 2 because there would be no disposal of potentially hazardous building materials (from the Alameda Site warehouses) or removal of materials anticipated to require disposal at a Class I (hazardous) landfill or Class II (non-hazardous) landfill. Similarly, Alternative 2 would not involve any work at Howard Terminal and there would be no impacts related to a hazardous materials site on the Cortese List. In addition, because construction-related traffic under Alternative 2 would be considerably less than under the Proposed Project, as described below, it would be less likely to interfere with emergency vehicle access or traffic movement in the event of an emergency situation or evacuation.

### Hydrology and Water Quality

Widening the OHTB is not expected to involve removal of sediment containing elevated levels of contaminants; therefore, there would be reduced potential for dredging under Alternative 2 to increase chemical contaminant concentrations in the water column above baseline conditions resulting in violation of a water quality standard compared to the Proposed Project, which is assumed to involve some disturbance of contaminated sediment in the IHTB based on historical data. Additionally, because landside construction under Alternative 2 would only involve limited and shallow ground disturbance for electrical infrastructure installation at Berth 26 and construction staging at Berth 10, and because an SWPPP would be implemented to reduce potential impacts to water quality, this alternative would have no impacts related to groundwater or alteration of drainage patterns.

### Noise

Under Alternative 2, the IHTB would not be widened and the significant and unavoidable construction noise impacts from pile driving and nighttime dredging under the Proposed Project would not occur under this alternative. The nearest noise-sensitive land use to the OHTB would be single-family residences on Pine Street, approximately 5,000 feet to the east. At this distance, noise from dredging to widen the OHTB would be attenuated by distance to approximately 40 dBA, and would be further attenuated by intervening structures, and masked by existing noise from the I-880 freeway. Construction related traffic associated with Alternative 2 would primarily be associated with worker commutes, with very few truck trips, as described below. Additionally, truck routes under this alternative would also use roadways that do not pass noise-sensitive receptors. Therefore, noise impacts under Alternative 2 would be substantially reduced compared to the Proposed Project, would be less than significant, and would not require mitigation.

### Transportation

Under Alternative 2, there would be considerably fewer trips from workers, equipment delivery and withdrawal, and haul truck trips compared to the Proposed Project. Construction traffic associated with widening the OHTB would be substantially less than that for the Proposed Project because, except for the electrical infrastructure installation at Berth 26, there is no land excavation or other landside construction activity required. The electrical infrastructure installation would involve a limited number of trips (peak maximum of 20, **Table 3.14-5** in Section 3.14), most of which would be worker trips (**Table 3.14-4** in Section 3.14). The only trip type associated with dredging activities to widen the OHTB would be worker commutes to the Outer Harbor staging site at Berth 10, which would have a peak construction-related ADT value of 52 trips per day (**Table 3.14-5**). Compared to the Proposed Project, Alternative 2 would have reduced impacts on local roadway, bicycle, and pedestrian circulation and would be less likely to interfere with emergency vehicle access.

## 5.5.3. Alternative 3 – Widening of the IHTB and OHTB with Use of Diesel-Fueled Dredges

### *Alternative Description*

Alternative 3 would involve all the same improvements as the Proposed Project. The only difference is that under Alternative 3, diesel-fueled dredges would be used instead of electric dredges to complete all dredging activity. All other aspects of construction would be the same for both Alternative 3 and the Proposed Project.

Alternative 3 would meet all of the project objectives. The intent of this alternative would be to reduce potentially significant impacts to energy by eliminating the need for electrical power supply for dredging activities.

### *Impact Analysis*

Environmental analysis presented for Alternative 3 focuses on the evaluation of four topic areas where the use of diesel dredges would change the potential for significant impacts as compared to the Proposed Project: air quality, energy, GHG, and noise. For all other resource areas, the use

of diesel dredges would not substantially change the analysis presented in Chapter 3 of this Draft EIR; therefore, no additional comparative analysis for this alternative is provided.

### Air Quality

As with the Proposed Project, Alternative 3 would result in significant and unavoidable air quality impacts due to: 1) conflict with BAAQMD's clean air plan, WOCAP, and the City of Alameda General Plan; 2) and construction emissions resulting in cancer risks, acute hazard index and $PM_{2.5}$ concentrations that exceed the BAAQMD thresholds of significance, which would also be cumulatively considerable when combined with existing community exposures and emissions from reasonably foreseeable future projects. Alternative 3 would increase the severity of these significant and unavoidable air quality impacts compared to the Proposed Project because use of diesel dredges would increase emissions of criteria air pollutants and toxic air contaminants relative to use of electric dredges.

**Table 5.5-3** presents the mitigated construction criteria pollutant emissions using diesel dredges. Because Alternative 3 would exceed the BAAQMD significance threshold for $NO_X$ during construction years 2 and 3, best management practices for fugitive dust would be required per the BAAQMD CEQA guidelines. Even with fugitive dust best management practices, the BAAQMD significance threshold for $NO_X$ could be exceeded under this alternative, resulting in a significant and unavoidable impact related to cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard.

**Table 5.5-3 Mitigated Construction Emissions with Diesel Dredges—Pounds per Day**

| Project Construction Year | ROG | $NO_X$ | $PM_{10}$ (exhaust) | $PM_{2.5}$ (exhaust) |
|---|---|---|---|---|
| Year 1 (2027) | 1 | 112 | 2 | 2 |
| Year 2 (2028) | 11 | 147 | 27 | 27 |
| Year 3 (2029) | 7 | 108 | 19 | 19 |
| BAAQMD Significance Threshold | 54 | 54 | 82 | 54 |
| Above or Below Threshold | Below | Above | Below | Below |

Notes:

BAAQMD = Bay Area Air Quality Management District
$NO_X$ = oxides of nitrogen
$PM_{10}$ = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
ROG = reactive organic gases

### Energy

Under Alternative 3, dredging of the IHTB and OHTB would be accomplished with diesel dredges. Because this alternative would not require use of electricity for dredging, it would avoid the potentially significant impact that would occur under the Proposed Project (i.e., a potential exceedance in draw on the available local power supply contributing to a brownout), and therefore would not require mitigation. Alternative 3 would consume nearly 25 percent more the volume of diesel fuel for construction as the Proposed Project (1,653,257 gallons for Alternative 3 compared to 1,287,274 gallons for the Proposed Project); however, in the context of California's available fuel resources, as described in Section 3.6, this amount of diesel fuel consumption under Alternative 3 would not have substantial impact on the availability of diesel fuel in the state or require additional fuel capacity to be constructed. Therefore, impacts to energy resources under Alternative 3 would be less than significant.

