VOLUME II of II
JANUARY 2022

PORT of SAN DIEGO

BAE Systems Waterfront Improvement Project

Draft Environmental Impact Report and Technical Appendices

Prepared for:
San Diego Unified Port District
3165 Pacific Highway
San Diego, CA 92101
Contact: Peter Eichar
(619) 686-6284

Prepared by:
ICF
525 B Street, Suite 1700
San Diego, CA 92101
Contact: Tristan Evert
(858) 444-3938

UPD #EIR-2018-197; SCH #2019039040

PORT of SAN DIEGO

ICF

DRAFT ENVIRONMENTAL IMPACT REPORT BAE SYSTEMS WATERFRONT IMPROVEMENT PROJECT

PREPARED FOR:

San Diego Unified Port District
Development Services Department
3165 Pacific Highway
San Diego, California 92101
Contact: Peter Eichar
peichar@portofsandiego.org
(619) 686-6284

PREPARED BY:

ICF
525 B Street, Suite 1700
San Diego, California 92101
Contact: Tristan Evert
(858) 444-3938

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ICF

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Acronyms and Abbreviations

µg/kg	micrograms per kilogram
µPa	microPascals
AB	Assembly Bill
ABM	Activity Based Model
ACM	asbestos-containing material
AIA	airport influence area
ALUC	Airport Land Use Commission
ALUCP	Airport Land Use Compatibility Plan
AMSL	above mean sea level
APE	area of project effect
AQIA	Air Quality Impact Analysis
AR4	IPCC Fourth Assessment Report
ARB	California Air Resources Board
ASTs	aboveground storage tanks
BAE Systems	BAE Systems San Diego Ship Repair Inc.
Basin Plan	Water Quality Control for the San Diego Basin
Bay	San Diego Bay
bgs	below ground surface
BMP	Best Management Practice
BNSF	Burlington-Northern Santa Fe
Board	Board of Port Commissioners
BTU	British thermal unit
C&D	Construction and Demolition
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFÉ	Corporate Average Fuel Economy Standards
Cal/EPA	California Environmental Protection Agency
Cal/OSHA	California Division of Occupational Safety and Health
CalEEMod	California Emissions Estimator Model
CalEnviroScreen	California Communities Environmental Health Screening Tool
Caltrans	California Department of Transportation
CAO	Cleanup and Abatement Order
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CCA	California Coastal Act of 1976
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CEC	California Energy Commission
CEMP	California Eelgrass Mitigation Policy

CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFLs	Compact Fluorescent Lights
CFR	Code of Federal Regulations
CGs	Cruisers
CH_4	methane
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COCs	contaminants of concern
Tidelands	tidelands and submerged lands
CSLC	California State Lands Commission
CTR	California Toxics Rule
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
cy	cubic yards
dB	decibel
dBA	A-weighted decibel
DDGs	Destroyers
DEH	Department of Environmental Health's
Disposal Plan	Soil and Groundwater Disposal Plan
District	San Diego Unified Port District
DMP	Dredging Management Program
DOT	Department of Transportation
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
ESA	federal Endangered Species Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FHWG	Fisheries Hydroacoustic Working Group
FIRM	Flood Insurance Rate Map
FTA	Federal Transit Administration
GHG	greenhouse gas
gpd	gallons per day

GWP	global warming potential
HFCs	hydrofluorocarbons
HMD	Hazardous Materials Division
HMTS	Hazardous Material Technical Study
HPAHs	high-molecular weight polynuclear aromatic hydrocarbons
HPD	San Diego Harbor Police Department
HREA	Health Risk and Exposure Assessment
HU	hydrologic unit
Hz	Hertz
I-15	Interstate 15
I-5	Interstate 5
ICLEI	International Council for Local Environmental Initiatives
in/s	inches per second
INRMP	Integrated Natural Resources Management Plan
IPAC	Information, Planning, and Consultation System
IPCC	Intergovernmental Panel on Climate Change
IUD	Industrial User Discharge
JRMP	District's Jurisdictional Runoff Management Program
kg	kilograms
kWh	kilowatt hour
LBP	lead-based paint
LBP	lead-based paint
LCS	Littoral Combat Ship
LED	light-emitting diode
LEED	Leadership in Energy and Environmental Design
L_{eq}	equivalent sound level
LHD/LHA	Amphibious Assault Ship
LID	low-impact development
L_{min}	minimum sound level
LOS	level of service
LPD-17	Amphibious Transport Docks
L_{peak}	peak pressure level
LQG	Large Quantity Generator
LSD-41/49	Dock Landing Ships
MBTA	Migratory Bird Treaty Act
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MICR	maximum incremental cancer risk
MJHMP	Multi-jurisdictional Hazard Mitigation Plan
MLLW	mean lower low water
MMPA	Marine Mammal Protection Act
mph	miles per hour
MROC	maintenance, repair, overhaul and conversion
MRZ	Mineral Resource Zone

MS4	Municipal Separate Storm Sewer System
MSFMCA	Magnuson-Stevens Fishery Management Conservation Act of 1976
$MTCO_2e$	metric tons of carbon dioxide equivalent
MTS	Metropolitan Transit System
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAS	Naval Air Station
NASSCO	National Steel and Shipbuilding Company
NAVAIDS	navigational aids
NCTD	North County Transit District
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NHTSA	National Highway Traffic Safety Administration
NMFS	National Marine Fisheries Service
NO	nitric oxide
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOP	Notice of Preparation
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRC	National Research Council
NTR	National Toxics Rule
O&M	operations and maintenance
O_3	ozone
OA	Operation Area
OA EOP	Operational Area Emergency Operations Plan
ODMDS	Ocean Dredge Material Disposal Site
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OF	Open Space-Floodplain
OPC	Ocean Protection Council
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PAHs	polynuclear aromatic hydrocarbons
Pb	lead
PCBs	polychlorinated biphenyl
PDPs	priority development projects
PFCs	perfluorinated carbons
PM	particulate matter
PM10	particulate matter less than or equal to 10 microns in diameter
PM2.5	particulate matter less than or equal to 2.5 microns in diameter
PMP	Port Master Plan
PMPA	Port Master Plan Amendment
PMPU	Port Master Plan Update
Port Act	San Diego Unified Port District Act

Porter-Cologne Act	Porter-Cologne Water Quality Control Act
ppb	parts per billion
PRC	Public Resources Code
PSB	Port Security Barrier
PTS	permanent threshold shifts
PUD	Public Utilities Department
Q/A	quality assurance
RAQS	Regional Air Quality Strategy
RCRA	Resource Conservation and Recovery Act of 1976
Regional Plan	San Diego Forward: The Regional Plan
rms	root mean squared
ROG	regional organic gases
RPS	Renewables Portfolio Standard
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
Safety Plan	Site Worker Health and Safety Plan
Safety Program	Site-Specific Community Health and Safety Program
SAM	Site Assessment and Mitigation Program
SANDAG	San Diego Association of Governments
SAP	Sampling and Analysis Plan
SB	Senate Bill
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCH	State Clearinghouse and Planning Unit
SCS	Sustainable Communities Strategy
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SDFD	City of San Diego Fire-Rescue Department
SDG&E	San Diego Gas & Electric
SDIA	San Diego International Airport
SDMC	San Diego Marine Construction Company
SDPD	City of San Diego Police Department
SF_6	sulfur hexafluoride
SIP	State Implementation Plan
SLC	State Lands Commission
SLTs	screening level thresholds
SO_2	sulfur dioxide
SOPs	standard operating procedures
SPCC	Spill Prevention Control and Countermeasure
SVOCs	semi-volatile organic compounds
SWDS	Storm Water Diversion System
SWM	Southwest Marine, Inc.
SWPPP	Storm Water Pollution Prevention Plan
SWQMP	Storm Water Quality Management Plan

SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TAMT	Tenth Avenue Marine Terminal
TAZs	Transportation Analysis Zones
TBT	tributyltin
TCRs	Tribal Cultural Resources
Tidelands	tide and submerged lands
TIS	Transportation Impact Study
TMDL	Total Maximum Daily Load
TS	threshold shifts
TSS	Threshold Siting Surface
TTS	temporary threshold shifts
TUOP	Tidelands Use and Occupancy Permit
USACE	U.S. Army Corps of Engineers
USC	United States Code
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
VAP	Voluntary Assistance Program
VHFHSZ	Very High Fire Hazard Severity Zones
VMT	vehicle miles traveled
VOC	volatile organic compounds
WoS	waters of the state
WoUS	water of the United States
WQIP	Water Quality Improvement Plan
ZOI	Zones of Influence

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Introduction

This chapter provides a summary of the Draft Environmental Impact Report (EIR) prepared for the BAE Systems Waterfront Improvement Project (proposed project) in compliance with the California Environmental Quality Act (CEQA). The San Diego Unified Port District (District) is the CEQA Lead Agency for the EIR and, as such, has the primary responsibility for evaluating the environmental effects of the proposed project and considering whether to approve the proposed project in light of these effects.

As required by CEQA, this Draft EIR: (1) describes the proposed project, including its location, objectives, and features; (2) describes the existing conditions at the project site and nearby environs; (3) analyzes the direct, indirect, and cumulative adverse physical effects that would occur on existing conditions should the proposed project be implemented; (4) identifies feasible means of avoiding or substantially lessening the significant adverse effects of the proposed project; (5) provides a determination of significance for each impact after mitigation is incorporated; and (6) evaluates a reasonable range of feasible alternatives to the proposed project that would meet the basic project objectives and reduce a project-related significant impact.

This Executive Summary covers the following topics: (1) Project Description; (2) Areas of Controversy/Issues Raised by Agencies and the Public; and (3) Issues to Be Resolved, including significant environmental effects and the consideration of alternatives to the proposed project.

Project Description

Overview

BAE Systems San Diego Ship Repair, Inc. (BAE Systems), is a ship repair company in the San Diego area, serving primarily non-nuclear Navy vessels but also commercial customers. The proposed project evaluated in this Draft EIR is a maintenance, repair, and replacement project for waterfront infrastructure associated with mooring and operational facilities at the BAE Systems San Diego Ship Repair Yard. The proposed project includes the following.

- Replacing and realigning of the Pride of San Diego drydock access wharf and ramp, and several associated improvements.
- Replacing and realigning the Pier 3 wharf structure and other associated improvements.
- Replacing aged or inefficient facilities, including offices, the production building, the central tool room, and restrooms.
- Improving mooring infrastructure to safely moor vessels and accommodate newer and different classes of vessels to be moored and repaired on site.
- Upgrading electrical and potable water utility infrastructure.

The proposed project consists of the following 15 project elements that are designed to improve the efficiency and functionality of the existing BAE Systems San Diego Ship Repair Yard.

1. Pride of San Diego Drydock Dredging[1] and Moorage
2. Pride of San Diego Drydock Wharf Replacement and Realignment
3. Fender System Repair and Replacement
4. Pier 3 South Nearshore Dredging
5. Pier 3 Mooring Dolphin
6. Pier 3 North Lunchroom Wharf Replacement and Realignment
7. Quay Wall Modifications
8. Port Security Barrier Replacement
9. Small Boat Mooring Float Replacement
10. Central Tool Room Demolition and Reconstruction
11. New Production Building
12. Administrative Office Building
13. Pier 1 Restroom Renovation and/or Demolition
14. Main Electrical Utility Service Update
15. Sanitary Sewer and Potable Water Utility Services

The majority of the proposed work would take place within the District's jurisdiction (i.e., Project Elements 2, 3, 4, 6, 7 and, 9–15). Project Elements 1, 5, and 8 are within the District's leasing jurisdiction and the California Coastal Commission's (CCC) permitting jurisdiction, per Senate Bill (SB) 507 and the California Coastal Act. BAE Systems will apply directly to the CCC for authorization and entitlements for Project Elements 1, 5, and 8; however, this Draft EIR analyzes the entire proposed project, as required by CEQA.

Project Location

The project site, BAE Systems San Diego Ship Repair Yard, is located along the San Diego Bay, south of downtown San Diego, within the District's jurisdiction. BAE Systems currently leases 9.8 acres of land and 16.6 acres of water from the District. This lease is scheduled to expire in 2034. In addition, BAE Systems currently occupies a parcel pursuant to a now-expired 5-year Tidelands Use and Occupancy Permit (TUOP) from the District for an additional 2.0 acres of land and 4.0 acres of water.[2] As a result, BAE Systems leases approximately 11.8 acres of land area and approximately

[1] Dredging is defined as the removal of sediments and debris from the bottom of lakes, rivers, harbors, and other water bodies.

[2] The TUOP between the District and BAE Systems expired October 31, 2019. BAE is currently on a limited holdover tenancy pursuant to that expired TUOP. However, it is anticipated that the TUOP will be renewed. TUOP renewal would not authorize any new improvements or activities that could physically impact the environment. It would reaffirm BAE Systems' existing occupancy right and continue existing operations. Therefore, any TUOP renewal is considered a separate action previously analyzed under a separate CEQA document for the Pier 1 North Drydock,

20.6 acres of water area from the District. In addition to these leased and permitted areas, BAE Systems leases 3.5 acres of submerged land from the District. These submerged lands were originally leased from the California State Lands Commission (SLC). However, effective January 1, 2020, this area was transferred to the District's jurisdiction per SB 507, which granted and conveyed in trust to the District all right title, and interest in certain tidelands and submerged lands, as enumerated in SB 507. BAE Systems' lease with the SLC was transferred to the District. The total acreage occupied by BAE Systems (including the TUOP parcel) pursuant to agreements with the District is 35.9 acres and makes up the BAE Systems San Diego Ship Repair Yard (project site). The waterside facilities at the project site currently contain three working piers, five wet berths, and two floating drydocks. The landside facilities include administration offices, production shops, training areas, and related utilities and infrastructure.

The project site is situated adjacently southeast of the Tenth Avenue Marine Terminal, an omni-terminal that handles refrigerated containers, dry bulk, liquid bulk, and general cargo. Its northeasterly boundary is generally bordered by East Belt Street; its southeasterly boundary borders the General Dynamics National Steel and Shipbuilding Company (NASSCO) facility; and its southwesterly boundary is in the San Diego Bay, parallel to the shore.

Central downtown San Diego is approximately 1.7 miles northwest, and the San Diego neighborhood of Barrio Logan is approximately 1,000 feet northeast of the project site. San Diego International Airport is approximately 3 miles to the northwest of the project site. Regional vehicle access to the project site is provided by Interstate (I)-5 to the northeast and I-15 to the east. Several freeway ramps are within 1 mile of the project site. The site is also within proximity of light-rail, with the closest trolley stop, Barrio Logan Station, approximately 1,500 feet to the north across East Harbor Drive, and Harborside Station approximately 0.5 mile to the southeast. Figure ES-1 shows the regional location and access to the project site, while Figure ES-2 provides the precise location and boundaries of the project site.

Associated Real Estate Agreements and Removal of Cooling Tunnels project, SCH #2014041071, and is not part of the proposed project.

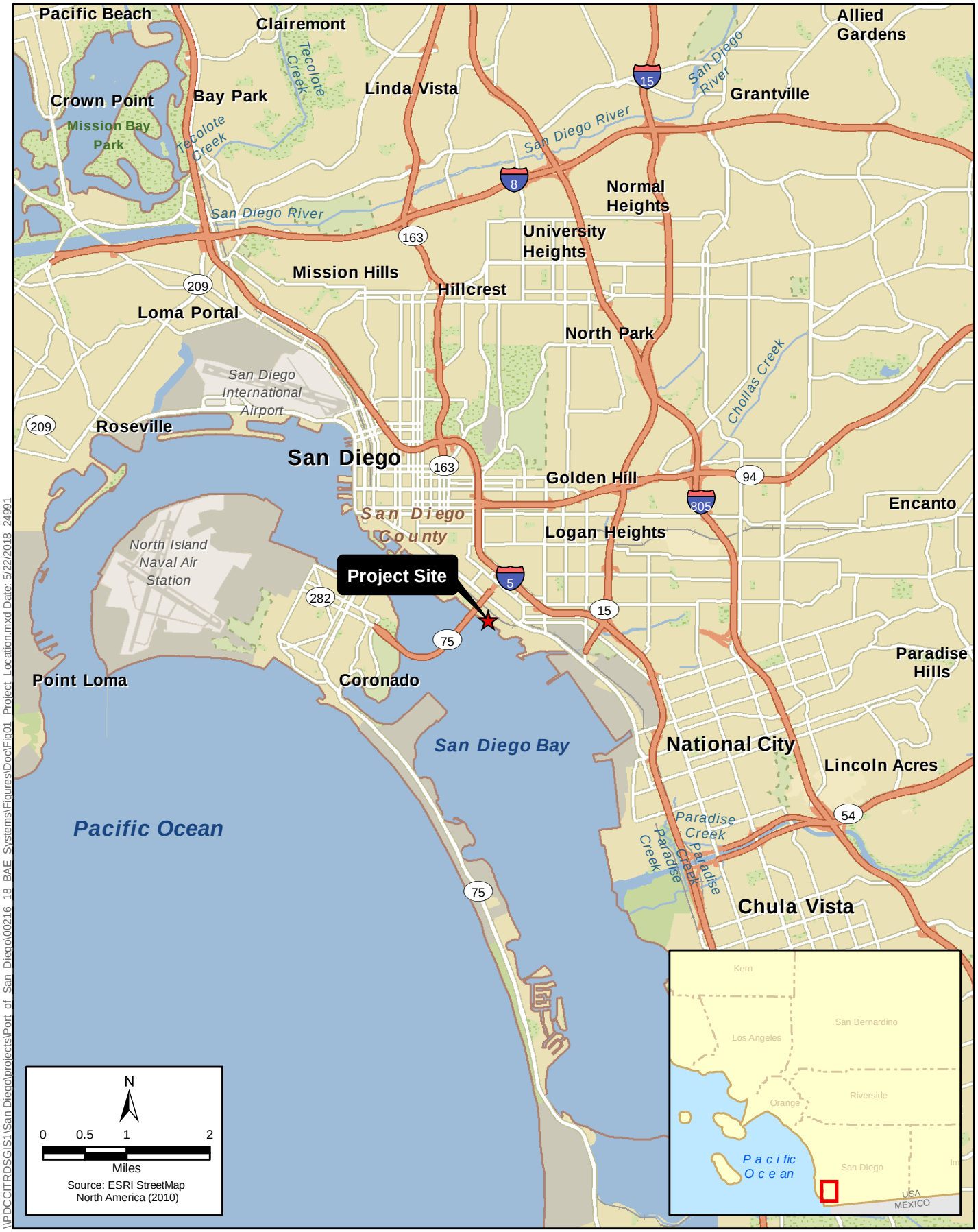

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Figure ES-1
Regional Location
BAE Systems Waterfront Improvement Project

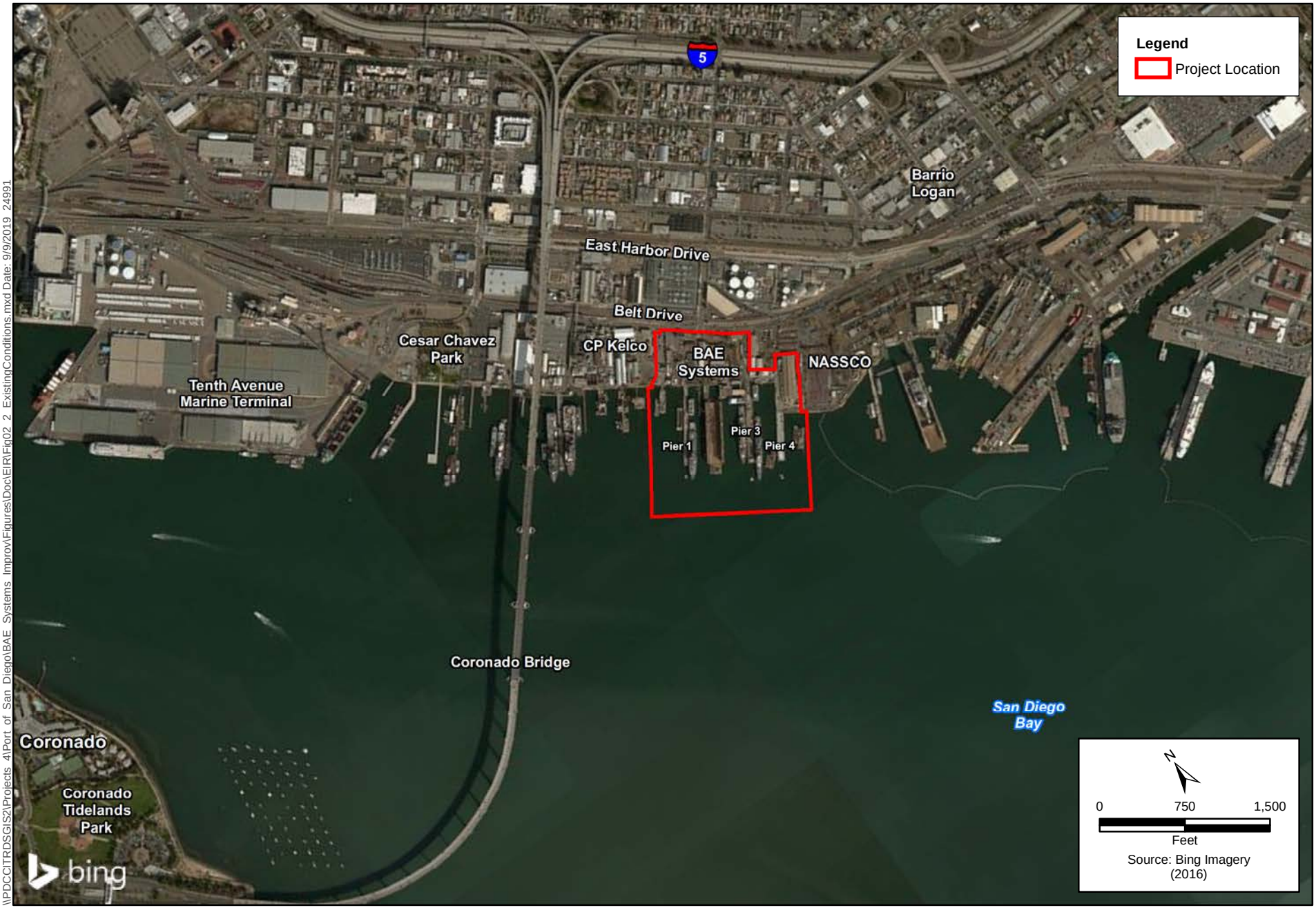

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Figure ES-2
Project Location Map
BAE Systems Waterfront Improvement Project

Project Objectives

To achieve the need and purpose of the proposed project, the following project objectives have been identified.

1. Construct and operate shipyard repair facilities that maximize the use of existing waterways, available shoreline, and existing land.
2. Modernize the BAE Systems San Diego Ship Repair Yard by providing improved facilities that meet the needs of the current and anticipated fleets of the military and commercial customers.
3. Enhance worker safety, customer security, and environmental protection programs through the integration of relevant project elements.
4. Invest in new shipyard infrastructure that will enhance the short- and long-term attractiveness and viability of San Diego Bay and the region to military and commercial ship operators for construction and repair, consistent with the Port Master Plan.[3]
5. Preserve jobs by maintaining the physical capacity and technical capability to support the Navy's presence as well as commercial maritime needs in San Diego.

Project Components

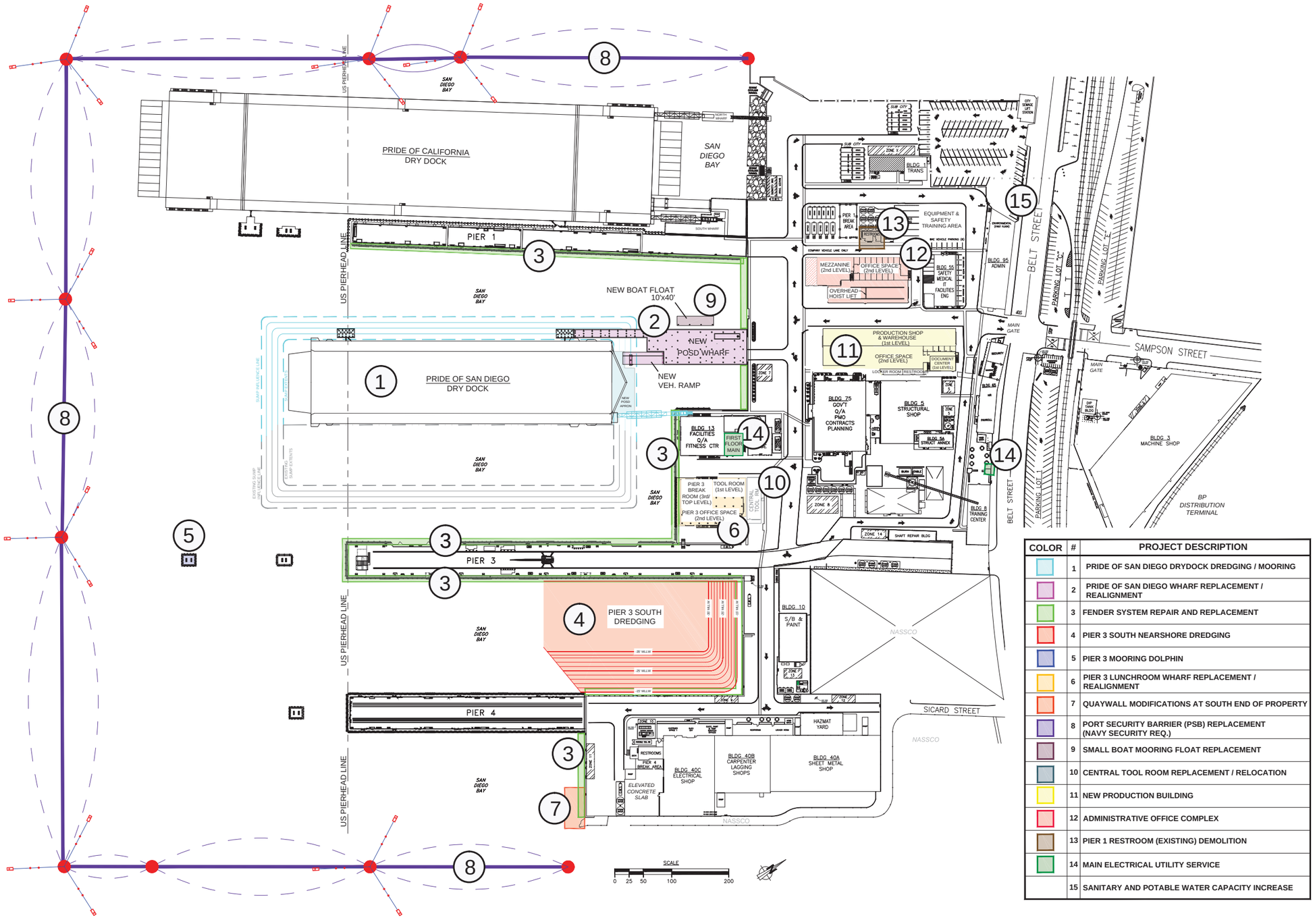
The proposed project consists of 15 distinct project elements that are designed to improve the efficiency and functionality of the existing BAE Systems San Diego Ship Repair Yard. Figure ES-3 provides an overall site plan for identifying the location of each project element by number. A detailed discussion of the proposed activities under each project element is provided below.

Pride of San Diego Drydock Dredging and Moorage Replacement (Project Element 1)

Project Element 1 includes dredging and associated replacement of mooring dolphins[4] to hold the Pride of San Diego drydock in place. Figure ES-4 depicts its conceptual dredge design. Most of Project Element 1 is within the District's jurisdiction; however, the westernmost mooring dolphin and a portion of the required dredging area would be within both District jurisdiction (leasing) and CCC jurisdiction (permitting).

[3] "Renovation and redevelopment of existing facilities will continue as industries respond to market demands and changes in the maritime industrial climate." San Diego Unified Port District, Port Master Plan (August 2017), page 79.

[4] A *mooring dolphin* is defined as an in-water structure, typically made up of a cluster of piles that extends above the water surface to provide mooring points for vessels.



COLOR	#	PROJECT DESCRIPTION
	1	PRIDE OF SAN DIEGO DRYDOCK DREDGING / MOORING
	2	PRIDE OF SAN DIEGO WHARF REPLACEMENT / REALIGNMENT
	3	FENDER SYSTEM REPAIR AND REPLACEMENT
	4	PIER 3 SOUTH NEARSHORE DREDGING
	5	PIER 3 MOORING DOLPHIN
	6	PIER 3 LUNCHROOM WHARF REPLACEMENT / REALIGNMENT
	7	QUAYWALL MODIFICATIONS AT SOUTH END OF PROPERTY
	8	PORT SECURITY BARRIER (PSB) REPLACEMENT (NAVY SECURITY REQ.)
	9	SMALL BOAT MOORING FLOAT REPLACEMENT
	10	CENTRAL TOOL ROOM REPLACEMENT / RELOCATION
	11	NEW PRODUCTION BUILDING
	12	ADMINISTRATIVE OFFICE COMPLEX
	13	PIER 1 RESTROOM (EXISTING) DEMOLITION
	14	MAIN ELECTRICAL UTILITY SERVICE
	15	SANITARY AND POTABLE WATER CAPACITY INCREASE

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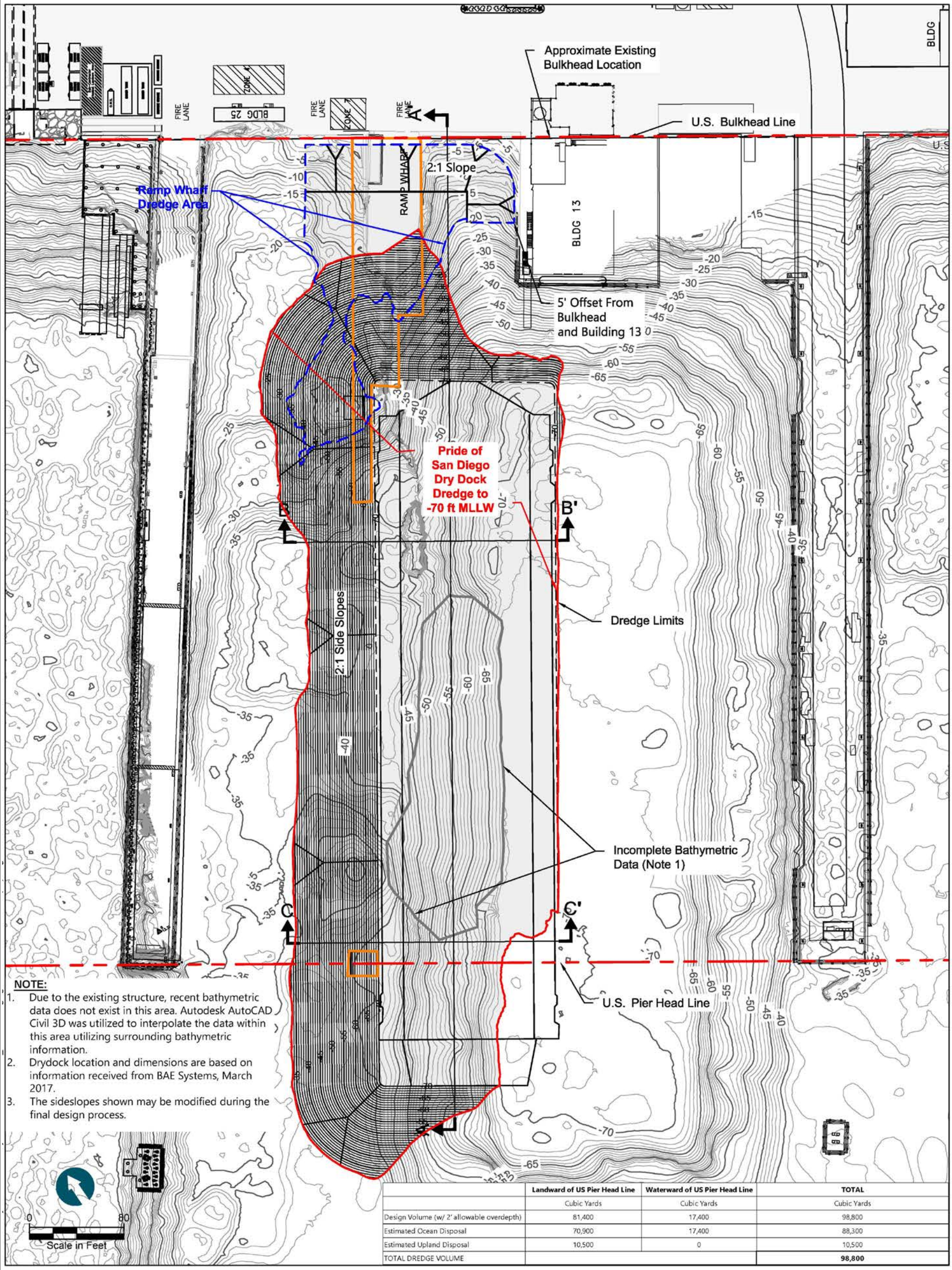
Figure ES-3
Project Elements
BAE Systems Waterfront Improvement Project



NOTE:

1. Due to the existing structure, recent bathymetric data does not exist in this area. Autodesk AutoCAD Civil 3D was utilized to interpolate the data within this area utilizing surrounding bathymetric information.
2. Drydock location and dimensions are based on information received from BAE Systems, March 2017.
3. The sideslopes shown may be modified during the final design process.

	Landward of US Pier Head Line	Waterward of US Pier Head Line	TOTAL
	Cubic Yards	Cubic Yards	Cubic Yards
Design Volume (w/ 2' allowable overdepth)	81,400	17,400	98,800
Estimated Ocean Disposal	70,900	17,400	88,300
Estimated Upland Disposal	10,500	0	10,500
TOTAL DREDGE VOLUME			**98,800**

SOURCE: Upland topography from Digital Mapping Inc., dated September 2009, and supplemented by Environmental Data Solutions survey dated April 13, 2013. Pre-dredge bathymetric data is from CLE Engineering survey dated February 12, 2017 supplemented with post-sand cover survey from San Diego Shipyards North project, completed January 2016.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.
VERTICAL DATUM: Mean Lower Low Water (MLLW).

LEGEND:

-25 Existing Contour

-30 Proposed Dredge Contour

Proposed Site Improvements

Ramp Wharf Dredge Limits

POSD Dry Dock Dredge Limits

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Figure ES-4
Project Element 1 Conceptual Dredge Design
BAE Waterfront Improvement Project

Because of conflicts with the original 1983 dredge sump[5] design, the current configuration requires the drydock to be moved[6] from its mooring to the west and south in order to submerge and dock or undock a vessel each time a vessel comes in for drydock servicing. When a wide-bodied vessel is positioned adjacent to Pier 3 North, the size of the vessel prevents the drydock from being moved into its submergence location. Dredging and relocation of the mooring dolphins would allow the drydock to submerge and lift vessels in place without the need for the drydock to be moved. This would improve operational efficiencies because wide-bodied vessels could be moored at Pier 3 North concurrently with drydocked vessels while under repair at the Pride of San Diego drydock. Accordingly, this would eliminate the need to run the diesel engines of two separate vessels concurrently during docking and undocking activities as well as the need for tugboats to move the drydock. In addition, Project Element 1 proposes to dredge sediment around the Pride of San Diego ramp wharf and eastern mooring dolphin. This would remove potentially contaminated sediment that was not accessible during the remedial dredging that occurred in 2015 under Regional Water Quality Control Board (RWQCB) mandated Cleanup and Abatement Order (CAO) No. R9-2012-0024. During remedial activities, sand, including gravelly sand, was placed in areas that were not accessible. Proposed replacement of the mooring dolphins may allow access to these areas; therefore, potentially contaminated gravelly sand, sand, and sediment may be removed during dredging.

In total, Project Element 1 proposes to dredge approximately 98,800 cubic yards (cy) of material. Figure ES-5 depicts the proposed conceptual dredge design to achieve compliance with the CAO, which includes both Project Elements 1 and 6. (Figure ES-6 depicts the conceptual dredge design for Project Element 6 only.) Based on preliminary assessments conducted by the project proponent, it was conservatively estimated that 20 percent of the dredge material for Project Element 1 would contain contaminated sediment, although additional analysis indicates the estimate may be closer to 11 percent.[7] Therefore, the analysis contained within this EIR assumes approximately 80 to 89 percent of all dredged materials for Project Element 1 would be disposed of at an approved Ocean Dredge Material Disposal Site (i.e., U.S. Environmental Protection Agency [EPA] disposal site LA-5); the remaining 11 to 20 percent would be unsuitable for unconfined aquatic disposal, per U.S. Army Corps of Engineers (USACE) and EPA disposal criteria, and would be transported to an approved disposal facility capable of accepting contaminated sediments. It should be noted that, in the event that unconfined aquatic disposal is not suitable, only approximately 15,280 cy of the proposed 98,800 total cy of sediment would be dredged to comply with CAO No. R9-2012-0024.

[5] A *sump* is defined as a pit or other type of hollow area that collects liquids.

[6] Referred to as *translated*. *Translation* means to move the dock in a specific direction—north, south, east, or west.

[7] Where applicable throughout this EIR, the more conservative estimate is used for CEQA analysis purposes. For example, Sections 4.1, *Air Quality and Health Risk*, and 4.3, *Greenhouse Gas Emissions and Energy*, conservatively analyzed both the high end of trucks (i.e., 20 percent upland disposal) and the high end of tug and scow trips (i.e., 89 percent ocean disposal) to quantify project emissions.

The following actions are proposed as part of Project Element 1:

- Shifting the Pride of San Diego drydock west by approximately 100 feet.
- Replacing two existing 17.5- by 21-foot mooring dolphins (368 square feet for each dolphin), including removing twenty-six 18-inch-square concrete piles and 85 cy of concrete caps and installing thirty-eight 24-inch octagonal precast concrete piles with 900 total square feet of surface area.
    - Demolition of the existing mooring dolphins, concrete piles, and concrete caps would generate approximately 1,005 cy of debris.
- Relocating the drydock sump, which would require dredging to -70 feet mean lower low water (MLLW). The following dredging specifics are proposed:
    - Dredging approximately 98,800 cy[8] of material, including 2 feet of overdepth, consisting of:
        - 81,400 cy within District (leasing) jurisdiction.
        - 17,400 cy within CCC (permitting) jurisdiction.
    - Disposing of up to approximately 19,800 cy of dredged material (i.e., up to 20 percent of the total dredged material) at an approved upland disposal site, such as the Otay Landfill.
    - Disposing of up to approximately 87,900 cy of dredged material (i.e., up to 89 percent of the total dredged material) at the Ocean Dredge Material Disposal Site (i.e., EPA's San Diego disposal site LA-5).
    - Transporting up to 36 scows[9] (2,500 cy capacity each) to the LA-5 disposal site.

Dredging operations, including equipment maintenance activities, shift changes, barge changes, and movement about the site would be conducted 24 hours per day, 7 days a week, for 100 days.

Pride of San Diego Drydock Wharf Replacement and Realignment (Project Element 2)

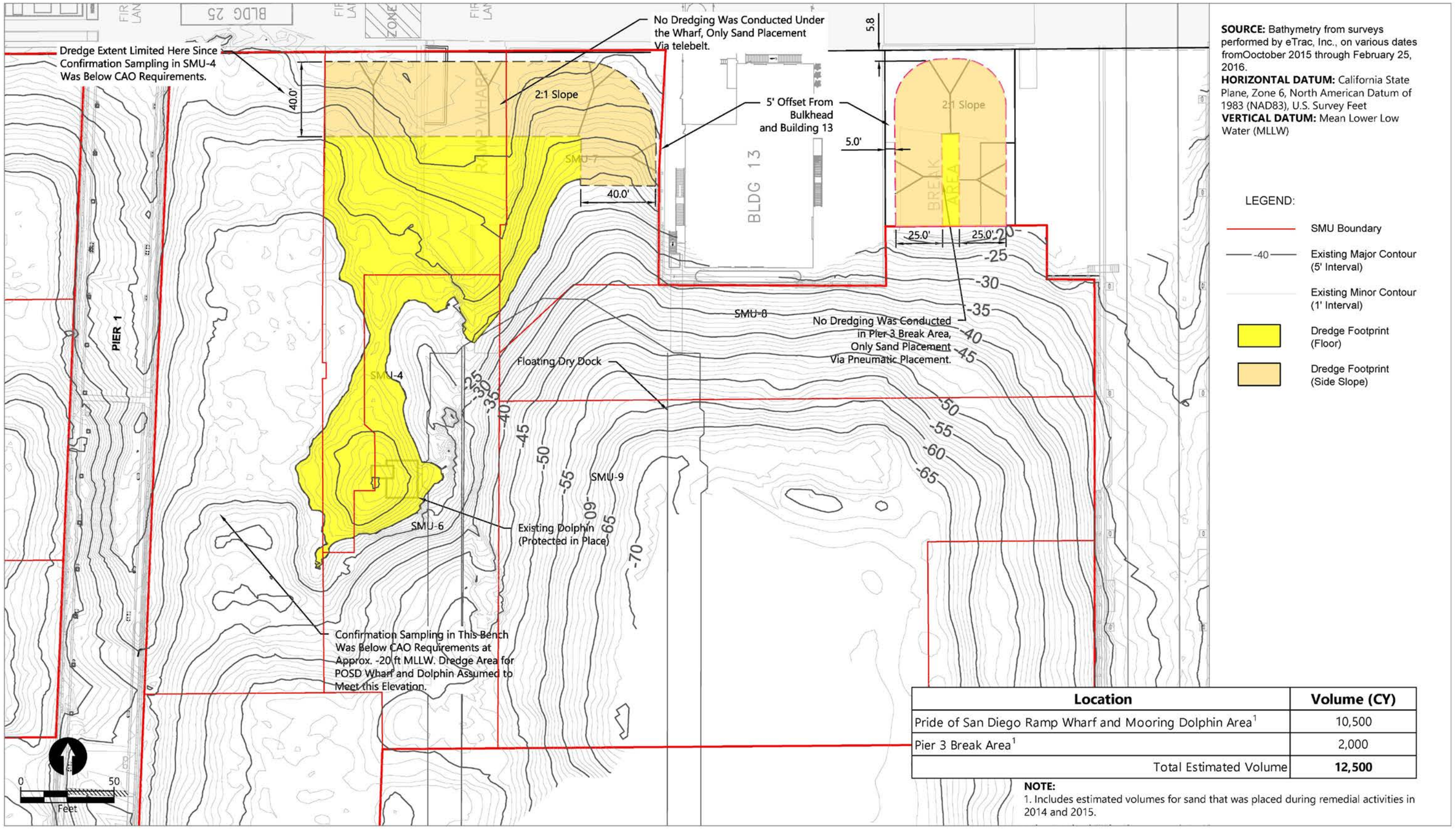
Once drydock dredging and moorage replacement have been completed (i.e., Project Element 1), wharf and ramp modifications would be needed. Specifically, Project Element 2 would extend the existing Pride of San Diego wharf to provide a material handling area adjacent to the northeastern portion of the drydock and encompass the eastern gripper[10] mooring dolphin. An apron would be installed at the end of the drydock, while a new pedestrian access ramp and support platform would be installed on the south side of the drydock to minimize the number of in-water structures required to access and support the drydock at its proposed new location. The new replacement structure would be incorporated into the existing Pride of San Diego wharf ramp.

For the purposes of this analysis, complete demolition and construction activities are assumed, which would be the reasonably foreseeable worst-case scenario. The following actions are proposed as part of Project Element 2.

[8] Volume based on pre-dredge bathymetric survey data from CLE Engineering, composite surveys dated February 2017 and January 2016, and conceptual dredging volumes provided by Anchor QEA, dated July 2019.

[9] A *scow* is a low, flat barge-like vessel used to carry material.

[10] A gripper is a mechanical feature of a mooring system, used for securing floating drydocks to a mooring dolphin.



SOURCE: Bathymetry from surveys performed by eTrac, Inc., on various dates fromOoctober 2015 through February 25, 2016.
HORIZONTAL DATUM: California State Plane, Zone 6, North American Datum of 1983 (NAD83), U.S. Survey Feet
VERTICAL DATUM: Mean Lower Low Water (MLLW)

LEGEND:

- SMU Boundary
- -40 — Existing Major Contour (5' Interval)
- Existing Minor Contour (1' Interval)
- Dredge Footprint (Floor)
- Dredge Footprint (Side Slope)

Location	Volume (CY)
Pride of San Diego Ramp Wharf and Mooring Dolphin Area[1]	10,500
Pier 3 Break Area[1]	2,000
Total Estimated Volume	**12,500**

NOTE:
1. Includes estimated volumes for sand that was placed during remedial activities in 2014 and 2015.