### Greenhouse Gases

Under Alternative 3, use of diesel dredges would result in greater GHG emissions compared to use of electric dredges under the Proposed Project. Under Alternative 3, total GHG emissions from construction would be 116,201 metric tonnes $CO_2e$ compared to 114,090 metric tonnes $CO_2e$ under the Proposed Project, representing an increase of approximately 2,111 metric tonnes $CO_2e$ under Alternative 3. As described under Impact GHG-1 in Section 3.8.4, the estimated amount of carbon sequestered from the beneficial reuse of dredged material would total 11,848 metric tonnes $CO_2e$ over the life of the Proposed Project, resulting in a net increase of 4,353 metric tonnes $CO_2e$ for the Proposed Project. Therefore, the 116,201 metric tonnes $CO_2e$ of GHG emissions under Alternative 3 would not be offset by carbon sequestration from the beneficial reuse of dredged material, resulting in a net increase of 4,353 metric tons $CO_2e$. As noted under Impact GHG-1, the order of magnitude of the carbon sequestration is uncertain and there would be a delay in time between GHG emissions from construction activities and carbon sequestration offset; however, Mitigation Measure GHG-1: Construction GHG Mitigation would be implemented for the Proposed Project, requiring the contractor to implement various construction-related GHG emission reduction measures to ensure that GHG emissions are minimized to the extent practicable. Because Alternative 3 could result in a net increase in GHG emissions resulting from carbon sequestration offset by beneficial reuse of dredged sediment and since Mitigation Measure GHG-1 would also be required for Alternative 3, the increase in GHG emissions under Alternative 3 would not change the significance of GHG emission impacts for Alternative 3 compared to the Proposed Project (less than significant with mitigation).

### Noise

Diesel dredges generate more noise than electric dredges; therefore, noise generated during dredging activities would be greater under Alternative 3 than the Proposed Project. The noise level of a diesel dredge at a distance of 50 feet is 81 dBA, which is 9 dBA higher than an electric dredge.

As described in the noise impact analysis in Section 3.12, the evaluation of impacts on sensitive receptors considered noise levels from the two loudest pieces of equipment that are expected to be operated concurrently. For daytime construction activities, this would be a pile driver and crane for both Alternative 3 and the Proposed Project; therefore, use of diesel dredges would not change daytime construction noise impacts for Alternative 3 relative to the Proposed Project. Dredging is the only construction activity that would occur at night. The nearest noise-sensitive

land use to the OHTB would be single-family residences on Pine Street, approximately 5,000 feet to the east. Even with use of a diesel dredge, at this distance, noise from construction activities would be attenuated by distance to approximately 40 dBA, and would be further attenuated by intervening structures, and masked by existing noise from the I-880 freeway. Consequently, similar to the Proposed Project, construction noise from widening the OHTB would not be perceptible at these closest residences during daytime or nighttime hours under Alternative 3. However, due to the proximity of sensitive receptors to the IHTB, use of diesel dredges would increase nighttime construction noise levels that could be experienced by these receptors.

**Table 5.5-4** presents nighttime noise levels at IHTB sensitive receptors with the use of diesel dredges. Oakland's noise ordinance limits nighttime construction noise levels at residential receptors to 45 dBA or the ambient noise level if it is greater. Existing noise levels surrounding the IHTB exceed the applicable 45 dBA so the existing nighttime noise level at each respective receptor would be the applicable nighttime construction standard. Construction noise levels from dredging operations would be below existing ambient nighttime noise levels at all receptors in Oakland except the potential future Howard Terminal residences. Noise from nighttime dredging would exceed the existing nighttime ambient noise level by 10 dBA (compared to a 7 dBA exceedance under the Proposed Project). However, given that the proposed land uses for Howard Terminal would also increase noise levels, including the proposed ballpark, the increase over future ambient noise levels cannot be reliably determined. Therefore, as with the Proposed Project, the noise from nighttime dredging is considered a potentially significant impact for the potential future residential uses at Howard Terminal under Alternative 3.

Alameda's ordinance limits nighttime noise at residential uses to 50 dBA which could be exceeded by up to 9 dBA at the residential uses on Mosley Avenue and future Landing at Bay 37 multi-family residences. Although the 50 dBA standard would also be exceeded at the Mitchell Avenue and Barbers Point residential locations, nighttime noise levels from diesel dredging would not exceed the existing ambient noise levels at these locations. A temporary noise barrier could be used as a mitigation measure approximately 200 feet from the southern edge of the Oakland Harbor during dredging activities to lower the nighttime noise levels by 5 dBA and reduce the exceedance of this local ordinance at the Mosley Avenue residences from 9 dBA to 4 dBA. For the future Landing at Bay 37 multi-family residences, the warehouses immediately to the west would serve as a noise barrier for dredging activity that is not within the direct line of sight of first and second floor residences, which would minimize exceedance of the Alameda local ordinance at these residences; however, an effective noise barrier would not be feasible for third floor residences. Additionally, because of aesthetic impacts, it would not be feasible to place a noise barrier to the north of the waterfront residences to reduce noise impacts to first and second floor residences from dredging activities that would be within direct line of sight of these residences. Because there is no feasible mitigation to reduce noise levels from nighttime dredging to below the applicable standards at the Mosley Avenue and future Landing at Bay 37 residences, this impact would be significant and unavoidable under Alternative 3.