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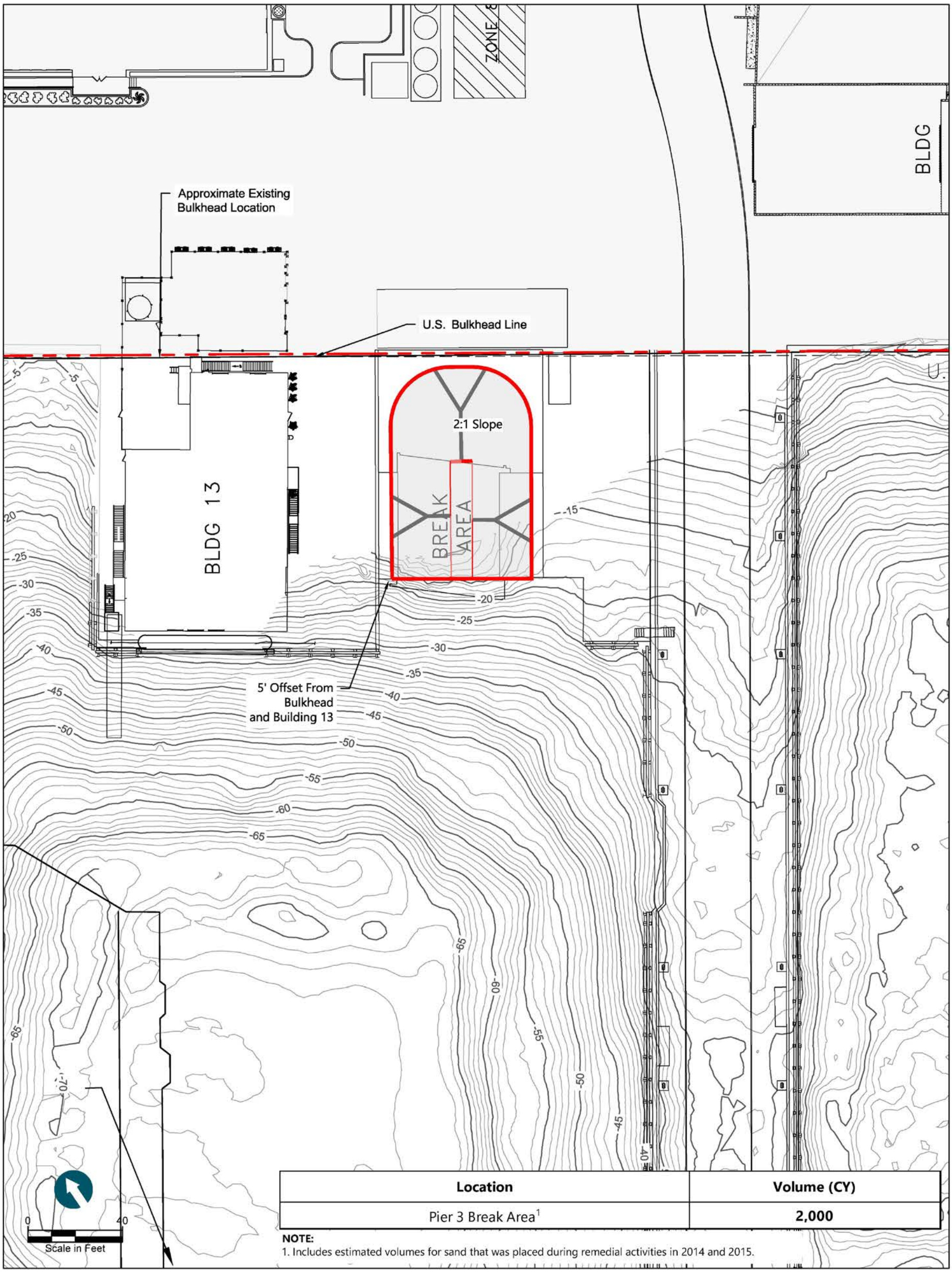
Figure ES-5
Project Element 1 and Project Element 6 Conceptual CAO Dredge Areas
BAE Waterfront Improvement Project



Location	Volume (CY)
Pier 3 Break Area[1]	2,000

NOTE:
1. Includes estimated volumes for sand that was placed during remedial activities in 2014 and 2015.

SOURCE: Upland topography from Digital Mapping Inc., dated September 2009, and supplemented by Environmental Data Solutions survey dated April 13, 2013. Pre-dredge bathymetric data is from CLE Engineering survey dated February 12, 2017 supplemented with post-sand cover survey from San Diego Shipyards North project, completed January 2016.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.
VERTICAL DATUM: Mean Lower Low Water (MLLW).

LEGEND:

—25— Existing Contour

Dredge Limit Boundary

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Figure ES-6
Project Element 6 Pier 3 Break Area Conceptual Dredge Design
BAE Waterfront Improvement Project

- Demolishing 5,540 square feet of existing wharf and twenty 18-inch piles, which would generate approximately 408 cy of debris.
- Installing 12,500 square feet of cast-in-place decking on 73 octagonal piles[11] and six concrete precast piles,[12] extending from the existing wharf structure to the northeastern portion of the Pride of San Diego drydock. New in-water structures (fixed) associated with the new wharf would be built to an increased elevation of +12 feet MLLW.
- Installing an apron[13] at the end of the drydock and a new pedestrian access ramp and support platform on the south side for material handling adjacent to the drydock.

Fender System Repair and Replacement (Project Element 3)

The existing fender[14] systems are experiencing natural deterioration due to age and routine damage from decades of use. New fenders are required where shoreline features have been reconstructed.

The following actions are proposed as part of Project Element 3.

- Removing and replacing in place the 503 existing 14-inch by 89-foot steel H-pile[15] fenders. Removal of the existing fenders would generate approximately 269 cy of debris.
- Installing 122 new steel H-pile fenders, for a total of 625 fenders. The new fender locations are as follows:
    - Bulkhead installation at the south side of Pier 1, resulting from remediation and fill of the former marine railways in 2004.
    - Bulkhead replacement along the shoreline south of Pier 3 to the southern property line.
    - The west-facing perimeter of the proposed new marginal wharf area associated with Pier 3 North Lunchroom Wharf Replacement and Realignment (Project Element 6).

In addition, fenders are occasionally damaged when struck by vessels, in which case they need to be replaced quickly in order to provide safe moorage for vessels. Therefore, for analysis purposes, it is assumed that up to 39 steel H-pile fenders per year would be replaced over the life of the existing lease (until 2034).

Pier 3 South Nearshore Dredging (Project Element 4)

Dredged material has entered the Pier 3 berth sump; therefore, this project element proposes to dredge approximately 15,000 cy of material. Figure ES-7 depicts the conceptual dredge plan for Project Element 4. In addition, the Pier 3 sump requires modification for safe passage of tugboats while maneuvering large ships.

The following actions are proposed as part of Project Element 4.

[11] Octagonal piles are eight-sided concrete support structures.

[12] *Precast piles* are concrete piles that are formed in circular, square, rectangular, or octagonal shapes. Precast piles are manufactured in a casting yard before transport to the project site.

[13] An *apron* is the space allotted for maneuvering a vehicle into alignment with the dock.

[14] A *fender* is a piece of equipment that protects a pier, berth, jetty, or other vessel from a berthing vessel. Fenders are typically made of rubber, foam, or plastic in order to absorb energy from the berthing vessel.

[15] A *steel H-pile* is an in-water support structure with a cross beam that forms an H-like shape.

- Dredging approximately 15,000 cy from the toes of the dredge sump to the limit line elevation of the new bulkhead (-17 feet MLLW). Dredging would extend to an operational depth of -35 feet MLLW plus 2 feet of overdepth dredging.
- Placing dredged material directly onto dredge scows, with no stockpiling of materials on the site; loading directly onto trucks from the scows; and disposing of materials. Dredged material is dewatered, treated, and disposed of in accordance with existing permit and landfill requirements.

Dredging operations, including equipment maintenance activities, shift changes, barge changes, and movement about the site would occur 24 hours per day, 7 days per week, for 69 days.

For Project Element 4, the extent of contamination within the sediment in this area is currently unknown. Therefore, there are two scenarios under consideration for disposal of dredged materials.

- The **50/50 Scenario** assumes that half of the total dredged material (7,500 cy) generated during Project Element 4 would be suitable for ocean disposal and half (7,500 cy) would require upland disposal. This scenario would result in approximately three scows to dispose of the material at the ocean disposal site, with each scow trip conveying 2,500 cy. The remaining half of the dredged material would be taken to upland locations using haul trucks with an estimated 15 cy capacity per truck.
- The **All-Truck Scenario** assumes that all dredged material (15,000 cy) would be disposed of at an upland location using haul trucks with an estimated 15 cy capacity per truck.

Pier 3 Mooring Dolphin (Project Element 5)

Installation of an additional mooring dolphin would be necessary to ensure safe vessel moorage, especially during extreme storm surge or other climatic conditions (e.g., wind and tide). The mooring dolphin would provide a fixed structure for securing the bow of large vessels and be designed consistent with existing mooring dolphins at the BAE Systems facility. The proposed new mooring dolphin would be entirely within CCC's jurisdiction.

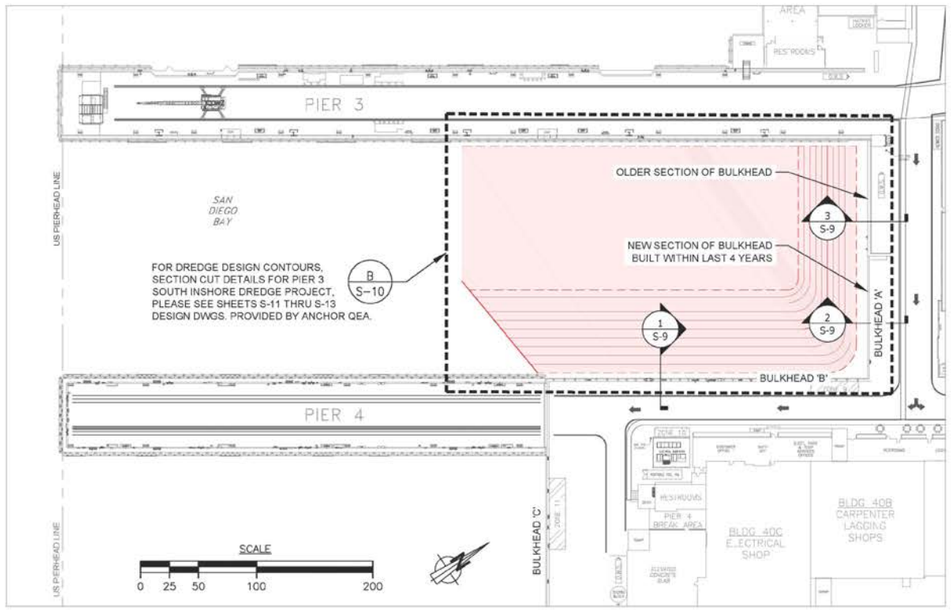
The following actions are proposed as part of Project Element 5.

- Installing one 16- by 20-foot, 3-foot-thick mooring dolphin 970 feet offshore (i.e., 270 feet west of the U.S. Pierhead Line). The height of the new mooring dolphin would extend to +13 feet MLLW. The following components are proposed for the new mooring dolphin:
  - Eight 24-inch concrete octagonal piles.
  - Two 150-ton double bitts.[16]
  - Sixteen steel H-pile fenders, 12 cylindrical fenders, whalers,[17] and chocks[18] around the perimeter of the proposed mooring dolphin.

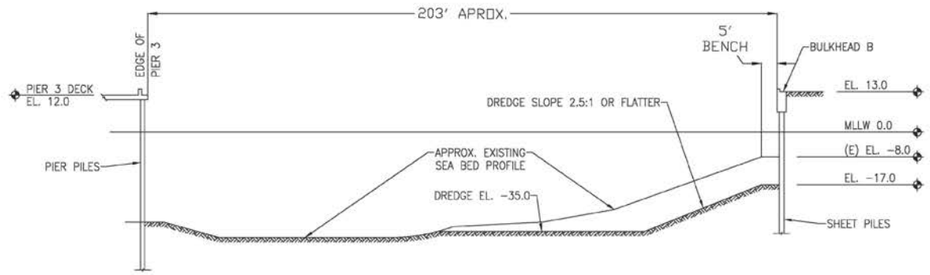
[16] A *double bitt* is a type of bollard with two metal protrusions, which are used to secure lines from vessels to a dock. (A *bollard* is a short, thick post on the deck of a ship, or a wharf, for securing lines from a ship.)

[17] *Whalers* are the large wooden crossbars that support the bulkhead, which is part of the pier. (The *bulkhead*, as defined here, refers to a retaining wall along the waterfront.)

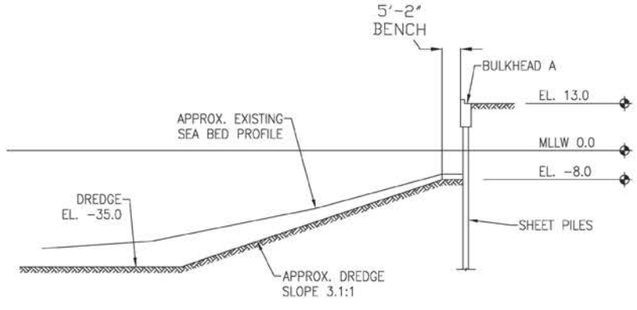
[18] *Chocks* are metal fixtures that hold lines in position so that vessels can tie up to a bollard, bitt, etc.



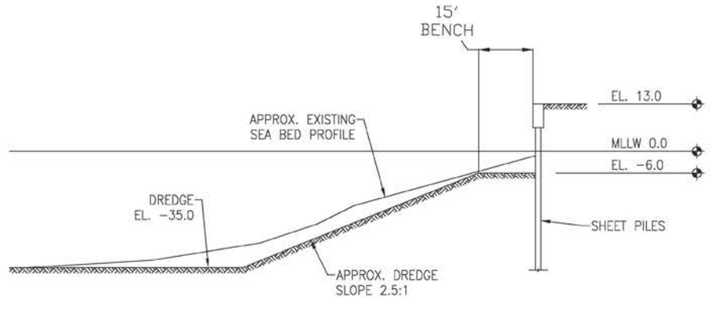
A S-9 PIER 3 SOUTH DREDGE BASIC PLAN OVERVIEW



1 S-9 BULKHEAD B SECTION CUT - DREDGE LIMITATION STUDY
(ANALYSIS AND DESIGN PERFORMED BY TRITON ENGINEERS)



2 S-9 BULKHEAD A NEWER BULKHEAD SECTION CUT - DREDGE LIMITATION STUDY
(ANALYSIS AND DESIGN PERFORMED BY TRITON ENGINEERS)



3 S-9 BULKHEAD A SECTION CUT - DREDGE LIMITATION STUDY
(ANALYSIS AND DESIGN PERFORMED BY TRITON ENGINEERS)

PIER 3 SO. DREDGE OVERVIEW & BULKHEAD LIMITATIONS			
DATE	BAE SYSTEMS INSPIRED WORK	PAGE #	SHEET #
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Figure ES-7
Project Element 4 Conceptual Dredge Plan
BAE Waterfront Improvement Project

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Pier 3 North Lunchroom Wharf Replacement and Realignment (Project Element 6)

The Pier 3 wharf is a timber structure at the northern foot of Pier 3 that is aging and in need of replacement. The timber deck, which is supported by twenty-seven 12-inch-square precast concrete piles, was originally installed in the 1950s or 1960s but underwent significant modifications in 1985. The structure is currently used by employees during lunch breaks. In addition, an open area, which is currently surrounded by structures, would be covered. As part of the replacement, dredging may remove potentially contaminated sediment that was not accessible during the remedial dredging associated with CAO No. R9-2012-0024. An estimated 2,000 cy of potentially contaminated sediment would be dredged from this area (Anchor QEA 2019). Figure ES-5 depicts the conceptual dredge design to achieve compliance with CAO No. R9-2012-0024 and Figure ES-6 depicts the conceptual dredge design for Project Element 6.

The following actions are proposed as part of Project Element 6.

- Demolishing the existing overwater, 1,150-square-foot restroom structure; removing 2,915 square feet of wood decking; and removing 595 square feet of metal. Removal of these existing materials would generate approximately 77 cy of debris.
- Removing twenty-seven 12-inch concrete pilings and one H-pile.
- Installing forty-eight 24-inch octagonal pre-cast concrete pilings.
- Constructing a new overwater structure consisting of 8,800 square feet of cast-in-place decking (including a berm edge and stormwater collection system) to replace the existing overwater structure that would be demolished. The height of the new decking would extend to +13 feet MLLW.
- Dredging approximately 2,000 cy of material from beneath the Pier 3 break area and disposing of it at an approved upland disposal site, such as the Otay Landfill.

Quay Wall Modifications (Project Element 7)

A rock revetment slope is affecting vessel mooring and requires reinstallation. The following actions are proposed as part of Project Element 7.

- Dredging 300 cy of rock, which would be disposed of at a local recycling facility.
- Dredging 500 cy of sediment in the immediate vicinity of the submerged sheet pile structure, which would be disposed of at an approved upland disposal site, such as the Otay Landfill.
- Installing up to 50 linear feet of a submerged sheet pile structure.

Port Security Barrier Replacement (Project Element 8)

A Port Security Barrier (PSB) is maintained around the facility, as required by the U.S. Navy, for vessels within the BAE Systems facility. The PSB deters small craft from approaching Navy vessels while they are undergoing repair. The U.S. Navy has instituted newer, stricter requirements for the PSB system, resulting in the need to replace the existing PSB with a new design. The proposed new PSB would be partially within CCC jurisdiction.

The following actions are proposed as part of Project Element 8.

- Removing the existing 3,500-linear-foot floating boom and replacing it with a new 3,500-foot hard barrier. The new PSB includes the following components:
    - Ten 8- by 7.55-foot buoys secured by three anchors per buoy location.
    - 3,500 linear feet of hard barrier (PSB-T or PSB-V type) with navigational aid lights.
- Removing and disposing of the existing barrier, buoys, and anchors. Disposing of 3,500 linear feet, or approximately 120 cy, of debris, and recycling 13 tons of scrap steel and 19 cy of concrete.

Small Boat Mooring Float Replacement (Project Element 9)

The small-boat mooring float allows personnel and materials to be deployed for waterfront facility maintenance and inspection as well as other surveillance activities, including drills and exercises, conducted on site. In addition, as part of the enhanced site security requirements instituted by the U.S. Navy, BAE Systems is required to maintain on-water security, including security patrol vessels. The following actions are proposed as part of Project Element 9.

- Removing and replacing four piles that support the float.
- Replacing the existing 320-square-foot aged timber moorage float system (160 square feet for each float) with two 200-square-foot concrete floats. The new floats would include one 45-foot-long aluminum gangway, low-voltage electrical service, and potable water.
- Installing four 18-inch-round precast concrete piles.

Central Tool Room Demolition and Reconstruction (Project Element 10)

The existing central tool room is an aging structure at the foot of Pier 3, on the south side of the project site. The structure would be demolished, and a new tool room would be constructed on the proposed new wharf structure (as proposed as part of the Pier 3 North Lunchroom Wharf Replacement and Realignment [Project Element 6]).

The following actions are proposed as part of Project Element 10.

- Demolishing the existing 2,000-square-foot central tool room structure, which would generate approximately 16 cy of debris.
- Excavating approximately 150 cy of soil to a maximum depth of 2 feet for the new building foundation. The majority of the excavated soil material would be recompacted and used as the base for new asphalt.
- Constructing a three-story replacement structure that would provide an approximately 21,900-square-foot work space and a 7,300-square-foot building footprint. The height of the proposed new building would extend to +50 feet MLLW.
- Replacing the existing Pier 3 restroom facilities within the new central tool room or incorporating the existing Pier 3 restrooms into the new structure.
- Providing utilities and related infrastructure (e.g., potable water, sanitary sewer service, compressed air, natural gas, electrical, computer, communications) within the new tool room.

New Production Building (Project Element 11)

Project Element 11 would involve demolishing the existing production building and constructing a new production building near the existing Building 6/7 (see Figure ES-3). This proposed building would increase the efficiency of material assembly. The first floor of the new structure would be used for production and equipped with an overhead bridge crane. The second and third floors would contain engineering, production support, and administration functions.

The following actions are proposed as part of Project Element 11.

- Demolishing the existing 17,675-square-foot production building, which would generate approximately 698 cy of debris.
- Excavating approximately 2,600 cy of soil to a maximum depth of 4 feet for the new building foundation. The majority of the excavated material would be reused as backfill around foundations or for the concrete slab under the new production building. However, it is anticipated that approximately 400 cy of excavated soil material would not be suitable for reuse and therefore would be disposed of at an approved upland disposal site.
- Constructing a new three-story production building with a 48,379-square-foot work space and a 16,475-square-foot footprint, with a height of up to 50 feet.
- Installing an overhead bridge crane within the first floor of the new production building.

Administrative Office Building (Project Element 12)

The existing offices are trailers that BAE Systems rents/leases for customer use in support of ship repair contracts performed on the site. These facilities provide space for the government contracts, quality assurance, and program management personnel who have been assigned to these contracts. This project element includes construction of permanent administrative office spaces. The first floor would contain production spaces, a tool room, and a restroom. The second and third floors would contain office space and a break room. The new administrative office building would accommodate existing personnel, with the intention of reducing/eliminating the need for double and triple occupancies, which currently occur at several work stations in the production spaces throughout the project site.

The following actions are proposed as part of Project Element 12.

- Disassembling and removing four trailers, totaling approximately 8,016 square feet, which would generate approximately 150 cy of debris.
- Demolishing approximately 8,600 square feet of asphalt pavement and excavating for water and sewer service piping, footings/foundations, and general recompaction activities. It is anticipated that approximately 650 cy of soil material would be excavated to a maximum depth of 5 feet, and a maximum of 200 cy of material would be disposed of at an approved upland disposal site.
- Constructing a new three-story administrative office building with approximately 46,000 square feet of work space, a building footprint of 16,000 square feet, and a height of up to 55 feet.

Pier 1 Restroom Renovation and/or Demolition (Project Element 13)

The existing 506-square-foot restroom facility requires reconfiguration to increase capacity and improve functionality for employees, customers, and contractors. The restrooms would be

retrofitted with more water efficient fixtures, LED lighting, and other features to increase utility and efficiency.

As an alternative, upon completion of Project Element 12 (Administrative Office Building), which includes a restroom facility, the Pier 1 restroom may be demolished if it is determined that it is no longer needed. The demolition would generate approximately 51 cy of debris, and excavation would be limited to removal of the buried piping to the Pier 1 lift station. It is anticipated that approximately 40 cy of soil material would be excavated to a maximum depth of 5 feet, and 10 cy of material would be disposed of at an approved upland disposal site.

Main Electric Utility Service Update (Project Element 14)

Project Element 14 would reconfigure the electrical utility distribution system in Building 13. This would involve relocation of the San Diego Gas & Electric main in Building 13 to Building 65, alongside East Belt Street, adjacent to the shipyard's existing four-way switch. Relocation of this electrical main would increase overall site safety by allowing San Diego Gas & Electric technicians access to critical electrical components outside the secure property perimeter. In addition, this project element would also provide additional space in the Building 13 electrical room, allowing BAE Systems to reconfigure and/or modernize the electrical equipment as needed.

The following actions are proposed as part of Project Element 14.

- Replacing and upgrading electrical distribution equipment to ensure reliability and protect site infrastructure.
- Relocating the existing San Diego Gas & Electric main (i.e., meter) from Building 13 to Building 65. Existing electrical conduits within the project site would be reused to pull electrical cables to the relocated main in Building 65.

Sanitary Sewer and Potable Water Utility Services (Project Element 15)

The existing sanitary sewer and potable water service feeds have not been modified since the original installation in 1983. The hotel service requirements of current naval and commercial vessels necessitate improvements to sanitary sewer and potable water services. If implemented, this project element would include the replacement of existing sanitary and potable water feeds currently connected to existing utility services, which would require minor trenching. At this time, the exact locations and details of the specific sanitary and potable water feeds that would be replaced is unknown. Therefore, it is assumed that these improvements could occur throughout the project site.

Areas of Known Controversy/Issues Raised by Agencies and the Public

Section 15123 of the State CEQA Guidelines requires the summary of an EIR to include areas of controversy known to the Lead Agency, including issues raised by agencies and the public. The District posted a Notice of Preparation (NOP) with the County Clerk, in accordance with Section 15082 of the State CEQA Guidelines. The 30-day public review period for the NOP began on March 7, 2019 and ended on April 5, 2019. The NOP and notices of NOP availability were mailed to public agencies, organizations, and interested individuals to solicit their comments on the scope and

content of the environmental analysis. The District also held a public scoping meeting on March 25, 2019, at the District Administration Building at 3165 Pacific Highway, San Diego, CA 92101. The NOP is included as Appendix A of this EIR.

Nine comment letters were received during the NOP public review period. The primary issues raised were in regard to air quality; biological resources; cultural resources; greenhouse gas (GHG) emissions; hazards and hazardous materials; hydrology and water quality; noise and vibration; transportation, circulation, and parking; and utilities and service systems. A summary of all comments received is included in Table 1-2 of Chapter 1, *Introduction*, and all NOP comment letters are included in Appendix B of this EIR.

Issues to Be Resolved

Summary of Project Impacts

This Draft EIR examines the potential environmental effects of the proposed project, including information related to existing site conditions, analyses of the types and magnitude of individual and cumulative environmental impacts, and feasible mitigation measures that could reduce or avoid environmental impacts. In accordance with Appendix G of the State CEQA Guidelines, the potential environmental effects of the proposed project were analyzed for the following areas.

- Air Quality and Health Risk
- Biological Resources
- Greenhouse Gas Emissions and Energy
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise and Vibration
- Sea-Level Rise
- Transportation, Circulation, and Parking

Table ES-1, presented at the end of this chapter, provides a summary of the environmental impacts that could result from the proposed project and feasible mitigation measures that would reduce or avoid the significant impacts. For each impact, Table ES-1 identifies the significance of the impact before mitigation, applicable mitigation measures, and the level of significance of the impact after the implementation of mitigation measures. Impacts on aesthetics, agriculture and forestry resources, cultural resources, geology and soils, mineral resources, population and housing, public services, recreation, tribal cultural resources, and utilities and service systems are considered to be "Effects Found Not to be Significant," in accordance with Section 15128 of the State CEQA Guidelines. These issues are discussed further in Chapter 6, *Additional Consequences of Project Implementation*.

Summary of Project Alternatives

The following alternatives are analyzed in detail in Chapter 7, *Alternatives to the Proposed Project*. The primary purpose of the alternatives analysis is to consider and analyze a reasonable range of feasible alternatives in sufficient detail to foster informed decision-making and public participation in the environmental review process. The alternatives to the proposed project are summarized below.

Alternative 1 – No Project/No Build Alternative

The No Project/No Build Alternative is required by CEQA to discuss and analyze potential impacts that would occur if the proposed project was not implemented. Under the No Project/No Build Alternative, the site would operate as it currently does until the expiration of the current lease in 2034. The proposed project would not occur, and the existing site would retain the existing buildings and facilities without any upgrades to and/or reconstruction of these landside or waterside facilities. The existing configuration of the Pride of San Diego Drydock and associated dredge sump would continue to create operational inefficiencies, including the requirement for the drydock to be detached from its moorings and shifted to the west and south during docking and undocking of a vessel. The associated removal of potentially contaminated sediment during the proposed Pride of San Diego Drydock improvements would not occur under this alternative. Dredging of up to 117,080 cubic yards (cy) of dredged material, including potentially contaminated sediment that was previously inaccessible during 2015 remedial dredging activities, would not occur under this alternative, nor would replacement of deteriorated or damaged structures, such as the existing fender systems or Pier 3 North wharf, or security features required by the U.S. Navy, including the PSB or the small boat mooring float replacement. Similarly, no pile driving or other bottom disturbing activities would occur under this alternative. As a result, there would be no potential to disturb contaminated sediments during in-water construction activities; however, no removal of contaminated sediment would occur either. Therefore, this alternative would not achieve the same long-term benefits as the proposed project. While the replacement of the PSB would not occur under this alternative, it should be noted that the U.S. Navy could still require the replacement of the barrier to comply with its security requirements under a separate action, regardless of whether the No Project/No Build Alternative is adopted. Finally, the No Project/No Build Alternative would not involve landside improvements, including reconstruction of the tool room, production building, administrative office buildings, restrooms, or upgrades to the onsite utilities.

Alternative 2 – Reduced Project Alternative

Under Alternative 2, all project elements, except Project Element 1 (Pride of San Diego Drydock Dredging and Moorage Replacement), and Project Element 2 (Pride of San Diego Drydock Wharf Replacement and Realignment) would occur. Eliminating Project Elements 1 and 2 was assumed for this alternative because they represent significant construction components of the proposed project. Elimination of other project elements may also reduce associated construction emissions (whether or not included with the elimination of Project Elements 1 and 2). Therefore, eliminating Project Elements 1 and 2 is a representative "reduced project alternative" for purposes of the alternatives analysis. This alternative includes the following project elements:

- Project Element 3: Fender System Repair and Replacement
- Project Element 4: Pier 3 South Nearshore Dredging
- Project Element 5: Pier 3 Mooring Dolphin
- Project Element 6: Pier 3 North Lunchroom Wharf Replacement and Realignment
- Project Element 7: Quay Wall Modifications
- Project Element 8: Port Security Barrier Replacement
- Project Element 9: Small Boat Mooring Float Replacement
- Project Element 10: Central Tool Room Demolition and Reconstruction

- Project Element 11: New Production Building
- Project Element 12: Administrative Office Building
- Project Element 13: Pier 1 Restroom Renovation and/or Demolition
- Project Element 14: Main Electrical Utility Service Update
- Project Element 15: Sanitary Sewer and Potable Water Utility Services

The purpose of this alternative is to avoid or reduce the project-level and/or cumulative construction impacts associated with biological resources, greenhouse gas (GHG) emissions and energy, hazards and hazardous materials, and hydrology and water quality. Under this alternative, the Pride of San Diego Drydock would remain in its current location and would require the drydock to be moved from its mooring to the west and south in order to submerge and dock or undock a vessel each time a vessel comes in for drydock servicing and would continue to create constraints when wide-bodied vessels are moored at Pier 3 North. This would prevent wide-bodied vessels from being concurrently moored at Pier 3 North and would require the diesel engines of two separate vessels to run concurrently during docking and undocking activities, and would require tugboats to move the drydock. Dredging, and the associated transport of dredged material off site (upland and ocean disposal), would be substantially reduced under this alternative because the project would no longer include the dredging of 98,800 cy of material in order to accommodate the Pride of San Diego Drydock improvements. However, this alternative would involve the removal of the contaminated sediment around the Pride of San Diego ramp wharf and eastern mooring dolphin during implementation of Project Element 6 (Pier 3 North Lunchroom Wharf Replacement and Realignment). Because Alternative 2 would still include implementation of other project elements that would allow servicing of newer and different classes of vessels (e.g., Project Elements 4 and 5), the potential ship mix at the site as well as the number of vessel crew and laborers onsite would be similar to the proposed project.

Environmentally Superior Alternative

Pursuant to CEQA, the EIR is required to identify the environmentally superior alternative. Although the No Project/No Build Alternative (Alternative 1) reduces the greatest number of impacts, CEQA requires that when the environmentally superior alternative is the No Project/No Build Alternative, another alternative should be identified. The Reduced Project Alternative (Alternative 2) reduces the second-largest number of impacts of the proposed project associated with biological resources, GHG emissions and energy, hazards and hazardous materials, and hydrology and water quality. Therefore, Alternative 2 is considered the environmentally superior alternative, and overall impacts on environmental resources would be reduced compared to the proposed project (see Table 7-3 in Chapter 7). However, the proposed project would also result in beneficial effects on the environment, including dredging to remove contaminated sediment from the project site, and efficiency improvements to the operations of the Pride of San Diego Drydock, which would reduce criteria pollutants emissions and GHG emissions over time. This alternative would not fully achieve most of the project objectives (see Table 7-4 in Chapter 7).

Table ES-1. Project Impacts and Mitigation Measures

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
4.1 Air Quality and Health Risk				
Project Impacts				
Conflict with an Applicable Air Quality Plan	Implementation of the proposed project would not conflict with an applicable air quality plan.	LS	No mitigation is required.	LS
Violate an Air Quality Standard	Implementation of the proposed project would not violate an air quality standard.	LS	No mitigation is required.	LS
Result in a Cumulatively Considerable Net Increase of a Criteria Pollutant	Implementation of the proposed project would not result in a cumulatively considerable net increase of criteria pollutants.	LS	No mitigation is required.	LS
Expose Sensitive Receptors to Substantial Pollutant Concentrations	Implementation of the proposed project would not expose receptors to substantial pollutant concentrations.	LS	No mitigation is required.	LS
Create Objectionable Odors	Implementation of the proposed project would not create objectionable odors affecting a substantial number of people.	LS	No mitigation is required.	LS
Cumulative Impacts				
The proposed project's incremental contribution to cumulative air quality and health risk impacts would not be cumulatively considerable.				

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
4.2 Biological Resources				
Project Impacts				
Substantial Adverse Effect on any Candidate, Sensitive, or Special-Status Species in Local or Regional Plans, Policies or Regulations	**Impact-BIO-1: Water Quality Impairment Impacts on California Least Tern and California Brown Pelican Foraging**. Construction of the proposed project could lead to water quality impairment in San Diego Bay, which would inhibit foraging of both California least tern and California brown pelican by increasing turbidity and making it more difficult to identify prey species within the waterside portion of the project site. This impact would be potentially significant.	PS	**MM-BIO-1: Implement Construction Measures to Eliminate Water Quality Impairment Impacts on California Least Tern and California Brown Pelican Foraging.** Nesting birds are less stressed where foraging opportunities are available adjacent to nest locations. The following measures will enhance the birds' available forage and increase the likelihood of successfully fledging chicks. The project proponent shall implement the following construction measures in accordance with regulations, including CWA Sections 401 and 404, Rivers and Harbors Act Section 10, the NPDES permit, and Stormwater Management and Discharge Control Ordinance: • The contractor shall deploy a turbidity curtain around the pile driving areas to restrict the visible surface turbidity plume to the area of construction and pile driving. It shall consist of a hanging ballast-weighted curtain with a surface float line and shall extend from the surface into the water column without disturbing the bottom based on the lowest tide. The turbidity curtain shall meet the specifications for design, installation, use, performance, and/or modification outlined in the District's *Best Management Practices and Environmental Standards for Overwater Structural Repair and Maintenance Activities for Existing Port Facilities Conducted by the San Diego Unified Port District* (District 2019). The goal of this measure is to minimize the area in which visibility of prey by terns and pelicans is obstructed. • The contractor shall follow all regulatory requirements to minimize reduction in water quality in San Diego Bay. Construction of the	LS

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			proposed project would include preparation and implementation of a Construction BMP Plan in accordance with the District's JRMP, and compliance with appropriate regulatory permits, including the CWA Section 401 Water Quality Certification, CWA Section 404 permit, and Rivers and Harbors Act Section 10 permit. A full explanation of these requirements can be found in Section 4.5, *Hydrology and Water Quality*.	
	Impact-BIO-2: Potential Disturbance or Destruction of Nests Protected by the Migratory Bird Treaty Act and California Fish and Game Code. Demolition of structures and noise from construction activity could impede the use of bird nesting sites during the nesting season (February 15 through August 31). The destruction of an occupied nest or disturbance to nesting activity would be considered a significant impact in violation of the MBTA or California Fish and Game Code. Therefore, this impact would be potentially significant.	PS	**MM-BIO-2: Avoid Nesting Season for Birds or Conduct Preconstruction Nesting Surveys.** To ensure compliance with the MBTA and similar provisions under Sections 3503 and 3503.5 of the California Fish and Game Code, the project proponent shall conduct all construction activities between September 1 and February 14 (i.e., outside the nesting season) to the extent feasible. If construction activities are scheduled between February 15 and August 31, the project proponent shall implement the following during construction: • The project proponent shall retain a qualified biologist (with knowledge of the species to be surveyed) who shall conduct a focused nesting bird survey within potential nesting habitat prior to the start of any construction activities. The survey shall be submitted to the District for review and approval of the survey and the buffer area, defined below, if any, prior to the commencement of construction on the project site. • The nesting bird survey area shall include the entire limits of disturbance plus a 500-foot buffer, to ensure indirect impacts would be avoided. The nesting surveys shall be conducted within 1 week prior to initiation of construction activities and shall consist of a thorough inspection of the project area	LS

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			by a qualified ornithologist(s). The survey shall occur between sunrise and 12:00 p.m., when birds are most active. If no active nests are detected during these surveys, only a brief letter report documenting the results shall be prepared and provided to the District. If there is a delay of more than 7 days between when the nesting bird survey is performed and construction activities begin, the qualified biologist shall resurvey to confirm that no new nests have been established. • If the survey confirms nesting within 500 feet of construction activities, a no-disturbance buffer shall be established around each nest site to avoid disturbance or destruction of the nest until after the nesting season or a qualified ornithologist determines that the nest is no longer active. The size and constraints of the no-disturbance buffer shall be determined by the qualified biologist at the time of discovery, but shall not be greater than 500 feet.	
	Impact-BIO-3: Potential Disruption of or Injury to Green Sea Turtles and Marine Mammals During Pile Driving Activities. Pile driving could generate underwater noise that has the potential to injure (Level A Harassment) or alter behavior (Level B Harassment) for marine mammals, as well as result in harassment take for green sea turtle. This impact would be potentially significant.	PS	**MM-BIO-3: Implement a Marine Mammal and Green Sea Turtle Monitoring Program During Pile Driving Activities.** Prior to construction activities involving in-water pile installation or vibratory pile removal, the project proponent shall prepare a marine mammal and green sea turtle monitoring program for implementation. This monitoring program shall be submitted to the District for approval 60 days prior to commencing construction involving in-water pile installation or vibratory pile removal and shall include the following requirements: • For a period of 15 minutes prior to the start of in-water construction, a qualified biologist, retained by the project proponent and approved by the District, shall monitor an impact radius around the active	LS

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			pile installation areas to ensure that special-status species are not present. The qualified biologist must meet the minimum requirements as defined by the NOAA's *Guidance for Developing a Marine Mammal Monitoring Plan* (2017). The impact radius shall be established by determining the largest ZOI associated with in-water construction activities occurring that work day, as shown in Table 4.2-4. • The construction contractor shall not start work if any observations of special-status species are made prior to starting pile installation. • In-water pile driving within the shipyard shall begin with soft starts in accordance with Section 4.5 of the District's *Best Management Practices and Environmental Standards for Overwater Structural Repair and Maintenance Activities for Existing Port Facilities Conducted by the San Diego Unified Port District* (District 2019), gradually increasing the force of the pile driving. • Monitoring by a qualified biologist for marine mammals and green sea turtles within appropriate ZOIs shall be implemented during all pile installation activities by identifying when any special-status species are approaching or within the appropriate ZOI, and by coordinating with construction crews to halt pile driving until the species have left this area.	
	Impact-BIO-4: Loss of Open Water Habitat from Shipyard Operations. California least tern and other plunge diving fish predatory birds (e.g., pelicans) have the potential to utilize open water habitat within and adjacent to the project site for foraging opportunities. The increase	PS	**MM-BIO-4: Implement Overwater Coverage Mitigation in Coordination with the Appropriate Resource Agencies and the District to Compensate for Loss of Open Water Habitat.** The project proponent shall implement the following: 1. As required by applicable law or regulation, the project proponent shall consult with the appropriate resource agencies regarding mitigation	LS

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
	in overwater coverage resulting from the shipyard improvements is approximately 12,925 square feet, and would reduce the available open water habitat that is used for foraging by fish-eating avian species. This coverage also results in reduced primary productivity in the water column and the seafloor. This impact would be potentially significant.		of impacts associated with loss of beneficial uses from overwater coverage and loss of open water habitat function. 2. Prior to the commencement of construction activities for Project Elements 2, 6, and/or 9, the project proponent shall implement one of the following mitigation options, or a combination thereof, that are listed below in order of preference of the District; however, selection of 2.A, 2.B, 2.C, and 2.D, or an equivalent combination thereof, as may be required through consultation with applicable resource agencies during permitting processes, would successfully reduce **Impact-BIO-4** to a level below significance. The below options provide the minimum mitigation for overwater coverage impacts. One or more of the appropriate resource agencies may require additional or greater mitigation than specified in this mitigation measure. This in no way supersedes mitigation measures that may be required by state and federal agencies. A. Remove the equivalent amount of existing overwater coverage corresponding to the net increase in overwater coverage for Project Element 2 (6,960 square feet), Project Element 6 (5,885 square feet), and Project Element 9 (80 square feet) within San Diego Bay, which would replace the area affected by the proposed project at a 1:1 mitigation ratio, subject to the District's review and approval. Should Project Elements 2, 6, and 9 all be implemented, a total of 12,925 square feet of existing overwater coverage shall be removed. If evidence is presented to the District that demonstrates that all or a portion of the required removal of overwater coverage is infeasible, the project proponent shall implement 2.B.	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			B. Restore or create the equivalent amount of eelgrass habitat corresponding to the net increase in overwater coverage for Project Element 2 (6,960 square feet), Project Element 6 (5,885 square feet), and Project Element 9 (80 square feet) at a suitable location within San Diego Bay at a 1:1 ratio, which would offset the net increase in overwater coverage for these project elements, subject to the District's review and approval. Should Project Elements 2, 6, and 9 all be implemented, a total of 12,925 square feet of eelgrass habitat shall be restored or created to offset the total net increase in overwater coverage. Prior to the commencement of construction activities for Project Elements 2, 6, and/or 9, the project proponent shall submit a mitigation plan for review and approval by the District. The mitigation plan at a minimum shall include a description of the transplant site, eelgrass mitigation requirements, eelgrass planting plan (e.g., transplant sites, donor sites, reference site), restoration methods (e.g., plant collection, transplant units, planning eelgrass units), timing of the restoration work, and a monitoring program (e.g., establishment of monitoring and mitigation success criteria). The project proponent shall secure all applicable permits and all applicable Real Estate agreements for the mitigation site prior to commencement of waterside construction. Additionally, the project proponent shall ensure that all fill materials proposed for discharge into San Diego Bay for the development of the mitigation site shall meet the requirements of the U.S. Army Corps of Engineers' *Evaluation of*	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual (*Inland Testing Manual*). If evidence is presented to the District that demonstrates that restoration or creation of all or a portion of the required amount of eelgrass habitat specified above is infeasible, the project proponent shall implement 2.C. C. If a suitable in lieu fee program or mitigation bank within the Coastal Zone that is not yet available becomes available in the future, prior to construction of the proposed project, the project proponent shall purchase saltmarsh wetland or overwater coverage credits to offset the net increase in overwater coverage for Project Element 2 (6,960 square feet), Project Element 6 (5,885 square feet), and Project Element 9 (80 square feet), or 12,925 total square feet of overwater coverage should all of these project elements be implemented. If evidence is presented to the District that demonstrates that purchase of credits toward an in lieu fee program or mitigation bank is infeasible, the project proponent shall implement 2.D. D. Subject to the Board of Port Commissioners' approval and findings, the project proponent may purchase credits from the District's shading credit program established pursuant to Board Policy 735 at a fair market value equivalent to that of the proposed project's final shading total (i.e., less any reductions achieved by design modifications to the satisfaction of the appropriate resource agencies). 3. The project proponent shall secure all applicable permits for the mitigation of overwater coverage	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			prior to commencement of waterside construction. One or more of the appropriate resource agencies may require additional or greater mitigation than specified under options 2.A, 2.B, 2.C, and 2.D of this mitigation measure. This in no way supersedes mitigation measures that may be required by state and federal agencies.	
Substantial Adverse Effect on any Riparian Habitat or Other Sensitive Natural Community Identified in Local or Regional Plans, Policies, Regulations or by CDFW, NMFS, or USFWS	**Impact-BIO-4**, as described above.	PS	Implement **MM-BIO-4**, as described above.	LS
	Impact-BIO-5: Potential Water Quality Impairment or Construction-Related Impacts on Eelgrass. Impacts on eelgrass within the project boundaries were previously mitigated offsite, and so project-related impacts on eelgrass within the project boundaries are less than significant. However, there are eelgrass beds immediately adjacent to the proposed Quay Wall Modifications (Project Element 7) at the south end of the property. Eelgrass beyond the BAE Systems leasehold was not part of the prior mitigation and could be impacted through increases in turbidity associated with bottom disturbance during dredging of riprap and sediment or during driving of sheet pile. Suspended sediments cause turbidity that reduces light penetration through the water. When suspended sediment resettle, they can settle directly on eelgrass. Both of these mechanisms reduce the plant's ability to photosynthesize and therefore can lead to reductions in	PS	**MM-BIO-5: Implement Eelgrass Protection Measures.** Prior to commencing construction activities for Project Element 7 (Quay Wall Modifications), the project proponent shall implement the following measures to ensure protection of eelgrass beds located immediately south of the proposed Quay Wall Modifications. • Perform a preconstruction eelgrass survey in accordance with the California Eelgrass Mitigation Policy. • Temporarily install a silt curtain to contain turbidity during dredging of rock, dredging of sediment, and installation of sheet pile during quay wall modifications. • Provide results of the preconstruction eelgrass survey during a contractor education meeting and instruct the contractor not to contact the bottom or stage vessels over eelgrass vegetated areas and instruct that the use of a silt curtain is necessary during quay wall modifications. • Perform a post-construction eelgrass survey in accordance with the California Eelgrass Mitigation Policy to validate protection of adjacent eelgrass beds following construction. In the event that unforeseen impacts to eelgrass occur, those impacts would be mitigated by increasing the amount of restoration or withdrawal of eelgrass mitigation	LS

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
	bed density and cover. Moreover, if contractors anchor, spud, or stage vessels over the eelgrass beds adjacent to the project boundaries, impacts can occur through direct contact or shading.		bank credits as specified under **MM-BIO-4**, subsection 2.B.	
Substantial Interference with the Movement of any Native Resident or Migratory Fish or Wildlife Species	Implementation of the proposed project would not substantially interfere with the movement of fish or other wildlife species. Moreover, it would not substantially impede the use of native wildlife nursery habitat.	LS	No mitigation is required.	LS
Conflict with any Applicable Local Policies or Ordinances	Implementation of the proposed project would not conflict any applicable local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance or with the provisions of an applicable adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.	LS	No mitigation is required.	LS
Cumulative Impacts				
The proposed project's incremental contribution to cumulative biological resource impacts would not be cumulatively considerable.				
4.3 Greenhouse Gas Emissions and Energy				
Project Impacts				
Direct or Indirect Generation of Greenhouse Gas	Implementation of the proposed project would not result in the direct or indirect generation of greenhouse gas emissions that may have a	LS	No mitigation is required.	LS