**Table 5.5-4 Unmitigated Nighttime Construction Noise Levels with Diesel Dredges**

| Receptor | Existing Nighttime Noise Level (dBA, $L_{eq}$) | Loudest Two Noise Sources | Source Noise Level (dBA)[1] | Distance to Receptor (feet)[2] | Usage Factor | $L_{eq}$ Noise Level at Receptor (dBA)[3] | Exceed Nighttime Local Noise Ordinance Standard (existing nighttime noise level)[4]? |
|---|---|---|---|---|---|---|---|
| **Oakland Receptors** | | | | | | | |
| Phoenix Lofts Residential (nighttime) | 65[5] | Diesel dredge/tug | 81/80 | 1,300 | 50/25% | 52 | No |
| 4th Street Residences (nighttime) | 64[5] | Diesel dredge/tug | 81/80 | 1,800 | 50/25% | 49 | No |
| Future Howard Terminal Multi-family Residences (nighttime) | 58 | Diesel dredge/tug | 81/80 | 200 | 50/25% | 68 | **Yes** |
| **Alameda Receptors** | | | | | | | |
| Mitchell Avenue Residential (nighttime) | 52 | Diesel dredge/tug | 81/80 | 1,350 | 50/25% | 51 | No |
| Mosley Avenue Residential (nighttime) | 50 | Diesel dredge/tug | 81/80 | 600 | 50/25% | 59 | **Yes** |
| Barbers Point Residential (nighttime) | 60 | Diesel dredge/tug | 81/80 | 1,200 | 50/25% | 53 | No |
| Future Landing at Bay 37 Multifamily Residential (nighttime) | 52 | Diesel dredge/tug | 81/80 | 600 | 50/25% | 59 | **Yes** |

Notes:

1 $L_{max}$ at 50 feet.
2 Distance between approximate location of equipment and property line of sensitive receptor.
3 The $L_{eq}$ level is adjusted for distance and percentage of usage.
4 The nighttime noise standard in the City of Oakland when the existing noise level exceeds 45 dBA is the existing monitored noise level. The nighttime noise standard in the City of Alameda is 50 dBA. Because the existing average hourly nighttime noise levels at all four Alameda receptor locations already equal or exceed 50 dBA, this analysis applies the existing average nighttime noise level as the nighttime standard, similar to the City of Oakland methodology.
5 Existing noise level at this receptor as reported in the Draft Environmental Impact Report for the proposed Oakland Waterfront Ballpark District at Howard Terminal.

dBA = A-weighted decibel
FTA = Federal Transit Administration
$L_{eq}$ = equivalent-continuous sound level

### 5.5.4. Alternative 4 – No Project Alternative

#### *Alternative Description*

The No Project Alternative assumes that there would be no modifications to either the IHTB or OHTB to address navigation inefficiencies and suboptimal navigation conditions. The purpose of the No Project Alternative is to allow decision makers to compare the impacts of approving the Proposed Project with the impacts of not approving the Proposed Project. CEQA Guidelines Section 15126.6(e) requires consideration of a No Project Alternative that represents the existing conditions, as well as what would reasonably be expected to occur in the foreseeable future if the project were not approved. The No Project Alternative would not meet any of the Proposed Project objectives.

#### *Impact Analysis*

Under the No Project Alternative, none of the environmental impacts associated with the Proposed Project's construction and operation and maintenance, as described in Chapter 3, would occur. However, the No Project Alternative would also continue the navigational inefficiencies described in Chapter 2, and the estimated 2 percent to 13 percent reduction in operational emissions that would result from implementation of the Proposed Project (see discussion under Impact AIR-2 in Section 3.3) would not be realized under the No Project Alternative. In addition, the existing contaminated soils if present within the proposed widening footprints at Howard Terminal or the Alameda Site, or contaminated sediment in the dredge footprint, would not be removed and the potential risk of that contamination adversely affecting surface water and groundwater quality would remain.

## 5.6. ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The CEQA Guidelines require that an EIR identify the environmentally superior alternative (Section 15126.6 (e)(2)). If, based on the impact analysis, the environmentally superior alternative is the "No Project" Alternative, the EIR must then identify an environmentally superior alternative from among the other alternatives to be designated as the environmentally superior alternative.

Based on the above analysis, the No Action Alternative (Alternative 4) would be environmentally superior because it would avoid all the impacts of the Proposed Project but would not meet any of the project objectives. Widening of the OHTB Only (Alternative 2) would be the next most environmentally superior alternative but would fail to meet most of the project objectives. As described above, this alternative would eliminate the Proposed Project's significant and unavoidable air quality and noise impacts during construction on sensitive receptors in close proximity to the IHTB. In addition, Alternative 2 would generally lessen the geographic extent of temporary construction impacts associated with the other environmental resource topics analyzed in Chapter 3 of this EIR.

# 6. OTHER CEQA CONSIDERATIONS

As required by the CEQA Guidelines, this section includes discussion of the Proposed Project's significant and unavoidable impacts, significant irreversible impacts, and potential to have growth-inducing impacts.

## 6.1. SIGNIFICANT AND UNAVOIDABLE IMPACTS

CEQA Guidelines Section 15126.2(c) requires an EIR to include a discussion of any significant environmental impacts that cannot be avoided if the proposed project is implemented.

Chapter 3 of this Draft EIR provides a detailed analysis of all significant and potentially significant environmental impacts from implementation of the Proposed Project; identifies feasible mitigation measures, as appropriate, that could avoid or reduce these significant and potentially significant impacts; and presents a determination of whether the identified mitigation measures would reduce these impacts to less-than-significant levels. In addition, Chapter 4 provides an analysis of the potentially significant cumulative impacts resulting from the combined effects of the Proposed Project and other past, present, and reasonably foreseeable projects. If a potentially significant or significant impact cannot be reduced to a less-than-significant level, it is considered a significant and unavoidable adverse impact.

Implementing the Proposed Project would result in significant and unavoidable adverse impact(s) as identified in the following resource categories.

### *Air Quality*

***Impact AIR-1. Would the Proposed Project conflict with or obstruct implementation of an applicable air quality plan?***

***Impact AIR-2. Would the Proposed Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?***

***Impact AIR-3. Would the Proposed Project expose sensitive receptors to substantial pollutant concentrations?***

***Impact C-AIR-1. Potential for the Proposed Project, combined with reasonably foreseeable future projects in the vicinity, to expose sensitive people to substantial pollutant concentrations.***

The Proposed Project would conflict with some of the applicable plans and policies, specifically Bay Area Air Quality Management District's 2017 Clean Air Plan, the City of Alameda General Plan, and West Oakland Community Action Plan. Criteria pollutant emissions for $NO_X$ and the estimated health impacts from construction activities would exceed applicable thresholds and

targets for cancer risk and $PM_{2.5}$ emissions. Even with implementation of Mitigation Measure AIR-1: Construction Air Quality Mitigation, which would require the use of Tier 4 final engines and alternatively fueled or electric equipment, the $NO_X$ emissions and health impacts would remain above applicable thresholds, exposing sensitive receptors to substantial pollutant concentrations, and also conflicting with applicable plans. This is because the availability and degree of compliance with some portions of the mitigation measure is uncertain. In addition, the project-level $NO_X$ emissions and health impacts would combine with cumulative sources in the community, resulting in high levels of $NO_X$ emissions and health impacts. These project-level and cumulative impacts would be significant and unavoidable.

## *Noise*

### *Impact NOI-1. Would the Proposed Project generate a substantial temporary or periodic increase in ambient noise levels at sensitive receptors in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

Pile driving during construction of the Proposed Project would generate noise exceeding the City of Oakland's daytime noise ordinance standard at sensitive receptors. Implementation of Mitigation Measure NOI-1A would reduce the Proposed Project's construction noise impact through use of wood cushion blocks, which have been demonstrated to be effective in reducing pile-driving noise by 11 dBA. Implementation of this measure would reduce the noise impacts of pile driving on most sensitive receptors to a less-than-significant level; however, because predicted noise levels at the planned residential tower of Howard Terminal would be 82 dBA during the Proposed Project's pile driving, such a reduction would be insufficient to reduce pile-driving noise to below the 65 dBA daytime standard of the City of Oakland municipal code. Because these planned residences would be several stories in elevation in a tower structure, the use of a noise barrier would not be a feasible measure of further reducing noise levels. Because there is no additional feasible mitigation, should development and occupation of Howard Terminal residences occur prior to commencement of pile-driving activities for the Proposed Project, impacts resulting from construction noise would be significant and unavoidable.

In addition, construction noise levels from nighttime dredging operations would exceed the City of Alameda nighttime noise ordinance for residences along Mosley Avenue and planned multi-family residences at the Landing at Bay 37. Implementation of Mitigation Measure NOI-1B would reduce the Proposed Project's nighttime construction noise impact on the Mosley Avenue residences by installing a noise wall between the IHTB and the Mosley Avenue residences. This would reduce the noise level to 49.5 dBA at the Mosley Avenue residences, which would avoid conflicting with the local ordinance, and the residual impact of the Proposed Project would be less than significant. For the planned Landing at Bay 37 multi-family residences, the warehouses immediately to the west are over 20 feet in height and would serve as a noise barrier for dredging activity that is not in the direct line of sight of first- and second-floor residences; this would reduce the noise level at these receptors to 50 dBA, and would avoid conflicting with the local ordinance for first- and second-floor residences. However, a noise barrier would not be feasible for third-floor residences or for dredging activities that would otherwise be in the direct line of sight of first- and

second-floor residences. Therefore, there would be a residual impact to some of the Bay 37 residential units located within 725 feet of nighttime dredging during construction that would be significant and unavoidable related to exceeding the City of Alameda's 50 dBA exterior nighttime standard. Although interior noise levels would be below the City of Alameda's 45 dB CNEL standard, the exterior nighttime noise ordinance would be exceeded at these locations.

## 6.2. SIGNIFICANT IRREVERSIBLE IMPACTS

CEQA Guidelines Section 15126.2(d) requires that an EIR identify any irreversible impacts (also referred to as irreversible environmental changes) that may be caused by a proposed project, including current or future commitments to using nonrenewable resources. Generally, a proposed project would result in significant environmental changes if:

- the project would involve uses in which irreversible damage could result from any potential environmental accidents associated with the project;
- the project would involve a large commitment of nonrenewable resources, or the proposed consumption of resources is not justified (e.g., the project involves the wasteful use of energy); or
- the primary and secondary impacts (such as highway improvement which provides access to a previously inaccessible area) would generally commit future generations to similar uses.

The Proposed Project would require the use and disposal of hazardous materials during construction. No significant irreversible environmental damage, such as what might occur as a result of an accidental spill, is anticipated; however, whenever hazardous materials are present, the potential always exists for accidents that may damage the environment. The presence and use of hazardous materials anticipated with the Proposed Project are described in Section 3.9, Hazards and Hazardous Materials, along with existing regulations and mitigation measures that would reduce the possibility of significant environmental damage to a less-than-significant level. Based on this conclusion, any potential damage would not be irreversible.

An irretrievable commitment of nonrenewable resources would occur as a result of the Proposed Project. Construction of the Proposed Project would result in use of construction materials that could not be restored (e.g., metal materials or importing of rock) and the use of nonrenewable resources (e.g., fossil fuel) to operate construction equipment. The quantity of resources that would be used for construction of the Proposed Project would not noticeably reduce the availability of these resources for other projects or uses. Once constructed, materials and nonrenewable resources required for maintenance of the new bulkheads would not differ substantially from those required to maintain the existing bulkhead. Widening the IHTB and OHTB could increase the average volume of sediment dredged annually to maintain the navigable waterway at Oakland Harbor, which in turn could increase the nonrenewable resources expended during annual maintenance dredging; however, the incremental increase relative to the widened portions of the turning basins would not noticeably reduce the availability of these resources for other projects or uses. The Proposed Project would allow for more efficient transit of container vessels arriving at and departing from the Seaport, reducing wasteful consumption of fossil fuels that currently occurs from delays such as idling and other transit inefficiencies that result from the limitations of the existing turning basins. Therefore, the Proposed Project would

not result in a significant environmental change due to a large commitment or wasteful use of nonrenewable resources.