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
Emissions That May Have a Significant Impact on the Environment	significant impact on the environment.			
Consistency with Plans, Policies, and Regulatory Programs	**Impact-GHG-1: Inconsistency with District Climate Action Plan and Partial Consistency with Applicable GHG Reduction Plans, Policies, and Regulatory Programs.** Project construction and operations would partially comply with plans, policies, and regulatory programs outlined in applicable District CAP measures and applicable state reduction goals and plans, policies, or regulations (AB 32 Scoping Plan Measures for 2020, State Regulatory Programs Post-2020, Policies from the 2017 Scoping Plan and Other Applicable Statewide Measures)for the purpose of reducing the emissions of GHGs. Therefore, prior to mitigation, the impact related to consistency with relevant plans, policies, and programs would be potentially significant.	PS	**MM-GHG-1: Implement Diesel Emissions Reduction Measures During Project Construction.** The project proponent shall implement the following measures during project construction and, where specified below, submit reports to the District for its review and approval, evidencing compliance. A. The project proponent shall limit all construction equipment and haul truck idling times by shutting down equipment when not in use and reducing the maximum idling time to less than 3 minutes. The project proponent shall install clear signage regarding the limitation on idling time at the delivery driveway and loading areas and submit quarterly reports of violators to the District. BAE System supervisors shall enforce this measure, and repeat violators shall be subject to penalties pursuant to the California Airborne Toxics Control Measure, 13 CCR 2485. The project proponent shall submit evidence of the use of diesel reduction measures to the District's Development Services Department through annual reporting, with the first report due 1 year from the date of project completion. B. The project proponent shall verify that all construction equipment is maintained and properly tuned in accordance with manufacturers' specifications. Prior to the commencement of construction activities, with respect to using diesel-powered vehicles or equipment, the project proponent shall verify that all vehicles and	LS

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			equipment has been checked by a mechanic experienced with such equipment and determined to be running in proper condition prior to admittance into the delivery driveway and loading areas. The project proponent shall submit a report by the mechanic experienced with such equipment of the condition of the construction and operations vehicles and equipment to the District's Development Services Department prior to commencement of their use. **MM-GHG-2: Comply with San Diego Unified Port District Climate Action Plan Measures.** As a condition of all discretionary actions and/or Coastal Development Permits, the project proponent shall be required to implement the following measures to be consistent with the Climate Action Plan: A. Reduce indoor water consumption to 20 percent lower than baseline buildings (defined by Leadership in Energy and Environmental Design [LEED] as indoor water use after meeting Energy Policy Act of 1992 fixture performance requirements) through use of low-flow fixtures in all administrative and common-area bathrooms. B. Comply with AB 939 and the City of San Diego Recycling Ordinance. This shall be mandatory and include recycling at least 50 percent of solid waste; compliance with the City of San Diego Construction and Demolition Debris Deposit Ordinance shall be mandatory and include recycling at least 65 percent of all construction and demolition debris. This measure shall be applied during construction and operation of the proposed project. C. Use only fluorescent lights, light-emitting diodes (LEDs), compact fluorescent lights (CFLs), or the most energy-efficient lighting that meets required lighting standards and is commercially available.	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			This measure also requires replacement of existing lighting on the project site if not already highly energy efficient. D. Implement a Transportation Demand Management (TDM) Plan during construction that includes elements such as the promotion of ride sharing and carpooling, restricts PM peak-hour trips, and provides subsidized transit passes for construction workers to reduce worker trips and parking demand. E. Use recycled, regional, and rapidly renewable materials where appropriate during project construction. F. Install occupancy sensors for all vending machines in new buildings at the project site. G. Implement onsite renewable energy at new buildings, unless the system cannot be built in light of structural and operational constraints. H. Incorporate energy efficiency design features that exceed the most recent Title 24 California Building Energy Efficiency Standards. Measures that may be implemented include: o High-performance glazing with a low solar heat gain coefficient value that reduces the amount of solar heat allowed into the building, without compromising natural illumination; o Increased insulation; o Cool roofs with an R value of 30 or better; o Sun shading devices, as appropriate; o High-efficiency heating, ventilating, and air-conditioning systems and controls; o Programmable thermostats; o Variable-frequency drives; and	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			○ High-efficiency indoor and outdoor lighting and control systems. Ensure all outdoor lighting is equipped with LED fixtures. **MM-GHG-3: Use Modern Vessels and Dredgers.** Prior to commencing dredging during waterside construction, the project proponent shall ensure that tugboats, survey vessels, and dredgers for use during the duration of all dredging activities meet Tier 3 or better (cleaner) emission standards. If Tier 3 or better (cleaner) tugboats, survey vessels, and dredgers are not available within 200 miles of the BAE Systems leasehold for the duration of all dredging activities, the project proponent shall prioritize use of equipment that is maintained and properly tuned in accordance with manufacturers' specifications. The project proponent shall document and submit evidence to the District's Development Services Department prior to commencement of waterside construction activities that tugboats, survey vessels, and dredgers meeting Tier 3 or better standards are not available for use during the duration of all dredging activities. Regardless of the equipment used, the project proponent shall verify that all equipment has been checked by a mechanic experienced with such equipment and determined to be running in proper condition prior to admittance into the construction area. The project proponent shall submit a report prepared by the mechanic experienced with such equipment of the condition of the construction and operations vehicles and equipment to the District's Development Services Department prior to commencement of their use.	
Result in a Wasteful, Inefficient, or Unnecessary Consumption of	Implementation of the proposed project would not result in the wasteful, inefficient, and unnecessary consumption of energy that could result in potentially significant	LS	No mitigation is required. However, mitigation measures **MM-GHG-1** through **MM-GHG-3** would further reduce the project's energy demand and reduce fossil fuel use.	LS

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
Energy Resources, or Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency	environmental effects, nor would it conflict with state and local renewable energy and energy efficiency plans.			
Cumulative Impacts				
Consistency with Plans, Policies, and Regulatory Programs	**Impact-C-GHG-1: Inconsistency with District Climate Action Plan and Partial Consistency with Applicable GHG Reduction Plans, Policies, and Regulatory Programs.** The proposed project would partially comply with plans, policies, and regulatory programs outlined in the District's CAP, the Scoping Plan, and other plans, policies, and regulatory programs adopted by CARB for the purpose of reducing the emissions of GHGs.	PS	Implement **MM-GHG-1**, **MM-GHG-2**, and **MM-GHG-3**, as described above.	LS
4.4 Hazards and Hazardous Materials				
Project Impacts				
Release of Hazardous Materials into the Environment	**Impact-HAZ-1: Landside Potential to Encounter Hazardous Materials in Soil and/or Groundwater.** Based on documentation compiled from database searches, hydrocarbon-impacted soils are present south of Pier 3 along the bulkhead, related to historic unauthorized releases. Construction and excavation in this area may encounter contaminated	PS	**MM-HAZ-1: Implement a (Landside) Soil and Groundwater Management Program.** The project proponent shall retain a licensed Professional Geologist, Professional Engineering Geologist, or Professional Engineer (licensed professional) with experience in contaminated site redevelopment and restoration to oversee the implementation of a *Soil and Groundwater Management Program*, which must be approved by the District. The Soil and Groundwater Management Program will be implemented prior to and throughout	LS

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
	soils. The disturbance of contaminated soils could potentially result in a release of hazardous materials and exacerbate the existing hazardous conditions at the project site. Furthermore, historical information reviewed indicates the project site has a history of handling, disposal, and releases of hazardous materials that have affected soil and/or groundwater on site. In addition, adjacent offsite properties have involved handling, disposal, and releases of hazardous materials that could have migrated to the project site, potentially resulting in contaminated soil and/or groundwater. Therefore, undocumented contaminated soils and/or groundwater may be encountered during landside construction activities, which could potentially result in a release of hazardous materials and exacerbate the existing hazardous conditions at the project site. The potential to encounter prior documented or undocumented contaminants would be a significant impact.		the duration of landside construction activities for the proposed project. Each of the elements included in the Soil and Groundwater Management Program shall include the following elements, each of which have specific timing mechanisms as identified in the description of each element below: A. *Site Contamination Characterization Report* B. *Soil and Groundwater Testing and Profiling Plan* C. *Soil and Groundwater Disposal Plan* D. *Site Worker Health and Safety Plan* E. *Site-Specific Community Health and Safety Program* F. *Monitoring and Reporting Program* G. *Project Closeout Report* A. A *Site Contamination Characterization Report (Contamination Characterization Report)* shall be prepared which delineates the vertical and lateral extent and concentration of landside residual contamination in project site areas proposed for construction and/or ground disturbance, including, but not limited to, areas with unauthorized releases identified along the landward side of the southern bulkhead between Pier 3 and Pier 4. The Contamination Characterization Report shall be prepared prior to commencing landside construction consistent with the ASTM D5730-04 guidance, the DTSC *Preliminary Endangerment Assessment Guidance Manual*, and/or other similar guidance for industry standards. The Contamination Characterization Report shall include a compilation of data based on (1) historical records review and (2) investigative and historical assessment reports performed on the project site. If the licensed professional concludes, after the initial characterization based on past records and reports,	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			that either (1) there are data gaps, or (2) historical records do not accurately characterize potential site contamination, new soil and groundwater sampling to characterize the existing vertical and lateral extent and concentration of landside residual contamination must be completed. Any sampling and analysis conducted must be consistent with applicable regulations utilizing the methodologies outlined in ASTM Standard E1903, County of San Diego DEH *Site Assessment and Mitigation (SAM) Manual*, or some other well-accepted methodology for sampling and analysis leading to site characterization, as approved by the District. The project proponent also shall enroll in the Voluntary Assistance Program (VAP) with the County of San Diego Department of Environmental Health and shall submit the results of the Contamination Characterization Report to DEH staff for regulatory concurrence of results. B. A *Soil and Groundwater Testing and Profiling Plan (Testing and Profiling Plan)* shall be prepared for those soils and materials that are proposed to be disposed of during construction. The Testing and Profiling Plan shall be prepared after the Contamination Characterization Report and shall utilize the information in the Contamination Characterization Report and include protocols for independent testing of soils and materials identified for disposal for all potential contaminants of concern, including CA Title 22 metals, PAHs, volatile organic compounds, pesticides, PCBs, semi-volatile organic compounds, hydrocarbons, or any other potential contaminants. The Testing and Profiling Plan shall document compliance with CA Title 22 for proper identification and segregation of hazardous	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			and solid waste as needed for acceptance at a CA Title 22–compliant offsite disposal facility. C. A *Soil and Groundwater Disposal Plan (Disposal Plan)* shall be prepared following the Testing and Profiling Plan, which shall describe the process for excavating, stockpiling, dewatering, treating, and loading and hauling of soil and groundwater from the site. The Disposal Plan shall be prepared in accordance with the Testing and Profiling Plan and shall adhere to applicable regulatory requirements and standards, including CA Title 22 Division 4.5, and DOT Title 40 CFR Part 263, CAC Title 27, and ensure compliance with applicable regulations for the disturbance, handling of contaminated materials, prevention of cross contamination, spills, or releases, such as segregation into separate piles for waste profile analysis based on organic vapor, and visual and odor monitoring. All excavation activities shall be actively monitored for the potential presence of contaminated soils and for compliance with the Disposal Plan. D. A *Site Worker Health and Safety Plan (Safety Plan)* shall be prepared prior to initiation of construction to ensure compliance with 29 CFR Part 120, Hazardous Waste Operations and Emergency Response regulations for site workers at uncontrolled hazardous waste sites. The Safety Plan shall be prepared after, and shall be based on, the Contamination Characterization Report and the planned site construction activity to ensure that site workers potentially exposed to site contamination in soil and groundwater are trained, equipped, and monitored during site activity. The training, equipment, and monitoring activities described in the Safety Plan shall ensure that workers are not exposed to contaminants above personnel exposure	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			limits established by Table Z, 29 CFR Part 1910.1000. The Safety Plan shall be signed by and implemented under the oversight of a California State Certified Industrial Hygienist. E. A *Site-Specific Community Health and Safety Program (Safety Program)* shall be prepared prior to the District Development Services Department's approval of the project's landside working drawings, which addresses the chemical constituents of concern for the project site in order to minimize the exposure of chemical constituents during construction to the surrounding community. The Safety Program shall be prepared in accordance with the County of San Diego DEH's *Site Assessment and Mitigation Manual* (2009) and EPA's *SW-846 Manual* (1986). The Safety Program shall include detailed plans on environmental and personal air monitoring, dust control, and other appropriate construction means and methods to minimize the public's exposure to the chemical constituents of concern. The Safety Program shall be reviewed, approved, and monitored for compliance by the District. Following District Environmental Protection Department approval, the project proponent shall implement the Safety Program throughout ground-disturbing construction activities and any other construction activity that may encounter or use chemicals of concern. The contractor shall utilize a Certified Industrial Hygienist with significant experience with chemicals of concern on the project site to actively monitor compliance with the Safety Program and ensure its proper implementation during project construction activities that use substances that may include chemicals of concern.	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			F. *Monitoring and Reporting Program.* During and upon completion of landside construction, the project proponent shall prepare a Monitoring and Reporting Program and submit it to the District's Development Services Department and the RWQCB for review and approval. The Monitoring and Reporting Program shall document implementation of the Soil and Groundwater Management Program. The Monitoring and Reporting Program shall include the project proponent's submittal of monthly reports (during project elements that include active landside disturbance activities, starting with the first ground disturbance activities and ending at the completion of ground disturbance activities of a project element) to the District's Development Services Department, signed and certified by the licensed Professional Geologist, Professional Engineering Geologist, or Professional Engineer, as applicable, documenting compliance with the provisions of the Soil and Groundwater Management Program and the overall Soil and Groundwater Management Program. G. *Project Closeout Report***.** Within 30 days of completion of landside construction activities the project proponent shall prepare a Project Closeout Report and submit it to the District's Development Services Department for review and approval. The Project Closeout Report shall summarize all disturbance, demolition, and construction activity at the site and document implementation of the Soil and Groundwater Management Program. The Project Closeout Report would also include the reports and closure documentation associated with the VAP case opened for the site, including the correspondence with the DEH and the closure letter.	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
	Impact-HAZ-2: Waterside Potential to Encounter Hazardous Materials in Sediment. Historical information, reports, and site assessments compiled from database searches indicate that it is reasonably foreseeable that contaminated sediments may be encountered during in-water construction activities including dredging and pile installation/removal associated with Project Element 1 (Pride of San Diego Drydock Dredging/Mooring), Project Element 2 (Pride of San Diego Wharf Replacement/Realignment), Project Element 3 (Fender System Repair and Replacement), Project Element 4 (Pier 3 South Nearshore Dredging), Project Element 5 (Pier 3 Mooring Dolphin), Project Element 6 (Pier 3 North Lunchroom Wharf Replacement and Realignment), Project Element 7 (Quay Wall Modifications), Project Element 8 (Port Security Barrier Replacement), and Project Element 9 (Small Boat Mooring Float Replacement). As such, in-water construction activities that disturb the sediment would potentially result in a release of hazardous materials and create a potentially significant hazard to the environment, regardless of whether it occurs within the CAO area or not, by bringing and releasing subsurface sediment contaminants to the surface of the Bay floor or	PS	**MM-HAZ-2: Implement a Dredging Management Program.** The project proponent shall implement a Dredging Management Program (DMP) that complies with applicable permit requirements, including the Section 404 permit and the Section 401 water quality certification. The DMP shall be implemented prior to, during, and upon completion of dredging activities for the proposed project. The DMP shall contain the following elements, each of which have specific timing mechanisms as identified in the description of each element below: A. *Dredging Operations Plan.* Prior to commencement of dredging activities, the project proponent shall develop a Dredging Operations Plan that identifies the standard operating procedures (SOPs) that will be implemented during dredging activities. The Dredging Operations Plan shall be submitted to the District's Development Services Department for review and approval prior to commencing dredging activities. The Dredging Operations Plan shall include step-by-step procedures to complete dredging operations safely, in an efficient manner, and to avoid releases of hazardous materials into the environment. The SOPs shall include guidance with respect to, among other things, the following: • Proper operation of the dredge bucket; • Proper positioning of the barge vessel to minimize propeller wash; and • Placement and maintenance of double silt curtains. In addition, the Dredging Operations Plan shall identify sediment control BMPs to be implemented during dredging activities. The project proponent, or their contractor, shall at a minimum, implement	LS

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
	exacerbating the existing hazardous conditions by spreading contaminated sediment; impacts would be significant.		the following BMPs for the safe handling of dredged material: • **Sediment Unloading.** During dredging activities, the contractor shall reduce water column impacts by controlling the swing radius of the unloading equipment, using a spillage plate, and using a power wash unit to reduce impacts related to spillage from the excavator arm onto transport vehicles. • **Filling Transport Vehicles.** During dredging activities, the contractor shall ensure that truck volumes are limited to 90 percent based on visual observations, and that trucks shall be covered and secured per Caltrans regulations during transport to the disposal facility. • **Sediment Loading.** During dredging activities, the contractor shall ensure that trucks are loaded within a constructed loading zone to confine sediment spilled during the loading process. B. *Contingency Plan*. Prior to commencement of dredging activities, the project proponent shall develop a Contingency Plan, which shall be implemented in the case of equipment or operational failures, such as, but not limited to, silt curtain damage, spillage of sediment resulting from overloading the material barge, contact with sediment on or around the materials barge during loading, equipment failure of bucket or shear pin during loading procedures, or material barge or tugboat collision with another vessel. The Contingency Plan shall be submitted to the District's Development Services Department for review and approval prior to commencing dredging activities. The Contingency Plan shall contain step-by-step procedures for response to equipment or	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			operational failures and shall reduce the potential for the release of sediments to the water column. C. *Health and Safety Plan for Dredging Activities*. Prior to the commencement of dredging activities, the project proponent shall prepare a Health and Safety Plan for Dredging Activities (Health and Safety Plan) and submit the plan to the District's Environmental Protection Department for review and approval. Following District approval, the project proponent shall implement the Health and Safety Plan for the duration of the dredging activity. The Health and Safety Plan shall be prepared in general accordance with Federal Occupational Safety and Health Administration Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120) and Title 8 California Code of Regulations (CCR) Section 5192. The Health and Safety Plan shall provide procedures for workers for safe operation, personal protection, and emergency response during dredging operations. D. *Communication Plan*. Prior to the initiation of dredging activities, the project proponent or their contractor shall prepare a Communication Plan and operation guidelines for communications between the U.S. Coast Guard and Harbor Police and all vessel operators to ensure the safe movement of project vessels from the dredge site to the unloading area. The Communication Plan shall be submitted to the District's Development Services Department and Harbor Police for review and approval prior to commencing dredging activities. After the District's approval, the contractor shall implement the Communication Plan throughout the duration of dredging activities.	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			E. *Sediment Sampling and Remediation.* Following the completion of dredging, the project proponent must adhere to the following: 1. If no in-water construction work that could potentially disturb sediment is proposed for a dredging area (a specific area that was subject to dredging within the project site), or if proposed in-water construction work proposed for the dredging area will not commence within 90 days after the completion of dredging, sediment sampling and testing shall be conducted to determine whether contaminated sediments may have been exposed by dredging activities. Any sampling shall be conducted in accordance with Investigative Order No. R9-2017-0083 (IO), utilizing the methods required by the IO. The sediment samples shall be tested for the presence of the COCs identified in the CAO R9-2012-0024. A report explaining the sampling methodology used and containing the results of any sampling shall be provided to the RWQCB for review and approval, and to the District for concurrence. If no subsequent in-water construction work is proposed within the dredging area, the project proponent must comply with mitigation measure **MM-HAZ-5**. The project proponent must also comply with mitigation measure **MM-HAZ-3** prior to any in-water construction. 2. If in-water construction work that may potentially disturb sediment is proposed for a dredging area and will commence within 90	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			days after the completion of dredging, the project proponent must implement a Sediment Management Program, including sampling, as required by mitigation measure **MM-HAZ-3**, and must comply with all other mitigation measures. **MM-HAZ-3: Implement a (Waterside) Sediment Management Program.** The project proponent shall retain a licensed Professional Engineer with substantial experience (i.e., more than 5 years) in marine sediment contamination, sediment sampling, and contamination remediation to oversee the implementation of a Sediment Management Program. The Sediment Management Program will be implemented prior to and throughout the duration of waterside construction activities for the proposed project. The Sediment Management Program shall include the following elements, each of which have specific timing mechanisms as identified in the description of each element below: A. *Sampling Analysis Plan* B. *Marine Sediment Contamination Characterization Report* C. *Contaminated Sediment Management Plan* D. *In-Water Activity Specific Procedures* E. *Post-Construction Sampling and Analysis* A. *Sampling and Analysis Plan (SAP).* Prior to in-water demolition or construction that may potentially disturb sediment, a licensed Professional Engineer shall (1) delineate the area of potential disturbance (Disturbance Area); (2) develop an SAP, which must be consistent with the sampling requirements of IO R9-2017-0083; and (3) perform sediment sampling.	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			The SAP shall set forth the methodology to be used, the locations where sampling would occur, and analysis of the COCs so that it is consistent with the sampling requirements of IO R9-2017-0083, and proper decontamination and disposal procedures. The sediment samples shall be tested for the presence of the COCs identified in the CAO R9-2012-0024. The sampling area and sampling methodology shall identify sample locations determined to be appropriate, at the discretion of the District and RWQCB (or other applicable agencies), to adequately characterize any Disturbance Area associated with project elements. All sediment sampling and analysis must occur after dredging activity and prior to other sediment-disturbing construction activity and shall be performed in accordance with the requirements of the SAP. The SAP must be submitted to the RWQCB for review and approval, and to the District for concurrence. The results of all sediment sampling shall be documented in a report and submitted to the RWQCB for their review and approval prior to any marine-side sediment-disturbing activities. B. *Marine Sediment Contamination Characterization Report (Sediment Characterization Report).* Prior to in-water construction (excluding dredging activities), the licensed Professional Engineer shall prepare a Sediment Characterization Report delineating the vertical and lateral extent and concentration of the project site's potential COCs in areas where pile driving or removal and other sediment-disturbing activities are proposed as part of this project. The Sediment Characterization Report shall be developed taking into account the site assessment reports, final cleanup reports, and	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			post-remediation monitoring reports associated with the San Diego Shipyard Sediment Cleanup – North Shipyard, and sediment sampling performed per the SAP. The project proponent shall submit the Sediment Characterization Report to the RWQCB (and any other appropriate regulatory agencies) for approval as representative of sediment conditions in Disturbance Areas. C. *Contaminated Sediment Management Plan (Sediment Management Plan)*. If contaminated sediment is identified in the Sediment Characterization Report in any of the proposed project Disturbance Area, the project proponent shall prepare a Sediment Management Plan for the District's and RWQCB's approval. Once approved, the Sediment Management Plan shall be implemented by the project proponent and be subject to oversight by the appropriate overseeing regulatory agencies, including the District. The Sediment Management Plan shall describe in detail the methods to be employed to prevent waterside construction activity from adversely affecting or exposing the gravelly-sand or sand-covered contaminated sediment, or disturbing contaminated sediment, as identified in the Sediment Characterization Report, and the monitoring that will occur postconstruction. D. *In-Water Activity–Specific Procedures (Pile Installation or Removal).* Pile installation or removal shall be conducted in a manner that implements applicable permit requirements, including the CWA Section 404 permit and CWA Section 401 Water Quality Certification. The following measures are required based on the type of pile installation, or removal, that occurs.	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			1. **Impact Hammer Pile Driving.** **OR** 2. **Internal Jetting.** A. Internal jetting shall not be allowed unless the project proponent can demonstrate, to the District's satisfaction, there are no feasible alternatives to the use of internal jetting. B. Turbidity curtains shall be installed in compliance with the District's Best Management Practices and Environmental Standards for Overwater Structural Repair and Maintenance Activities for Existing Port Facilities Conducted by the San Diego Unified Port District (District 2019). **OR** 3. **Spudding.** Spudding shall not be allowed unless the project proponent can demonstrate, to the District's satisfaction, there are no feasible alternatives to the use of spudding. If no alternatives to spudding are feasible, when spuds are lifted during in-water construction, they shall be lifted slowly—at least a quarter of the speed that spuds are lifted during normal operation. Before the spud reaches the subsurface of the Bay floor during removal, the operator shall conduct spud extraction in 2-minute intervals (repeated 2-minute extraction followed by 2-minute pause) to reduce the disturbance of Bay sediment. E. *Post-Construction Sampling and Analysis*. At the conclusion of construction activities within a Disturbance Area, the project proponent shall conduct post-construction sediment sampling that	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			adequately characterizes potential contamination resulting from construction activities (and dredging activities if the in-water construction occurred within a dredging area) to determine if in-water construction or disturbance activities resulted in COCs in excess of the levels above the levels set forth in CAO R9-2012-0024. All sampling shall be conducted in accordance with IO No. R9-2017-0083, utilizing the methods required by the IO. The project proponent shall prepare, for submittal to and approval by the District and RWQCB, a Post-Construction Sampling Plan that shall outline the methodology to be used, the locations where sampling would occur, and the COCs to be analyzed consistent with CAO R9-2012-0024. **MM-HAZ-4: Comply with Federal and State Permits.** Prior to in-water construction, the project proponent shall obtain all federal and state permits required for in-water construction activities, provide evidence of such permits to the District, and demonstrate to the District compliance with all permit conditions during in-water construction. **MM-HAZ-5: Implement Post-Dredging and/or Post-Waterside Construction Remediation.** If, after the completion of any dredging activity for a dredging area or in-water construction work, consistent with the requirements of mitigation measures **MM-HAZ-2** and **MM-HAZ-3**, site sampling shows that concentrations of COCs exceed those set forth in CAO R9-2012-0024 (or other levels as prescribed by the RWQCB), the project proponent shall propose remediation consistent with CAO R9-2012-0024 (or other levels as prescribed by the RWQCB), subject to approval by the RWQCB, and any other agencies with jurisdiction over the site contamination, and concurrence by the District. The project proponent's remediation approaches may	