As discussed under Impact BIO-1 in Section 3.4, Biological Resources, the Proposed Project would permanently deepen existing subtidal waters in the IHTB and OHTB expansion areas, and expansion of the IHTB would also permanently convert approximately 10 acres of terrestrial land into intertidal or subtidal habitat. The terrestrial land that would be removed to widen the IHTB is developed and contains limited vegetation that may provide low-quality habitat for wildlife; this permanent conversion of land to open water would create additional habitat for aquatic species and have negligible impacts to terrestrial species. Deepening subtidal waters in the IHTB and OHTB would permanently alter subtidal benthic habitat by permanently converting some shallow open bay habitat (water depths less than 18 feet relative to MLLW) to deep open bay habitat (water depths greater than 18 feet relative to MLLW)—changing benthic species composition and increasing available habitat for some aquatic species while reducing it for others. This loss of shallow open water habitat would be irreversible; however, considering the abundance of similar shallow open water habitat in the surrounding estuary, this would not represent a significant loss of shallow open bay habitat in the context of the region's resources.

## 6.3. GROWTH-INDUCING IMPACTS

CEQA Guidelines Section 15126.2(e) requires an examination of the direct and indirect impacts of a proposed project, including the potential of the project to induce growth leading to changes in land use patterns, population densities, and related impacts on environmental resources. Specifically, CEQA Guidelines Section 15126.2(e) states that the EIR shall:

> *Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects that would remove obstacles to population growth. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.*

A project can have direct and/or indirect growth-inducement potential. Direct growth inducement would result if a project involves construction of new housing that would result in new residents moving to the area. A project could have indirect growth-inducement potential if it would establish substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises); or if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with excess capacity through an undeveloped area).

Growth-inducement itself is not an environmental impact, but it may lead to foreseeable environmental impacts. These environmental impacts may include increased demand on other community and public services and infrastructure, increased traffic and noise, degradation of air or water quality, degradation or loss of plant or animal habitats, or conversion of agricultural and open space land to urban uses.

The purpose of the Proposed Project is to provide navigation improvements that address navigation inefficiencies and suboptimal conditions currently experienced by vessels in the

Oakland Harbor. The Proposed Project is not a development project that would involve construction of new housing, nor is it a project that would result in new permanent employment opportunities, including staff for Seaport operations; rather, following Proposed Project construction, these facilities would be operated, arguably with greater efficiency, by the same number of employees and in a manner similar to that used under existing conditions. For maintenance activities, work required for the routine maintenance for the new bulkhead at Howard Terminal and the new in-water bulkhead near the Schnitzer/Radius Recycling Terminal would be similar to maintenance activities that currently occur for the existing bulkheads at the Seaport and are not anticipated to result in new permanent employee opportunities.

The Proposed Project would not remove a barrier to growth and development, such as increasing the Port's existing cargo throughput[97] or resulting in the shift of cargo from one port to another. Widening the turning basins to accommodate longer vessels does not change the Seaport's container handling capabilities or capacity (i.e., the number of containers that can move through the Port). The *2019-2050 Bay Area Seaport Forecast* prepared for the San Francisco Bay Conservation and Development Commission (BCDC) indicates that the annual TEU serviced at the Port will increase from approximately 2.5 million TEU in 2020 to over 5 million TEU by 2050, under a moderate growth scenario. This forecast is based on international TEU forecasts of imports and exports and is independent of the Proposed Project. This forecast indicates that the Port is limited by backland capacity (constraints of the yard), not berth capacity (The Tioga Group and Hackett Associates 2020). Widening the turning basins does not add additional backland capacity, nor does it change the number of vessels able to berth. As described in Chapter 2, fixed constraints control the number of containers that can be moved in any given period, and any significant change to these fixed constraints which could remove a barrier to growth and increase the container handling capacity of the Port would require its own environmental review. The Proposed Project does not include landside improvements to increase the Seaport's cargo (or container) handling capacity; as a result, the Seaport's capacity remains constant with the Proposed Project. Therefore, the Proposed Project does not increase the Port's capacity for growth.

Large vessels, in of themselves, are not directly correlated to an equal growth inducement relationship. As described in Chapter 2, although the typical length of vessels visiting the Port increased from 1,100 feet in 2011 to 1,300 feet in 2022, the total annual volume of containers serviced was unchanged. Thus, the transition to large vessels did not result in cargo growth. Instead, large container vessels allowed the same number of containers to be moved with significantly fewer vessels; for the same number of containers serviced at the Port, there were 2,100 vessel visits in 2011 and 818 vessel visits in 2022. Likewise, the Proposed Project is not anticipated to induce growth due to a future fleet mix visiting the Seaport that includes an increase in the frequency of larger vessels (already visiting the Port) compared to smaller vessels. The Proposed Project would, however, continue the Port's trend of handling annual cargo volumes with fewer vessels.

[97] Cargo throughput is the amount of cargo that can pass through a port. For a container port, this is usually measured in TEUs. A port's maximum practical throughput is called the terminal's capacity (and for container terminals, its container handling capacity), which is how much cargo (or containers) the terminal could service given its size, configuration, and equipment. A terminal's capacity is limited by either the number of vessels it can accept ("berth-constrained") or by how much cargo its landside facilities (e.g., container yard, truck gate, pumps, pipelines, and storage tanks) can service ("yard-constrained").

The number of containers serviced at the Seaport varies from year to year in accordance with changes in global economics. A variety of factors influence global economics and the number of containers serviced at the Seaport. A few of these factors include large-scale global changes in trade policies, economic policies, availability of natural resources, and global events (such as pandemics). Smaller-scale factors include regional changes in gross domestic product, population, and agricultural economics. These factors are forecasted to remain complex and fluid and will continue to direct the number of containers the Port will service in the future. This is evidenced by trends following the last expansion of the turning basins. The -50-Foot Project, completed in 2009, both widened and deepened the IHTB and OHTB to accommodate larger vessels. As confirmed by annual growth data, following implementation of the -50-Foot Project a reduction in annual growth occurred in comparison to pre-project conditions. Specifically, average cargo growth at the Port in the 11 years prior to the -50-Foot Project was 2.4 percent; in the years following the -50-Foot Project, average annual growth dropped to 1.5 percent (**Figure 6.3-1**). Post-project cargo growth was curtailed by slower economic activity over this time period because cargo demand and throughput are determined by regional and global economic factors unrelated to vessel size. **Figure 6.3-2** demonstrates this relationship by comparing the gross domestic product (GDP) of the San Francisco-Oakland-Hayward area from 2000 to 2020 to the annual Port throughput over this time. As the data suggest, Port container handling volumes generally increase as GDP increases and decrease as GDP decreases. This relationship is particularly clear during the 2008 recession.

Many factors affect port growth, competitiveness, and market share, including landside improvements, development, and infrastructure; location of distribution centers for imports; source locations for exports; population distribution and income growth; port logistics and fees; business climate and taxes; carrier preferences; labor stability or volatility; and business relationships. Market share between North American West Coast ports has historically remained predictable and uninfluenced by major waterway infrastructure projects (e.g., improvement projects that enable larger vessel visits such as the -50-Foot Project). Rather, as the historical data suggest, the volatility in total volume serviced in a port is largely influenced and induced by external economic factors, such as macroeconomic trends experienced during the 2008 economic downturn, and global supply chain challenges experienced during the COVID-19 pandemic.

**Figure 6.3-3** shows the annual throughput at major North American West Coast container ports from 2000 through 2021. **Figure 6.3-4** presents the same data in terms of relative market share of each port over time.

As **Figure 6.3-4** depicts, the historical fluctuations in market share at North American West Coast ports is largely related to the growth in Canadian ports and not the result of projects to accommodate larger vessels. For example, even with the completion of the -50-Foot Project (circa 2009) the Port of Oakland experienced a slight decline in market share. As another example, the Port of Los Angeles completed a 10-year project, deepening its Main, West Basin, and East Basin Channels from -45 feet MLLW to -53 feet MLLW in 2013; its post-deepening market share as shown in **Figure 6.3-4** has remained relatively constant.