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			include, but are not limited to, additional dredging, placement of sand cover, or Enhanced Monitored Natural Recovery sand containing active carbon. If remediation is required, the remediation shall be conducted with oversight from the appropriate local, state, or federal regulatory agency. In addition, documentation evidencing the remediation work and completion thereof shall be submitted to the District. The project proponent shall monitor the remediation for its effectiveness, consistent with the standards set forth by CAO R9-2012-0024 (or other levels as prescribed by the RWQCB), for a period consistent with guidance from the regulatory agency with jurisdiction. A monitoring report shall be submitted to the District and the RWQCB for their review on a monthly basis, or at a frequency determined appropriate by the relevant agency overseeing the remediation activities. If, after the completion of any dredging activity for a dredging area or in-water construction work within a Disturbance Area, consistent with the requirements of mitigation measures **MM-HAZ-2** and **MM-HAZ-3**, concentrations of COCs in the area of potential contamination do not exceed those levels set forth in CAO R9-2012-0024 (or other levels as prescribed by the RWQCB), no further mitigation is required.	
Be Located on a Site that Is Included on a List of Hazardous Materials Sites Compiled Pursuant to Government	**Impact-HAZ-1**, as described above.	PS	Implement **MM-HAZ-1,** as described above.	LS
	Impact-HAZ-2, as described above.	PS	Implement **MM-HAZ-2** through **MM-HAZ-5,** as described above.	LS

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
Code Section 65962.5				
Cumulative Impacts				
Release of Hazardous Materials into the Environment	**Impact-C-HAZ-1: Cumulatively Considerable Contribution to Waterside Exposure of Hazardous Materials in Sediment.** Due to the mobile nature of sediment in the Bay, and the extent of known and suspected historical contamination in the Bay, there is a potential that extensive in-water work proposed as part of the project would result in a cumulatively considerable contribution to the cumulative hazardous materials impacts when combined with past, present and reasonably foreseeable future projects.	PS	Implement **MM-HAZ-2** through **MM-HAZ-4,** as described above.	LS
4.5 Hydrology and Water Quality				
Project Impacts				
Violation of Water Quality Standards or Waste Discharge Requirements	**Impact-HWQ-1: Degradation of Water Quality from Waterside Sediment Contamination.** Historical information, reports, and site assessments compiled from database searches indicate that it is reasonably foreseeable that contaminated sediments may be encountered during in-water construction activities, including such activities as dredging and pile installation/removal associated with Project Element 1 (Pride of San Diego Drydock Dredging/Mooring), Project	PS	Implement **MM-HAZ-2** through **MM-HAZ-5,** as described above.	LS

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
	Element 2 (Pride of San Diego Wharf Replacement/Realignment), Project Element 3 (Fender System Repair and Replacement), Project Element 4 (Pier 3 South Nearshore Dredging), Project Element 5 (Pier 3 Mooring Dolphin), Project Element 6 (Pier 3 North Lunchroom Wharf Replacement and Realignment), Project Element 7 (Quay Wall Modifications), Project Element 8 (Port Security Barrier Replacement), and Project Element 9 (Small Boat Mooring Float Replacement). It should be noted that Project Element 3 could include the replacement of fenders without the need to also replace piles, in which case no sediment disturbance would occur. As such, in-water construction activities that disturb the sediment would potentially result in a release of contaminated sediment into the water column and substantially degrade water quality. Impacts would be significant.			
	Impact-HWQ-2: Removal of Creosote Piles Could Result in Resuspension of Sediments Contaminated with PAHs. Existing piles could contain creosote and removal of the piles could result in resuspension of sediments contaminated with PAHs. The chemicals from the existing piles could have leached into the adjacent sediments or leach into the water	PS	**MM-HWQ-1: Remove and Dispose of Creosote Piles Properly.** During pile extraction, if piles cannot be completely removed, they shall be cut at least 1 foot below the mud line. If treated piles are fully extracted or if they are cut below the mudline, the project proponent or contractor shall cap the holes or piles with appropriate material such as clean substrate (sand and/or gravel) or pile caps. Removed creosote-treated piles shall be disposed of in a manner that precludes their further use. The piles must be cut into manageable lengths (4-foot lengths are preferable) for transport and	LS

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
	column during removal. Impacts would be significant.		disposal in an approved upland location. Extracted piles and debris should be placed in a lined stockpile area or directly loaded into transport container or vehicle. Appropriate controls should be used to prevent runoff from leaving the stockpile and entering surface water or ground water.	
Alter the Existing Drainage Pattern of the Site or Area	Implementation of the proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would: (1) result in substantial erosion or siltation on or off site; (2) result in flooding on or off site; (3) create or contribute runoff water in exceedance of stormwater drainage capacity; or (4) impede or redirect flood flows.	LS	No mitigation is required.	LS
Release of Pollutants due to Project Inundation	Implementation of the proposed project would result in the release of pollutants due to project inundation in a flood hazard, tsunami, or seiche zone.	LS	No mitigation is required.	LS
Conflict with or Obstruct Implementation of a Water Quality Control Plan or Sustainable Groundwater Management Plan	**Impact-HWQ-1**, as described above.	PS	Implement **MM-HAZ-2** through **MM HAZ-5**, as described above.	LS
	Impact-HWQ-2, as described above.	PS	Implement **MM-HWQ-1**, as described above.	LS

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
Cumulative Impacts				
Violation of Water Quality Standards or Waste Discharge Requirements	**Impact-C-HWQ-1: Cumulatively Considerable Contribution to Degradation of Water Quality from Waterside Sediment Contamination.** The disturbance of potentially contaminated sediments that would become suspended in the water column, resulting in the release of hazardous pollutants and the degradation of water quality, would be considered a cumulatively considerable impact.	PS	Implement **MM-HAZ-2** through **MM HAZ-5**, as described above.	LS
	Impact-C-HWQ-2: Cumulatively Considerable Contribution to Water Quality Impacts from the Removal of Creosote Piles. The removal of creosote-treated piles may result in the resuspension of sediments that have been contaminated due to the leeching of creosote, which could result in a cumulatively considerable water quality impact when combined with past, present, and reasonably foreseeable future projects.	PS	Implement **MM-HWQ-1**, as described above.	LS
4.6 Land Use and Planning				
Project Impact				
Cause a Significant Environmental Impact Due to Conflict with any Land Use Plan, Policy, or	Implementation of the proposed project would not result in 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.	LS	No mitigation is required.	LS

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
Regulation Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect				
Cumulative Impacts				
The proposed project's incremental contribution to cumulative land use and planning impacts would not be cumulatively considerable.				
4.7 Noise and Vibration				
Project Impacts				
Generate Temporary or Permanent Increase in Noise Levels in Excess of Established Standards	Implementation of the proposed project would not result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project, in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies.	LS	No mitigation is required.	LS
Generate Excessive Groundborne Vibration or Groundborne Noise Levels	Implementation of the proposed project would not generate excessive groundborne vibration or groundborne noise levels.	LS	No mitigation is required.	LS
Exposure of People Residing or Working in the Project Area to Excessive Noise Levels from a Private Airstrip, Public	Implementation of the proposed project would not expose people residing or working in the project area to excessive noise levels from a private airstrip, public airport, or public use airport.	LS	No mitigation is required.	LS

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
Airport, or Public Use Airport				
Cumulative Impacts				
The proposed project's incremental contribution to cumulative noise and vibration impacts would not be cumulatively considerable.				
4.8 Sea-Level Rise				
Project Impacts				
Exacerbate Existing or Projected Damage to the Environment due to Predicted Climate Change Effects, Particularly Sea Level Rise	Implementation of the proposed project would not exacerbate any existing and/or projected damage to the environment, including existing structures, sensitive resources, and human health, due to predicted climate change effects, particularly sea-level rise.	LS	No mitigation is required.	LS
Consistency with Applicable Sea Level Rise Policies of the CCC or Other Land Use Plans, Policies, or Regulations Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect from Sea Level Rise	Implementation of the proposed project would not be inconsistent with the applicable sea-level rise policies of the CCC or other land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect from sea-level rise.	LS	No mitigation is required.	LS

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
Cumulative Impacts				
The proposed project's incremental contribution to cumulative sea-level rise impacts would not be cumulatively considerable.				
4.9 Transportation, Circulation, and Parking				
Project Impacts				
Conflict with a Program, Plan, Ordinance, or Policy Addressing the Circulation System	Implementation of the proposed project would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.	LS	No mitigation is required.	LS
Conflict or be Inconsistent with State CEQA Guidelines Section 15064.3, Subdivision (b)	Implementation of the proposed project would not conflict or be inconsistent with State CEQA Guidelines Section 15064.3, subdivision (b).	LS	No mitigation is required.	LS
Result in Inadequate Parking Supply	Implementation of the proposed project would not result in an inadequate parking supply.	LS	No mitigation is required.	LS
Cumulative Impacts				
The proposed project's incremental contribution to cumulative transportation, circulation, and parking impacts would not be cumulatively considerable.				

Notes: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant; SU = Significant and Unavoidable

Chapter 1
Introduction

1.1 Project Overview

BAE Systems San Diego Ship Repair Inc. (BAE Systems), is proposing a maintenance, repair, and replacement project for waterfront infrastructure associated with mooring and operational facilities at its San Diego Ship Repair Yard (project site). BAE Systems currently leases 9.8 acres of land and 16.6 acres of water from the San Diego Unified Port District (District). This lease is scheduled to expire in 2034. In addition, BAE Systems currently occupies a parcel pursuant to a now-expired 5-year Tidelands Use and Occupancy Permit (TUOP) from the District for an additional 2.0 acres of land and 4.0 acres of water.[1] As a result, BAE Systems leases approximately 11.8 acres of land area and approximately 20.6 acres of water area from the District. In addition to these leased and permitted areas, BAE Systems leases 3.5 acres of submerged land from the District. These submerged lands were originally leased from the California State Lands Commission (SLC). However, effective January 1, 2020, this area was transferred to the District's jurisdiction per Senate Bill (SB) 507, which granted and conveyed in trust to the District all right, title, and interest in certain tidelands and submerged lands, as enumerated in SB 507. BAE Systems' lease with the SLC was transferred to the District. The total acreage occupied by BAE (including the TUOP parcel) pursuant to agreements with the District makes up the San Diego Ship Repair Yard (project site).

The project site consists of three working piers, five wet berths, and two floating drydocks, all of which are used to modernize, repair, and overhaul marine vessels. The smaller of the two drydocks, the Pride of San Diego, has been on the site since 1984. In 2017, the larger drydock, Pride of California, was commissioned to meet the growing needs of BAE Systems' customers.

BAE Systems, as the project proponent, is proposing a maintenance, repair, and replacement project for waterfront infrastructure associated with mooring and operational facilities at its San Diego Ship Repair Yard. The BAE Systems Waterfront Improvement Project (project or proposed project) includes 15 distinct project elements that are designed to improve efficiency and functionality of the existing BAE Systems facility by replacing aging structures, improving existing infrastructure, increasing space utilization, and increasing efficiency of operations.

1. Pride of San Diego Drydock Dredging[2] and Moorage
2. Pride of San Diego Drydock Wharf Replacement and Realignment
3. Fender System Repair and Replacement
4. Pier 3 South Nearshore Dredging

[1] The TUOP between the District and BAE Systems expired October 31, 2019. BAE Systems is currently on a limited holdover tenancy pursuant to that expired TUOP. However, it is anticipated that the TUOP will be renewed. TUOP renewal would not authorize any new improvements or activities that could physically impact the environment. It would reaffirm BAE Systems' existing occupancy right and continue existing operations. Therefore, any TUOP renewal is considered a separate action previously analyzed under a separate CEQA document for the Pier 1 North Drydock, Associated Real Estate Agreements and Removal of Cooling Tunnels project, SCH #2014041071, and is not part of the proposed project.

[2] Dredging is defined as the removal of sediments and debris from the bottom of lakes, rivers, harbors, and other water bodies.

5. Pier 3 Mooring Dolphin
6. Pier 3 North Lunchroom Wharf Replacement and Realignment
7. Quay Wall Modifications
8. Port Security Barrier Replacement
9. Small Boat Mooring Float Replacement
10. Central Tool Room Demolition and Reconstruction
11. New Production Building
12. Administrative Office Building
13. Pier 1 Restroom Renovation and/or Demolition
14. Main Electrical Utility Service Update
15. Sanitary Sewer and Potable Water Utility Services

The majority of the proposed work would take place within the District's jurisdiction (i.e., Project Elements 2, 3, 4, 6, 7, and 9–15). Project Elements 1, 5, and 8 are within the District's leasing jurisdiction and the California Coastal Commission's (CCC) permitting jurisdiction, per SB 507 and the California Coastal Act. BAE Systems will apply directly to the CCC for authorization and entitlements for Project Elements 1, 5, and 8.

In addition to the project overview provided above, this chapter briefly discusses (1) the purpose of the California Environmental Quality Act (CEQA) and this Draft Environmental Impact Report (Draft EIR), (2) the intended uses of this Draft EIR, (3) the scope and content of this Draft EIR, and (4) the organization of this Draft EIR.

1.2 Purpose of the California Environmental Quality Act and the Environmental Impact Report

This Draft EIR, which evaluates the environmental effects of the proposed project, has been prepared in compliance with CEQA (Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations, Title 14, Section 15000 et seq.). This Draft EIR has also been prepared in compliance with the District's *Guidelines for Compliance with the California Environmental Quality Act* (Resolution 97-191).

CEQA was enacted by the California legislature in 1970. As noted under State CEQA Guidelines Section 15002, CEQA has four basic purposes:

1. Inform governmental decision-makers and the public about the potential significant environmental effects of proposed activities.
2. Identify the ways in which environmental damage can be avoided or significantly reduced.
3. Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
4. Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

An EIR is an informational document, the purpose of which is to inform members of the public and agency decision-makers of the significant environmental effects of a proposed project, identify feasible ways to reduce the significant effects of the proposed project, and describe a reasonable range of feasible alternatives to the project that would reduce one or more significant effects and still meet the proposed project's objectives. In instances where significant impacts cannot be avoided or mitigated, the proposed project may nonetheless be carried out or approved if the approving agency finds that economic, legal, social, technological, or other benefits outweigh the unavoidable significant environmental impacts.

1.3 Intended Uses of the Environmental Impact Report

This section discusses the intended uses for this Draft EIR and includes (1) a list of agencies that would be expected to use this Draft EIR for decision-making and (2) a list of required permits and other approvals that would be required to implement the proposed project. Environmental review and consultation requirements under federal, state, or local laws, regulations, or policies that are in addition to CEQA are discussed in the applicable individual resource sections in Chapter 4, *Environmental Analysis*.

1.3.1 Agencies Expected to Use this Environmental Impact Report

The District is the CEQA lead agency, as defined under State CEQA Guidelines Sections 15050 and 15051, because it has principal responsibility for approving the proposed project. As the lead agency, the District also has primary responsibility for complying with CEQA. As such, the District has analyzed the environmental effects of the proposed project; the results of that analysis are presented in this Draft EIR. The Board of Port Commissioners (Board), in its role as the decision-making body of the District, is responsible for certifying the Final EIR and approving the Findings of Fact and Statement of Overriding Considerations, if required, pursuant to Sections 15090–15093 of the State CEQA Guidelines, prior to project approval. The Board is also responsible for authorization of issuance of a Coastal Development Permit (CDP). The CCC, as a CEQA responsible agency, would use the EIR in its decision to authorize a CDP for the portions of the project within its permitting jurisdiction.

The U.S. Army Corps of Engineers, as the federal agency with permitting oversight, would rely on information in the EIR in its decision to authorize an individual/nationwide Section 404 permit (for dredging of waters of the U.S.); Section 10, Rivers and Harbors Act Permit (for regulating construction, excavation, and deposition in navigable waters); Section 103, Marine Protection, Research, and Sanctuaries Act of 1972 (regulates dumping and transport for dumping of materials into waters of the U.S.); and 40 Code of Federal Regulations, Part 227, Criteria for the Evaluation of Permit Applications for Ocean Dumping of Materials (regulates dumping of materials into U.S. waters and evaluates the need for ocean disposal). The Regional Water Quality Control Board, as a CEQA responsible agency, would use the EIR in its decision to authorize Section 401 Certification and National Pollutant Discharge Elimination System (NPDES) Waste Discharge Requirements for dredging activities.

The City of San Diego (City) would consider the proposed project as it relates to the issuance of ministerial permits, such as building permits for the construction of structures, and grading permits.

As defined in State CEQA Guidelines Section 15386, the U.S. Environmental Protection Agency (EPA) is a federal agency with permitting oversight and authority. The EPA would use the information contained in the EIR in its decision to authorize an Ocean Dumping Permit. The California Department of Fish and Wildlife (as a CEQA trustee agency), would use the information contained in the EIR in their decisions to concur with the EPA's Ocean Dumping Permit.

Table 1-1 provides a summary list of the approvals and permits that would be required.

Table 1-1. List of Required Discretionary Actions

Discretionary Action	Agency
Federal Agencies	
Individual/Nationwide Section 404 Permit	U.S. Army Corps of Engineers
Section 10 Rivers and Harbors Act Permit	U.S. Army Corps of Engineers
Marine Protection, Research, and Sanctuaries Act of 1972, Section 103	U.S. Army Corps of Engineers
40 Code of Federal Regulations, Part 227	U.S. Army Corps of Engineers
Ocean Dumping Permit – Ocean Disposal	U.S. Environmental Protection Agency
Concurrence with Ocean Dumping Permit – Ocean Disposal	U.S. Coast Guard
Concurrence with Ocean Dumping Permit – Ocean Disposal	National Marine Fisheries Service
State Agencies	
Authorize 401 Certification	Regional Water Quality Control Board
Authorize NPDES Waste Discharge Requirements	Regional Water Quality Control Board
Authorize Coastal Development Permit	California Coastal Commission[1]
Concurrence with Ocean Dumping Permit – Ocean Disposal	California Department of Fish and Wildlife
Local Agencies	
Certification of Final EIR	District
Adoption of Mitigation Monitoring and Reporting Program	District
Adoption of Findings of Fact	District
Authorization for Issuance of a Non-Appealable Coastal Development Permit	District
Issuance of Ministerial Permits (e.g., grading, building, electrical)	City of San Diego

[1] A CDP from the CCC is required for proposed dredging and operation of project elements within the former SLC jurisdiction (now within the District's leasing jurisdiction) until the trust lands use plan is approved, consistent with SB 507.

1.4 Scope and Content of the Draft Environmental Impact Report

As the CEQA lead agency, the District is responsible for determining the scope and content of this Draft EIR, a process referred to as *scoping*. As part of the scoping process, the District considered the environmental resources present on the site and in the surrounding area and identified the probable environmental effects of the proposed project. On March 7, 2019, the District posted a Notice of Preparation (NOP) with the County Clerk, in accordance with Section 15082 of the State CEQA Guidelines. The 30-day public review period for the NOP began on March 7, 2019, and ended on April 5, 2019. The NOP and notices of NOP availability were mailed to public agencies, organizations, and interested individuals to solicit their comments on the scope and content of the environmental analysis. The District also held a public scoping meeting on March 25, 2019, at the District Administration Building at 3165 Pacific Highway, San Diego, CA 92101.

Comments received in response to the NOP were used to determine the scope of this Draft EIR. The comments are summarized in Table 1-2, below. Based on the District's preliminary evaluation of the probable effects of the proposed project and thorough review of the comments on the NOP, the Draft EIR analyzes effects associated with the following resources:

- Air Quality and Health Risk
- Biological Resources
- Greenhouse Gas Emissions and Energy
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise and Vibration
- Sea-Level Rise
- Transportation, Circulation, and Parking

There are no agricultural, forestry, cultural, mineral, or tribal cultural resources on the site; therefore, the proposed project would not have an adverse effect on any of these resources. In addition, the proposed project would not have a significant adverse effect on aesthetics and visual resources, geology and soils, public services and recreation, or population and housing. Chapter 6, *Additional Consequences of Project Implementation*, includes a brief analysis of why impacts on these resources would not be significant, as discussed in the NOP (Appendix A).

1.4.1 Comments Received in Response to the Notice of Preparation

Several specific environmental issues were raised in the comments on the NOP. A summary of the comments is provided in Table 1-2, along with the title of the section where the comments are addressed in the Draft EIR. Only comments that pertain to the environmental scope of the Draft EIR are summarized. Copies of the NOP is included as Appendix A and all NOP comment letters are provided in Appendix B of this Draft EIR.

Table 1-2. Summary of NOP Comments Received

Commenter	Subject of Comment	Relevant Draft EIR Chapter/Section
State		
State of California, Governor's Office of Planning and Research, State Clearinghouse and Planning Unit (SCH), March 7, 2019	Provides SCH# 2019039040 and notes which state agencies received a copy of the NOP.	N/A
California Department of Fish and Wildlife (CDFW)	Bay habitats and species within these habitats should be analyzed for physical and behavioral impacts. Any potential temporary or permanent impacts should be considered for full impact avoidance as feasible.	Section 4.2, *Biological Resources*
	When feasible, use avoidance for marine habitat losses. If losses are unavoidable, they should be compensated through mitigation, monitoring, and reporting plans with mitigation sites managed in perpetuity.	Section 4.2, *Biological Resources*
	Proposed marine habitat losses or conversions should be fully analyzed for each alternative in the Draft EIR.	Section 4.2, *Biological Resources*; Chapter 7, *Alternatives to the Proposed Project*
	Operational impacts from the proposed project should be fully analyzed individually and cumulatively in the Draft EIR.	Chapter 4, *Environmental Analysis*; Chapter 5, *Cumulative Impacts*
	Underwater noise studies should be reviewed for construction/pile-driving noises. Feasible technologies to reduce noise impacts should be used during pile driving containments, especially if piles are driven during least tern bird-breeding season.	Section 4.2, *Biological Resources*; Section 4.7, *Noise and Vibration*
	Consider avoidance and abatement mitigation measures to protect seabird forage fish and its habitat.	Section 4.2, *Biological Resources*
	Include the CDFW in any project coordination meeting or review of draft or final documents as it relates to biological resources, mitigation, monitoring, and reporting plans.	Section 4.2, *Biological Resources*
	Eelgrass compensation plans should be coordinated as early as possible with Loni Adams of the CDFW to determine if a Scientific Collectors Permit or a Letter of Authorization is required.	Section 4.2, *Biological Resources*
Native American Heritage Commission (NAHC)	Determine whether there are historical resources within the area of project effect (APE) and if the project will cause a substantial adverse change in the significance of a historical resource. Comply with Assembly Bill 52 and Senate Bill 18, as	Section 6.3.13, *Tribal Cultural Resources*

Commenter	Subject of Comment	Relevant Draft EIR Chapter/Section
	appropriate. Adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or, barring both, mitigation of project-related impacts on tribal cultural resources.	
California Department of Transportation (Caltrans), District 11	Prepare a traffic impact study that follows Caltrans standards and recommendations.	Section 4.9, *Transportation, Circulation, and Parking*
	Prepare a traffic control plan and submit to Caltrans District 11 at least 30 days prior to the start of any construction.	Section 4.9, *Transportation, Circulation, and Parking*
Regional		
San Diego Association of Governments (SANDAG), Katie Hentrich, Associated Regional Energy/Climate Planner, April 5, 2019	Consider transportation demand management (TDM) strategies, which could serve as mitigation measures.	Section 4.3, *Greenhouse Gas Emissions and Energy*; Appendix C
	Consider partnering with the SANDAG TDM program, iCommute.	Section 4.3, *Greenhouse Gas Emissions and Energy*; Appendix C
City of San Diego, Transportation and Stormwater Department (TSW)	Include a discussion of how the proposed work is in accordance with the San Diego Bay Watershed Management Area Water Quality Improvement Plan and the Regional Municipal Separate Storm Sewer System Permit.	Section 4.5, *Hydrology and Water Quality*
	Evaluate water quality impacts in the Draft EIR.	Section 4.5, *Hydrology and Water Quality*
	Include results of San Diego Regional Water Quality Control Board Investigative Order R9-2017-0083 as part of the water quality analysis in the Draft EIR.	Section 4.5, *Hydrology and Water Quality*
City of San Diego, Development Services Department (DSD)	The Draft EIR should follow the guidelines of the *City of San Diego Traffic Impact Study Manual,* July 1998*,* for all transportation facilities within the city of San Diego evaluated.	Section 4.9, *Transportation, Circulation, and Parking*
	The Draft EIR should follow the guidelines of the *City of San Diego Significance Determination Thresholds,* July 2016, for all transportation facilities within the city of San Diego evaluated.	Section 4.9, *Transportation, Circulation, and Parking*
	Include at least one alternative that would avoid unmitigated significant impacts on the City's transportation facilities.	Section 4.9, *Transportation, Circulation, and Parking*
	Evaluate potentially affected transportation facilities within the city of San Diego and provide mitigation for significant traffic impacts on the transportation facilities.	Section 4.9, *Transportation, Circulation, and Parking*

Commenter	Subject of Comment	Relevant Draft EIR Chapter/Section
	Analyze the separate phases of the project with approximate timelines for each phase.	Section 4.9, *Transportation, Circulation, and Parking*
	Evaluate opportunities for enhanced access to the site in the Draft EIR with use of alternative transportation (transit, bicycle, pedestrian, etc.)	Section 4.9, *Transportation, Circulation, and Parking*
	Analyze all anticipated construction traffic impacts, especially any additional impacts from potential off-site staging.	Section 4.9, *Transportation, Circulation, and Parking*
	Include a vehicle miles traveled analysis, pursuant to Senate Bill 743.	Section 4.9, *Transportation, Circulation, and Parking*
City of San Diego, Environmental Services Department (ESD)	Analyze solid waste impacts in the Draft EIR.	Section 6.3.14, *Utilities and Service Systems*
Organizations		
Environmental Health Coalition (EHC)	Conduct an air quality analysis to evaluate emissions associated with the larger vessels and tug boats. Assess the number of workers, hours per year equipment would be used, number of ship repair days, and total emissions from the shipyard.	Section 4.1, *Air Quality and Health Risk*; Appendix C
	Evaluate emissions produced from the proposed dredging activities and transportation of materials to their disposal site, including upland locations not suitable for ocean disposal.	Section 4.1, *Air Quality and Health Risk*; Appendix C
	Assess the project impacts in context of the existing air basin's non-attainment status for the federal ozone standard and non-attainment for the state standards for zone, particulate matter 10 micrometers or less in diameter (PM10), and particulate matter 25 micrometers or less in diameter (PM2.5)	Section 4.1, *Air Quality and Health Risk*; Appendix C
	Assess the project's potential to exacerbate the health impacts on the adjacent community.	Section 4.1, *Air Quality and Health Risk*; Appendix C
	Recommended mitigation for air quality impacts include: • Require use of electrified equipment in place of diesel equipment for all phases of construction and operation of the project. • Require electric or hybrid electric tugboats in place of diesel tugs. • Require solar on rooftops on-site. • Subsidize alternative transportation for workers. • Require compliance with Barrio Logan truck route.	Section 4.1, *Air Quality and Health Risk*; Appendix C

Commenter	Subject of Comment	Relevant Draft EIR Chapter/Section
	• Require vessel speed reduction for all ships coming to or leaving BAE Systems facilities.	
	Evaluate potential impacts on eelgrass and marine species.	Section 4.2, *Biological Resources*; Appendices D-1 and D-2
	Evaluate potential impacts related to greenhouse gas and climate change	Section 4.3, *Greenhouse Gas Emissions and Energy*; Appendix C
	Recommended mitigation for greenhouse gas emissions includes requiring initial and continued energy audits of project building facilities.	Section 4.3, *Greenhouse Gas Emissions and Energy*; Appendix C
	The Draft EIR should analyze potential impacts on workers, both on-and off-site, from on-site hazardous materials as well as impacts on sensitive receptors in the project vicinity.	Section 4.4, *Hazards and Hazardous Materials*
	Include a quantitative assessment of noise.	Section 4.7, *Noise and Vibration*
	Evaluate cumulative noise impacts and include analysis of truck noise, train noise, and shipyard operation noise.	Section 4.7, *Noise and Vibration*; Chapter 5, *Cumulative Impacts*
	Use residential noise standards as the thresholds of significance for noise impacts.	Section 4.7, *Noise and Vibration*
	Analyze parking impacts for both the construction and operation phases in the Draft EIR.	Section 4.9, *Transportation, Circulation, and Parking*
	Potential mitigation includes the following: • Increase use of alternative transit through subsidized transit passes and increasing shuttles and vanpools • Hire locally to reduce the need for BAE Systems workers to commute to the job site	Section 4.3, *Greenhouse Gas Emissions and Energy*; Section 4.9, *Transportation, Circulation, and Parking*

1.5 Organization of the Draft EIR

The content and format of this Draft EIR are designed to meet the requirements of CEQA and State CEQA Guidelines Article 9. Table 1-3 summarizes the organization and content of the Draft EIR.

Table 1-3. Document Organization and CEQA Requirements

Draft EIR Chapter	Contents
Summary	Includes a brief summary of the proposed project; identifies each significant effect, including proposed mitigation measures and alternatives to reduce or avoid the effect; identifies the areas of controversy known to the lead agency, including issues raised by agencies and the public; and summarizes the issues to be resolved, including the choice among alternatives and whether or how to mitigate the significant effects (State CEQA Guidelines Section 15123).
Chapter 1 *Introduction*	Discusses the purpose of CEQA and this Draft EIR, the scope and content of this Draft EIR, the organization of this Draft EIR, and the intended uses for this Draft EIR (State CEQA Guidelines Section 15124(d)).
Chapter 2 *Environmental Setting*	Describes the overall existing physical conditions in the vicinity of the proposed project when the analysis was initiated. In addition, the specific existing setting/conditions for each resource area are described in the applicable resource sections in Chapter 4, *Environmental Analysis* (State CEQA Guidelines Section 15125).
Chapter 3 *Project Description*	Contains both a map of the precise location and boundaries of the proposed project and its location relative to the region, lists the proposed project's central objectives, underlying purpose, as well as project benefits, and provides a detailed description of the proposed project's characteristics (State CEQA Guidelines Section 15124(a), (b), and (c)).
Chapter 4 *Environmental Analysis*	Describes the existing physical conditions for each resource area, lists the applicable laws and regulations germane to the specific resource, describes the impact assessment methodology, lists the criteria for determining whether an impact is significant, identifies the direct and indirect significant impacts on the environment that would result from implementation of the proposed project, and lists feasible mitigation measures that would eliminate or reduce the identified significant impacts (State CEQA Guidelines Sections 15125–15126.4).
Chapter 5 *Cumulative Impacts*	Defines the cumulative study area for each resource; identifies past, present, and reasonably foreseeable future projects with related impacts within each study area; and evaluates the contribution of the proposed project to a cumulatively significant impact. This chapter also lists feasible mitigation measures that would eliminate or reduce the identified significant cumulative impacts (State CEQA Guidelines Section 15130).
Chapter 6 *Additional Consequences of Project Implementation*	Discusses the ways the proposed project could foster economic or population growth, either directly or indirectly, in the surrounding environment; describes the significant irreversible changes associated with the proposed project's implementation; and provides a brief discussion of the environmental resource impacts that were found to be not significant during preparation of this Draft EIR (State CEQA Guidelines Sections 15126.2(c) and (d), 15127, and 15128).

Draft EIR Chapter	Contents
Chapter 7 *Alternatives to the Proposed Project*	Describes a reasonable range of alternatives to the proposed project, including the No Project Alternative; compares and contrasts the significant environmental impacts of alternatives to the proposed project; and identifies the environmentally superior alternative (State CEQA Guidelines Section 15126.6).
Chapter 8 *List of Preparers and Agencies Consulted*	Lists the individuals and agencies involved in preparing this Draft EIR (State CEQA Guidelines Section 15129).
Chapter 9 *References*	Provides a comprehensive listing by chapter of all references cited in this Draft EIR (State CEQA Guidelines Section 15148).
Acronyms and Abbreviations	A list of acronyms and abbreviations is provided for the reader's reference immediately following the list of tables and figures in the Table of Contents.
Appendices	Present additional background information and technical detail for several of the resource areas.

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Chapter 2
Environmental Setting

2.1 Introduction

This chapter provides a description of the overall physical environmental conditions in the vicinity of the proposed project, from both a local and regional perspective, as they existed at the time the Notice of Preparation was published on March 7, 2019.[1] Resource-specific existing conditions are provided within each individual resource section of Chapter 4, *Environmental Analysis*. The applicable resource sections of Chapter 4 also describe the project's consistency with applicable plans.[2]

2.2 Background Setting

2.2.1 District

The mission of the San Diego Unified Port District (District) is to protect, promote, and facilitate tidelands resources by providing economic vitality and community benefit through a balanced approach to maritime industry, tourism, water and land recreation, environmental stewardship, and public safety. The District was created with the San Diego Unified Port District Act (Port Act), adopted by the California State Legislature in 1962, as amended. The Port Act was enacted consistent with the Public Trust Doctrine and states that tidelands and submerged lands (collectively, Tidelands) are to be used only for statewide public purposes. To this end, the District is charged with management of the Tidelands and diverse waterfront uses along San Diego Bay (Bay) that promote commerce, navigation, fisheries, recreation, and conservation on the granted Tidelands. The majority of the project site is on land that is within the District's jurisdiction, and the District has regulatory duties and proprietary responsibilities over the site. The land has been leased from the District to BAE Systems, the project proponent, since 1979, under its original name, Southwest Marine, Inc. A portion of the project site was leased from the California State Lands Commission (SLC). However, effective January 1, 2020, this area was transferred to the District's jurisdiction per Senate Bill (SB) 507, which granted and conveyed in trust to the District all right, title, and interest in certain tidelands and submerged lands, as enumerated in SB 507. BAE Systems' lease with the SLC was transferred to the District.

[1] State CEQA Guidelines Section 15125 states that an EIR must include "a description of the physical environmental conditions in the vicinity of the project. This environmental setting will *normally* constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. The description of the environmental setting shall be no longer than is necessary to an understanding of the significant effects of the proposed project and its alternatives" (emphasis added).

[2] For example, Section 4.2, *Air Quality and Health Risk*, contains a project consistency analysis with the applicable air quality plans.

2.2.2 BAE Systems

The project site, BAE Systems San Diego Ship Repair Yard, is currently a ship repair facility in the City of San Diego, on the San Diego Bay waterfront, south of the San Diego-Coronado Bay Bridge (State Route-75) and adjacently south of the Tenth Avenue Marine Terminal. BAE Systems has operated at the project site since 1979. Prior to BAE Systems' tenancy, the project site operated as a shipyard for marine ship construction and repair services, beginning in 1915. In that year, the San Diego Marine Construction Company (SDMC) leased tidelands at the foot of Sampson Street to establish this facility. The lease allowed SDMC to reclaim tidelands at this location by extracting fill material from the adjacent bay, but did allow for transporting fill to the site from elsewhere. By the end of the 1960s, the site was an approximately 50-year-old waterfront industrial complex, where SDMC continued to construct and repair ships. In 1972, SDMC sold its lease on the property to a subsidiary of Campbell Industries, and, in 1979, Southwest Marine, Inc. (SWM) acquired the property. SWM also acquired the ARCO (formerly Richfield Oil) marine fuel pier in 1982 and added the former National Pump & Injector Sales and Service leasehold to its facility in 1985. SWM changed its name to BAE Systems San Diego Ship Repair, Inc. in 2005 (Tetra Tech, Inc. 2016:9–10).

The waterside facilities at the project site currently contain three working piers, five wet berths, and two floating drydocks. The smaller of the two drydocks, "Pride of San Diego," has been in operation since 1984, and the larger drydock, "Pride of California," began operation in 2017. The landside facilities include administration offices, production shops, training areas, and related utilities and infrastructure. BAE Systems contracts work for United States Navy (U.S. Navy) vessels and, to a lesser extent, commercial vessels.

2.3 Existing Setting

2.3.1 Location

The proposed project is located along San Diego Bay, south of downtown San Diego, within the District's leasing jurisdiction, on a total of 35.9 acres. The project site consists of three separately leased areas. BAE Systems has a Master Lease with the District for 9.8 acres of land and 16.6 acres of water. This lease area contains the majority of the facilities onsite. The second area is composed of 2.0 acres of land and 4.0 acres of water that BAE Systems occupies pursuant to a now-expired Tidelands Use and Occupancy Permit (TUOP)[3] and consists primarily of a parking lot on the landside portion and a drydock on the waterside portion of the project site. The third lease area is 3.5 acres of submerged land that was originally leased from the SLC but was transferred to the District by SB 507,[4] which contains a portion of the Pride of California drydock.

The project site is adjacently southeast of the Tenth Avenue Marine Terminal, an omni-terminal that handles refrigerated containers, dry bulk, liquid bulk, and general cargo, and northwest of the General Dynamics National Steel and Shipbuilding Company (NASSCO) facility, which designs,

[3] The TUOP between the District and BAE Systems expired October 31, 2019. BAE Systems is currently on a limited holdover tenancy pursuant to that expired TUOP.

[4] Beginning on January 1, 2020, this area was transferred to the District's jurisdiction per SB 507, which granted and conveyed in trust to the District all right, title, and interest in certain tidelands and submerged lands, as enumerated in SB 507. BAE Systems' existing lease with the SLC was transferred to the District.

builds, and repairs ships for the U.S. Navy and commercial sector. Central downtown San Diego is approximately 1.7 miles northwest, and the San Diego neighborhood of Barrio Logan is approximately 1,000 feet northeast of the project site. San Diego International Airport is approximately 3 miles to the northwest of the project site. Regional vehicle access to the project site is provided by Interstate 5 (I-5) to the northeast and Interstate 15 (I-15) to the east. Several freeway ramps are within 1 mile of the project site. The site is also within proximity to light-rail, with the closest trolley stop, Barrio Logan Station, approximately 1,500 feet to the north, across East Harbor Drive, and Harborside Station, approximately 0.5 mile to the southeast. Figure 2-1 shows the regional location and access to the project site.

2.3.1.1 Project Boundaries

The project site is situated immediately south and southeast of the Tenth Avenue Marine Terminal. Its northeasterly boundary is generally consistent with East Belt Street; its southeasterly boundary borders the NASSCO shipyard facility; and its southwesterly boundary is in the San Diego Bay, parallel to the shore. The project site includes the three piers, five wet berths, and two floating drydocks on the waterside, and several structures on the landside containing production shops, offices, training areas, and associated utilities and infrastructure. Figure 2-2 provides the precise location and boundaries of the project site.

2.3.2 Existing Land and Water Use Designations

The project site occupies land and water that is under the jurisdiction of the District and within the City of San Diego. The District's Port Master Plan (PMP) governs the land and water uses on Tidelands that the State Legislature has granted to the District, as trustee, and for which the District has regulatory duties and proprietary responsibilities. The PMP establishes 10 planning districts covering approximately 5,500 acres of District jurisdiction. The project site is in the Tenth Avenue Marine Terminal Planning District (Planning District 4), and the vast majority of the project site lies within the Belt Street Industrial Subarea (Subarea 43). The planning district encompasses approximately 371 acres and is dominated by industrial uses. The landside portion of the project site is currently designated in the PMP for marine-related industrial uses, while the waterside portion of the site is designated for specialized berthing.

2.4 Surrounding Conditions

The project site is within and adjacent to the San Diego Bay in a highly industrialized area of the waterfront. Surrounding land and water use designations include marine-related industrial and industrial specialized berthing.

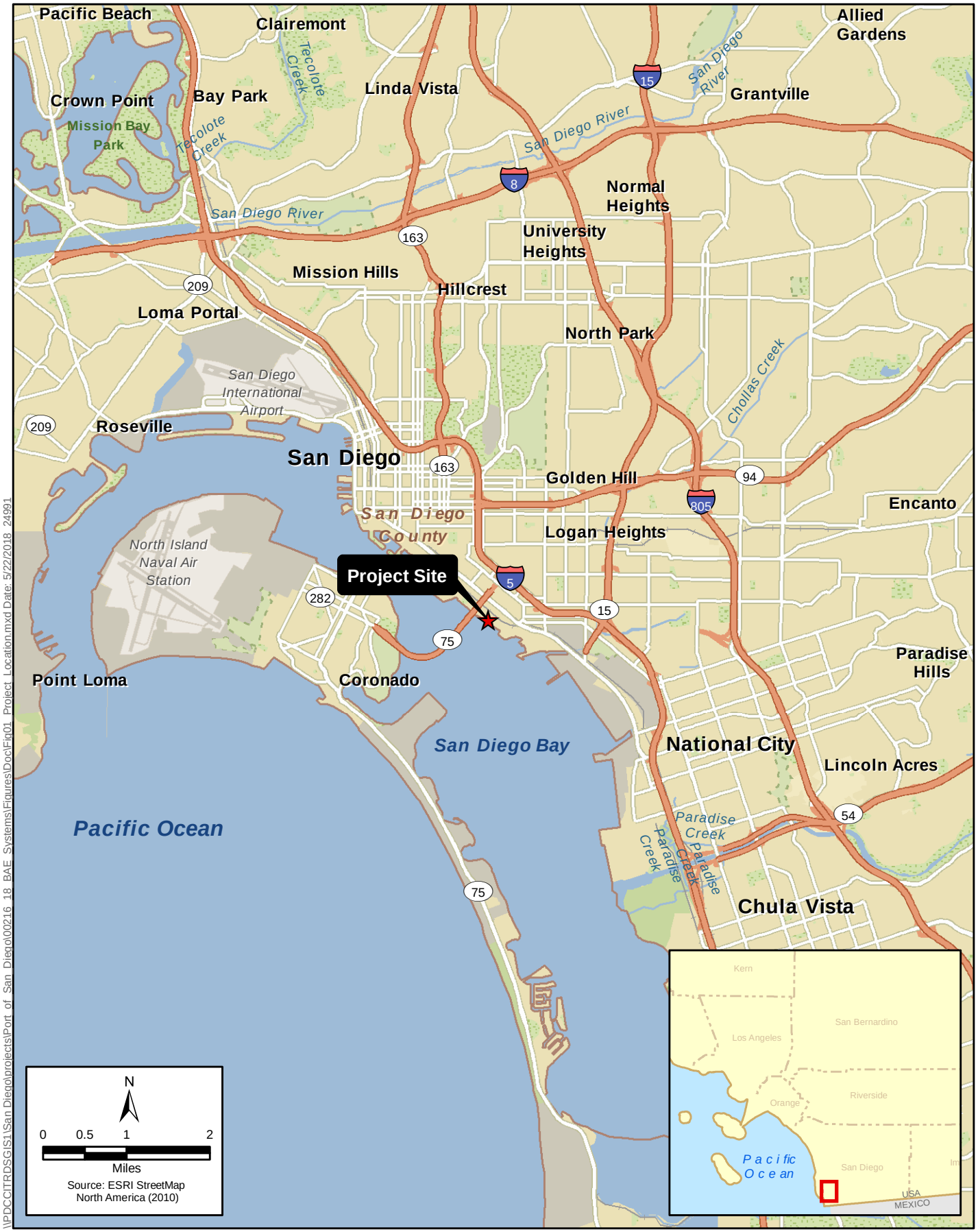

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Figure 2-1
Regional Location
BAE Systems Waterfront Improvement Project