**Figure 6.3-1 Cargo Growth Before and After -50-Foot Project**

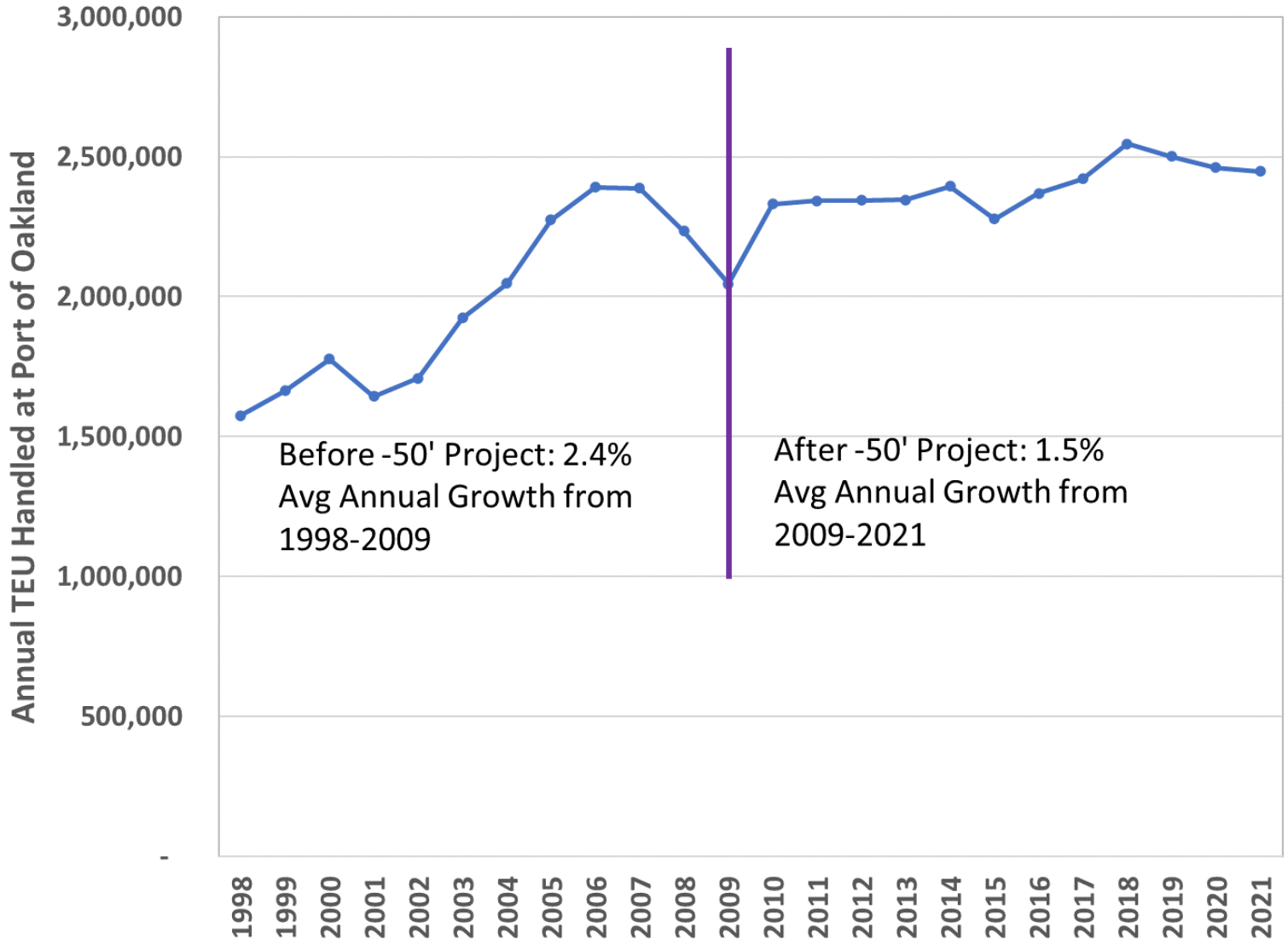


**Figure 6.3-2 San Francisco-Oakland-Hayward GDP Compared to Port Throughput**

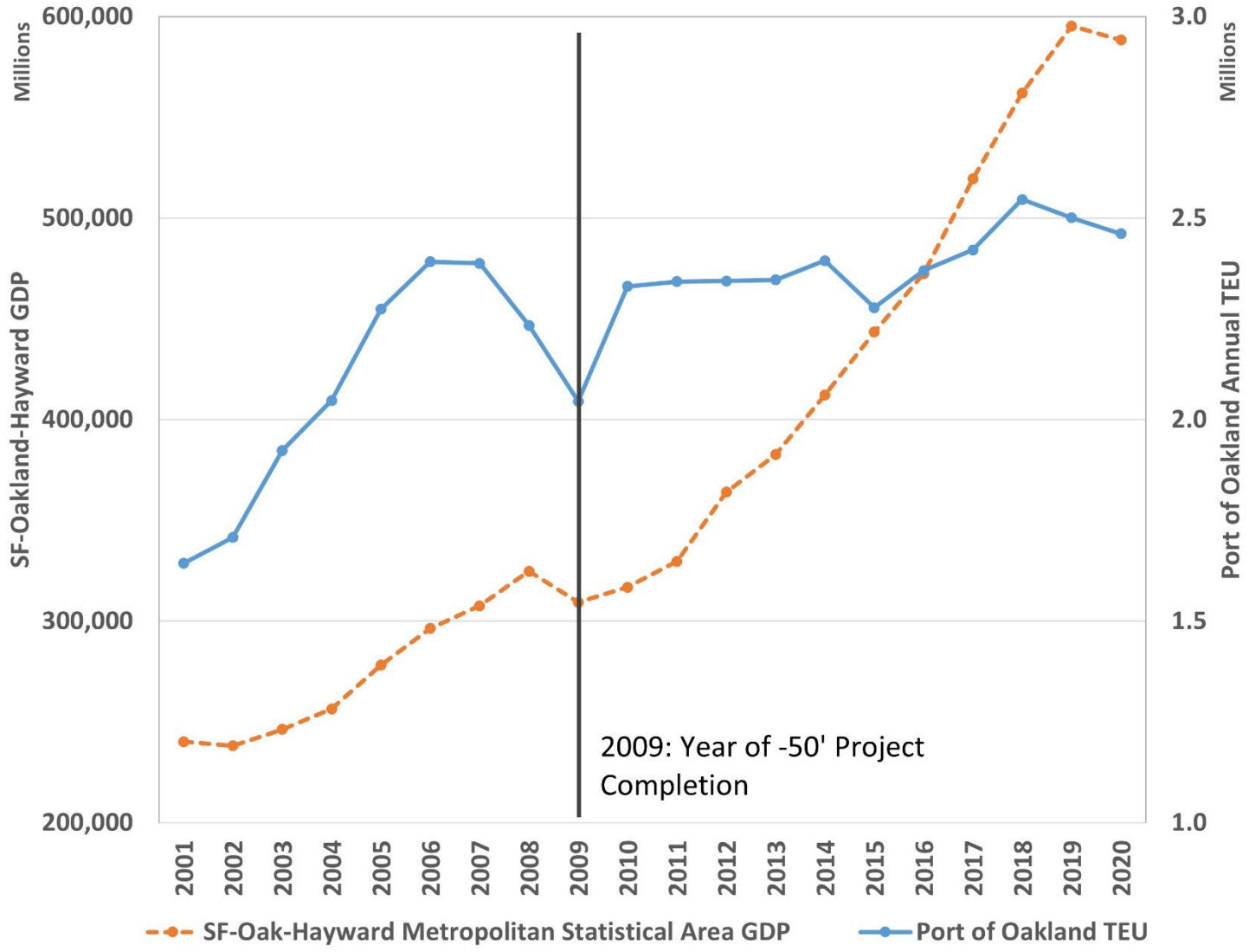


**Figure 6.3-3 Annual Throughput of Major North American Container Ports 2000-2021**

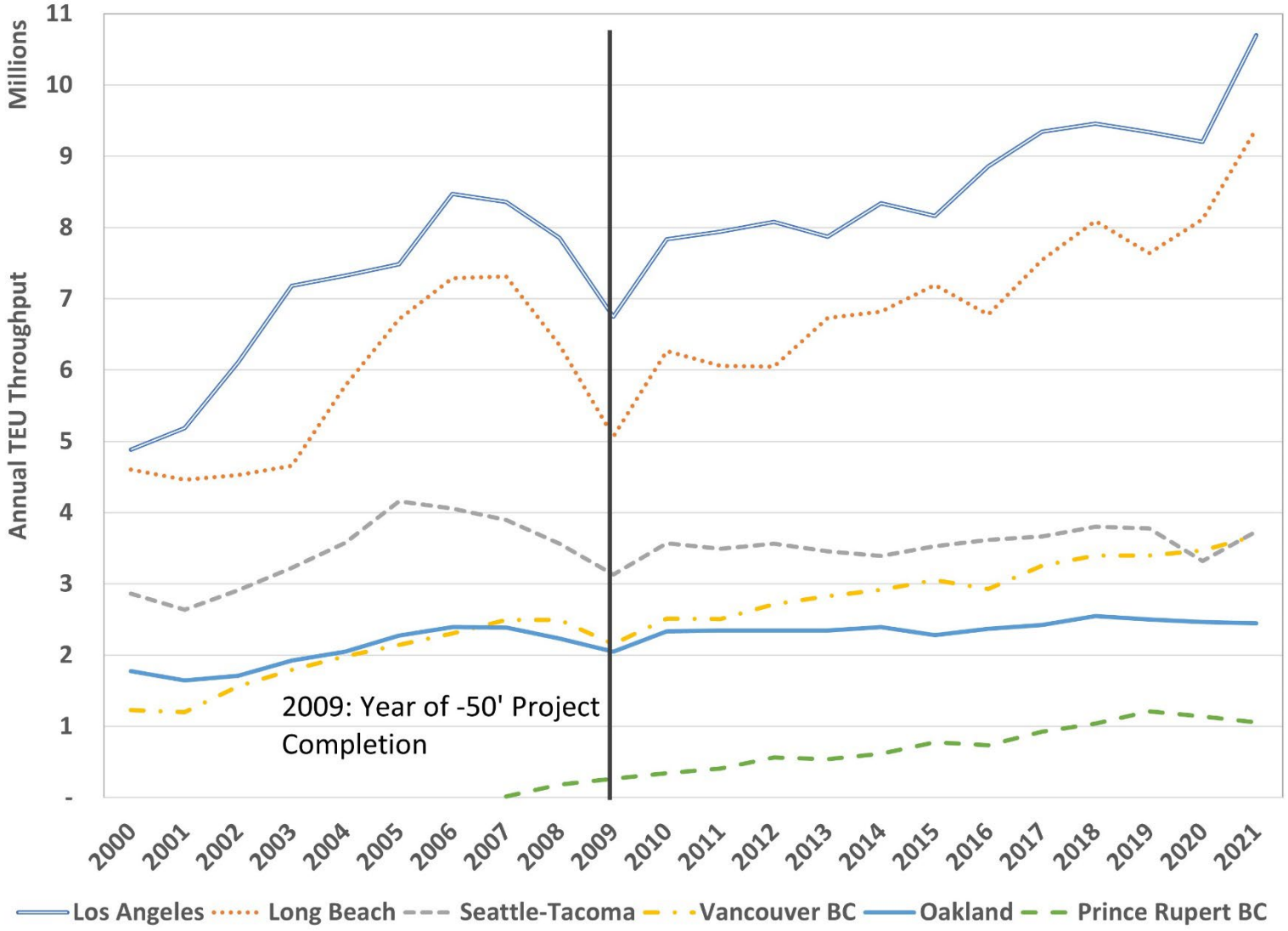
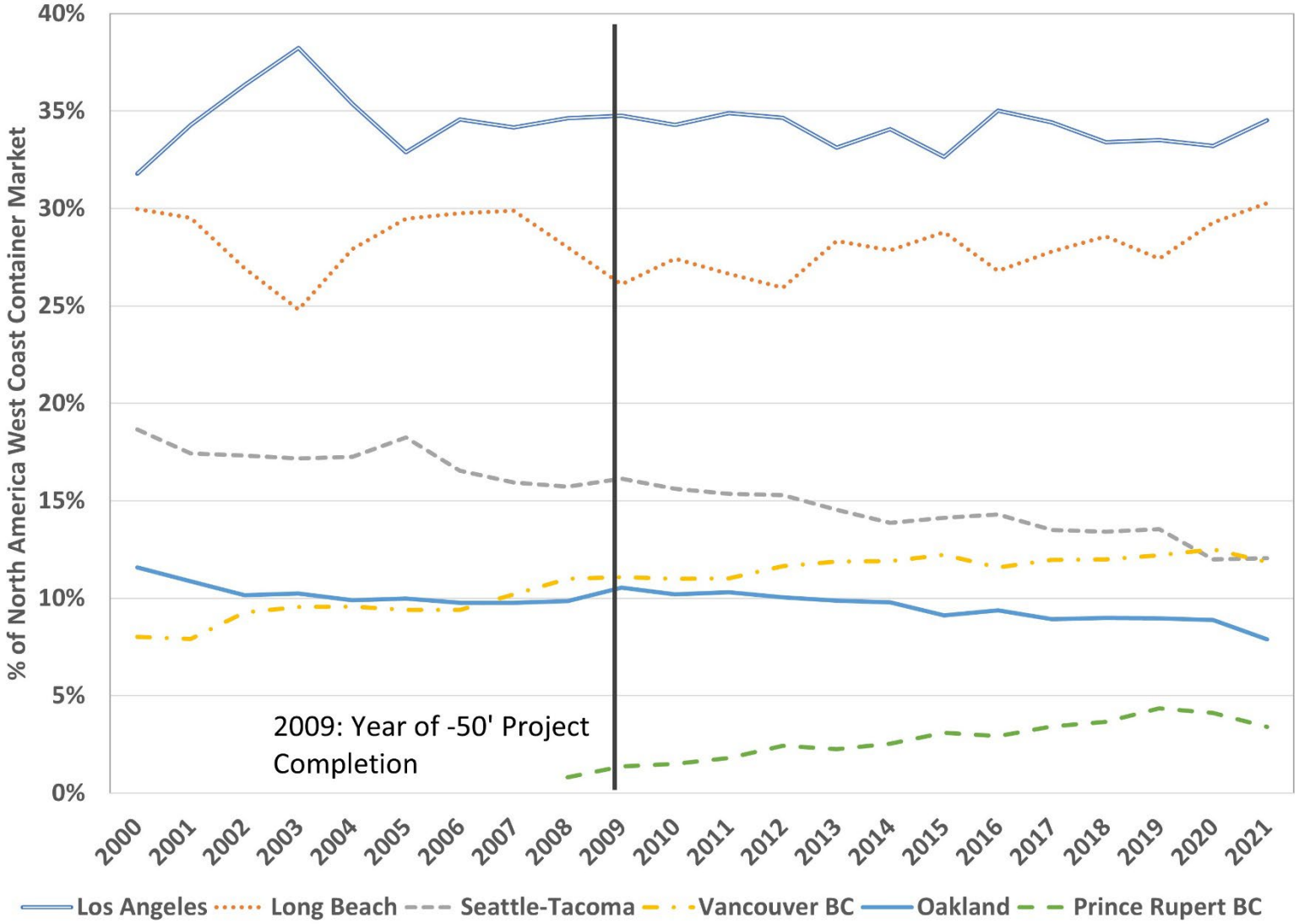


**Figure 6.3-4 Relative Market Share of Major North American Container Ports**



The competitive factors that do influence cargo distribution across a region include port landside connectivity (e.g., port accessibility via road and rail infrastructure), locations of cargo distribution centers, and availability of backland container handling facilities, none of which will be changed by the Proposed Project. A case study example of this is Prince Rupert. As depicted in **Figure 6.3-4**, Prince Rupert is the only port showing significant growth of market share after its construction, which included substantial investments in berth and backland infrastructure, along with rail connectivity to access U.S. markets. The improvements completed at Prince Rupert are the types of projects that induce growth and grow market share, which the data support, showing that as a new global trade gateway, its annual TEU exceeded 1 million within 10 years, which is notable because it was able to remove market share from other well-established ports. Prince Rupert has had a detrimental effect on the competitive position of other U.S. West Coast container ports because it has availed a new gateway for rail cargo destined for nonlocal markets (e.g., Chicago and beyond).

In summary, the Proposed Project is not a development project that would involve construction of new housing, nor is it a project that would result in new permanent employment opportunities, or removal of an obstacle to additional growth and development, such as increasing the Port's existing cargo throughput or resulting in the shift of cargo from one port to another; therefore, the Proposed Project would not be growth inducing.

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