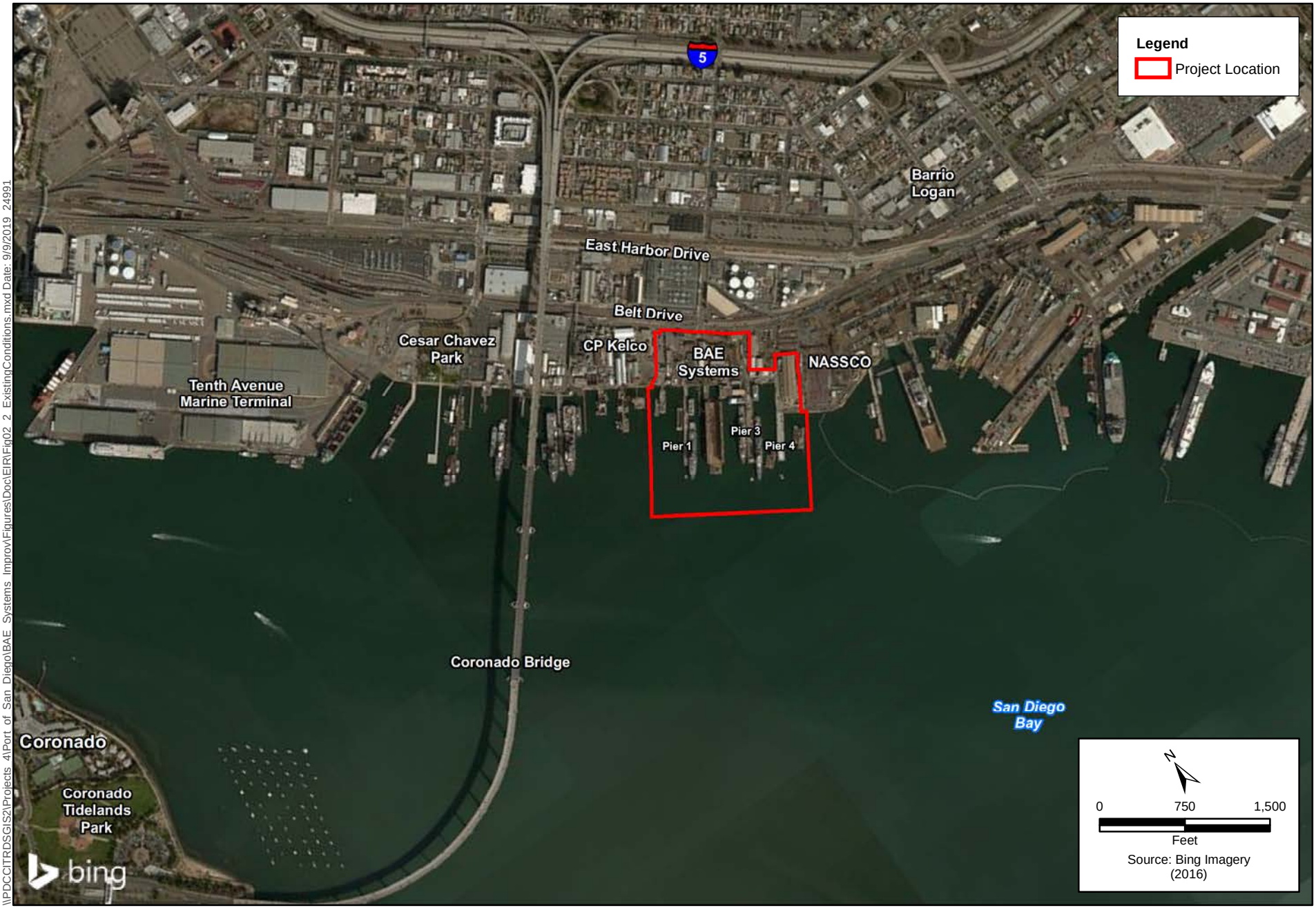

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Figure 2-2
Project Location Map
BAE Systems Waterfront Improvement Project

Land uses north of the project site, west of East Harbor Drive, primarily include ship engineering services, shipbuilding and repair facilities, and a hydrocolloid manufacturing plant. An electricity substation is located to the north. To the northwest, the San Diego-Coronado Bay Bridge crosses the Bay. Beyond the bridge are additional shipping land uses, including Pacific Tugboat Service, which has landside and waterside facilities, and a small waterfront park, Crosby Street Park. Uses to the northeast of the project site, across Belt Street, include the Chevron Distribution Terminal, characterized by large, white storage tanks, followed by East Harbor Drive, railroad right-of-way, and surface parking lots. Uses to the southeast include more shipbuilding and repair facilities, such as the General Dynamics NASSCO facility, which is bounded on the south by Chollas Creek. South of Chollas Creek is Naval Base San Diego. Open water of the San Diego Bay is west of the project site, with the City of Coronado farther west (approximately 1 mile across the Bay from the project site), as shown on Figure 2-2.

2.5 Existing Site Conditions

The 35.9-acre project site consists of landside and waterside areas. Topographically, the landside portion of the project site is relatively flat and slopes from northeast to southwest, toward the Bay. The landside surface elevation of the site ranges from approximately 15 feet above mean sea level (AMSL) at the northeastern boundary of the site to 4 feet AMSL at its western boundary.

The landside portion of the project site totals 11.8 acres and is composed of paved and developed areas. This portion of the project site consists of several buildings housing equipment, shops, warehouses, office space, and other services to support the activities that occur onsite. In addition to the buildings, several other structures that support the facility are located onsite. The landside portion includes the following elements: an electrical shop, a carpenter lagging shop, a sheet metal shop, a hazardous materials yard, a crane, a paint building, a ship repair building, a structural shop, a production shop and warehouse, an administration building, office space, a safety and medical facilities building, training building and an equipment and safety training area, restroom facilities, tool rooms, two breakrooms/areas, and several paved roadways. In addition, BAE Systems currently leases a minimum of 1,586 parking spaces with an option for 200 additional spaces for use by employees, customers, and visitors, totaling 1,786 parking spaces.

The waterside portion of the project site extends into the Bay and totals 24.1 acres. This portion includes three working piers (Piers 1 South, 3, and 4) to moor vessels for maintenance, repair, overhaul, and conversion (MROC) activities. These piers are designed to accommodate berthing for large, deep-draft U.S. Navy and commercial vessels and include a variety of crane and utility services. BAE Systems also currently operates two floating drydocks at the site.

Table 2-1 provides a list of the existing landside and waterside conditions on the project site, identified by the type of lease held by BAE Systems. Existing storm drains are discussed in Section 4.5, *Hydrology and Water Quality*.

Table 2-1. Existing Site Conditions

	Landside Acreage	Landside Conditions	Waterside Acreage	Waterside Conditions
Existing District Leasehold	9.8	Pier 1 break area; office buildings; storm water storage tanks; restrooms; equipment and safety training area; safety/medical/IT/facilities building (Building 55); administration (Building 95); human resources and payroll (Building 65); production shop and warehouse; government quality assurance (Q/A), program management office, contracts and planning (Building 75); structural shop (Building 5); structural shop annex (Building 5A); Q/A and fitness center facilities (Building 13); training center (Building 8); crane structure; sand blast and paint building (Building 10); electrical shop (Building 40C); carpenter lagging shops (Building 40B); sheet metal shop (Building 40A); Pier 4 breakroom; hazardous materials yard	16.6	Piers 1, 3, and 4; Pride of San Diego Drydock; south wharf; Pride of San Diego Wharf
Tidelands Use and Occupancy Permit (TUOP)[1]	2.0	Surface parking lot; ancillary building; Conex storage containers; SDG&E cooling tunnels	4.0	Pride of California Drydock; north wharf
Prior California State Lands Commission Lease	0	N/A	3.5	Western portion of the Pride of California Drydock
Total	**11.8**		**24.1**	

[1] As explained in Chapter 3, *Project Description*, the TUOP between the District and BAE Systems expired October 31, 2019.

2.6 Existing Operational Conditions

BAE Systems provides and maintains industrial facilities (e.g., production, shops, offices, and related utilities and infrastructure) that involve the MROC of larger naval and commercial vessels in support of its primary customer, the U.S. Navy.

BAE Systems currently contracts work for all classes of non-nuclear U.S. Navy vessels, including Cruisers (CGs), Destroyers (DDGs), Amphibious Transport Docks (LPD-17), Dock Landing Ships (LSD-41/49), Amphibious Assault Ship (LHD/LHA), and Littoral Combat Ship (LCS). The largest naval vessels that can currently berth at Pier 3 are Amphibious Transport Dock (LPD-17) vessels, which are 684 feet in length. BAE Systems will service larger vessels (e.g., LHD/LHA) at U.S. Naval Base San Diego or another local shipyard due to existing capacity constraints at Pier 3.

BAE Systems contracts include pier-side repair (wet berth), drydock repair (dry berth), or both. Most vessel contracts are accompanied by a berthing/messing barge (which provide a fully functioning galley, sleeping area, and office space) provided by the U.S. Navy for the ship's workforce while undergoing repairs at the site. The average number of ships moored and/or serviced at the BAE Systems facility (including both drydocked and berthed vessels) ranges from 7 to 9 vessels per year. As shown in Table 2-2, vessels berthed pier side at the facility range from 36 days to 342 days, with an average stay of 149 days. Vessels dry-berthed in either of the two floating drydocks at the facility range from 14 days to 278 days, with an average dry berth of 172 days.

Table 2-2. Vessels Serviced at BAE Systems Ship Repair Yard (2015–2018)

	Drydocked Vessels	Berthed Vessels
Average Ships Per Year	4	8
Minimum Number of Days	14	36
Maximum Number of Days	278	342
Average Number of Days	172	149

Due to the limitations of existing pier space to accommodate the varying mix of ships under contract and overlapping periods of production, there is empty pier space as a result of the overlap in contract start and end dates. Consequently, while the number of actual ship repair days is fewer than the number of calendar days, at times there is insufficient pier-side capacity to efficiently moor all the vessels under contract. In these instances, either the vessels' production dates may be adjusted, or the vessels will be worked on at other locations.

Depending on the specific mix of vessels being serviced at the BAE Systems facility, the number of personnel (crew and labor) on site varies due to several factors, including the type(s) of vessels being serviced, length of the repair contract, and type of work being done on the vessel. Table 2-3 compares three potential berthing scenarios that can currently occur at the site and provides the corresponding crew and labor sizes.

Table 2-3. Vessel Crew and Labor Comparison (LHD Berthed at Pier 3 South)

Scenario		Existing Vessel Crew and Labor Size				Subtotal	Total
1	Pier[1]	3S	3N	4S	4N	--	2,216
	Ship Type[2]	CG	DDG	DDG	CG	--	
	Crew	272	278	278	272	1,100	
	Labor	279	279	279	279	1,116	
2	Pier[1]	3S	3N	4S	4N	--	1,974
	Ship Type[2]	LSD	LPD	DDG	CG	--	
	Crew	318	266	278	272	1,134	
	Labor	141	141	279	279	840	
3	Pier[1]	3S	3N	4S	4N	--	1,572
	Ship Type[2]	LSD	DDG	LCS	CG	--	
	Crew	318	278	35	272	903	
	Labor	141	124	125	279	669	

[1] 3S = Pier 3 South; 3N = Pier 3 North; 4S = Pier 4 South; 4N = Pier 4 North.

[2] CG = Cruisers; DDG = Destroyers; LCS = Littoral Combat Ships LHD = Amphibious Assault Ship; LSD = Dock Landing Ships; LPD = Amphibious Transport Docks.

Chapter 3
Project Description

3.1 Introduction

BAE Systems San Diego Ship Repair, Inc. (BAE Systems), is a ship repair company in the San Diego area, serving primarily non-nuclear Navy vessels but also commercial customers. BAE Systems currently leases 9.8 acres of land and 16.6 acres of water from the District. This lease is scheduled to expire in 2034. In addition, BAE Systems currently occupies a parcel pursuant to a now-expired 5-year Tidelands Use and Occupancy Permit (TUOP) from the District for an additional 2.0 acres of land and 4.0 acres of water.[1] As a result, BAE Systems leases approximately 11.8 acres of land area and approximately 20.6 acres of water area from the District. In addition to these leased and permitted areas, BAE Systems leases 3.5 acres of submerged land from the District. These submerged lands were originally leased from the California State Lands Commission (SLC). However, effective January 1, 2020, this area was transferred to the District's jurisdiction per Senate Bill (SB) 507, which granted and conveyed in trust to the District all right title, and interest in certain tidelands and submerged lands, as enumerated in SB 507. BAE Systems' lease with the SLC was transferred to the District. The total acreage occupied by BAE Systems (including the TUOP parcel) pursuant to agreements with the District makes up the BAE Systems San Diego Ship Repair Yard (project site).

The project site consists of three working piers, five wet berths, and two floating drydocks, all of which are used to modernize, repair, and overhaul various marine vessels. The smaller of the two drydocks, the Pride of San Diego, has been on site since 1984. In 2017, the larger drydock, Pride of California, was commissioned to meet the growing needs of BAE Systems' customers.

BAE Systems, as the project proponent, is proposing a maintenance, repair, and replacement project for waterfront infrastructure associated with mooring and operational facilities at its San Diego Ship Repair Yard. The BAE Systems Waterfront Improvement Project (project or proposed project) includes 15 distinct project elements, all of which are discussed in detail in this chapter under Section 3.4, *Project Description*. Briefly, the proposed project includes the following.

- Replacement and realignment of the Pride of San Diego drydock access wharf and ramp, along with several associated improvements.
- Replacement and realignment of the Pier 3 wharf structure, along with other associated improvements.
- Replacement of aging or inefficient facilities, including offices, the production building, the central tool room, and restrooms.

[1] The TUOP between the District and BAE Systems expired October 31, 2019. BAE Systems is currently on a limited holdover tenancy pursuant to that expired TUOP. However, it is anticipated that the TUOP will be renewed. TUOP renewal would not authorize any new improvements or activities that could physically impact the environment. It would reaffirm BAE Systems' existing occupancy right and continue existing operations. Therefore, any TUOP renewal is considered a separate action previously analyzed under a separate CEQA document for the Pier 1 North Drydock, Associated Real Estate Agreements and Removal of Cooling Tunnels project, SCH #2014041071, and is not part of the proposed project.

- Implement mooring infrastructure improvements to ensure safety and accommodate the newer and different classes of vessels to be moored and repaired on the site.
- Upgrades to electrical and potable water utility infrastructure.

This chapter describes the project need and purpose, objectives, and necessary approvals. The project description is also included. A detailed description of the site and existing conditions is provided in Chapter 2, *Environmental Setting*, which includes a location map (Figures 2-1 and 2-2).

3.2 Project Need and Purpose

The purpose of the proposed project is to maintain and improve facilities for the berthing needs of current and future Navy assets and other customers. As part of the U.S. Navy's "Pivot West" strategy, it is anticipated that more Navy vessels will be home-ported in San Diego. As a result, BAE Systems requires the ability to flexibly locate various ships within the existing facility as well as ensure safe and efficient facility utilization for the moorage of vessels, including during extreme weather conditions.

The proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase the efficiency of operations at the ship repair yard. Although these improvements would allow newer and different classes of vessels to be moored and repaired on the site, the proposed improvements are not expected to increase the number of vessels serviced because no new berthing space would be provided. Furthermore, the mooring of newer, larger vessels would reduce the number of other vessels that could be concurrently moored at the ship repair yard.

3.3 Project Objectives

To achieve the need and purpose of the proposed project, the following project objectives have been identified:

1. Construct and operate shipyard repair facilities that maximize the use of existing waterways, available shoreline, and existing land.
2. Modernize the BAE Systems San Diego Ship Repair Yard by providing improved facilities that meet the needs of the current and anticipated fleets of the military and commercial customers.
3. Enhance worker safety, customer security, and environmental protection programs through the integration of relevant project elements.
4. Invest in new shipyard infrastructure that will enhance the short- and long-term attractiveness and viability of San Diego Bay and the region to military and commercial ship operators for construction and repair, consistent with the Port Master Plan.[2]
5. Preserve jobs by maintaining the physical capacity and technical capability to support the Navy's presence as well as commercial maritime needs in San Diego.

[2] "Renovation and redevelopment of existing facilities will continue as industries respond to market demands and changes in the maritime industrial climate." San Diego Unified Port District, Port Master Plan (August 2017), page 79.

3.4 Project Description

The proposed project consists of the following 15 project elements that are designed to improve the efficiency and functionality of the existing BAE Systems San Diego Ship Repair Yard.

1. Pride of San Diego Drydock Dredging[3] and Moorage
2. Pride of San Diego Drydock Wharf Replacement and Realignment
3. Fender System Repair and Replacement
4. Pier 3 South Nearshore Dredging
5. Pier 3 Mooring Dolphin
6. Pier 3 North Lunchroom Wharf Replacement and Realignment
7. Quay Wall Modifications
8. Port Security Barrier Replacement
9. Small Boat Mooring Float Replacement
10. Central Tool Room Demolition and Reconstruction
11. New Production Building
12. Administrative Office Building
13. Pier 1 Restroom Renovation and/or Demolition
14. Main Electrical Utility Service Update
15. Sanitary Sewer and Potable Water Utility Services

The majority of the proposed work would take place within the District's jurisdiction (i.e., Project Elements 2, 3, 4, 6, 7 and, 9–15). Project Elements 1, 5, and 8 are within the District's leasing jurisdiction and the California Coastal Commission's (CCC) permitting jurisdiction, per SB 507 and the California Coastal Act. BAE Systems will apply directly to the CCC for authorization and entitlements for Project Elements 1, 5, and 8; however, this Draft EIR analyzes the entire proposed project, as required by CEQA. Figure 3-1 provides an overall site plan for identifying the location of each project element by number. A detailed discussion of the proposed activities under each project element is provided below.

3.4.1 Pride of San Diego Drydock Dredging and Moorage Replacement (Project Element 1)

Project Element 1 includes dredging and associated replacement of mooring dolphins[4] to hold the Pride of San Diego drydock in place. Figure 3-2 provides photos of the existing mooring dolphins proposed to be demolished for this project element, and Figure 3-3 depicts its conceptual dredge design. Most of Project Element 1 is within the District's jurisdiction; however, the westernmost

[3] Dredging is defined as the removal of sediments and debris from the bottom of lakes, rivers, harbors, and other water bodies.

[4] A *mooring dolphin* is defined as an in-water structure, typically made up of a cluster of piles that extends above the water surface to provide mooring points for vessels.

mooring dolphin and a portion of the required dredging area would be within both District jurisdiction (leasing) and CCC jurisdiction (permitting).

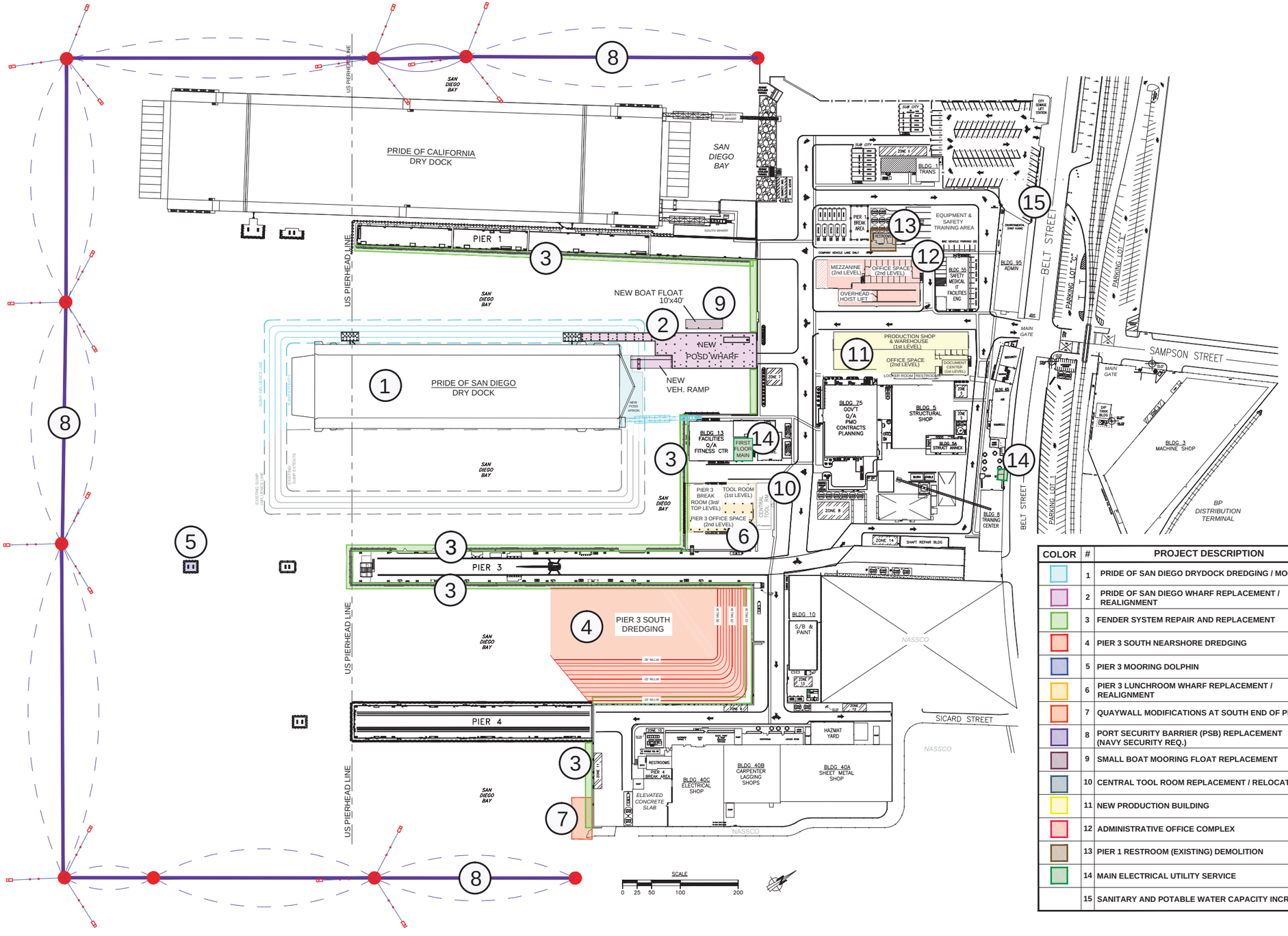
Because of conflicts with the original 1983 dredge sump[5] design, the current configuration requires the drydock to be moved[6] from its mooring to the west and south in order to submerge and dock or undock a vessel each time a vessel comes in for drydock servicing. When a wide-bodied vessel is positioned adjacent to Pier 3 North, the size of the vessel prevents the drydock from being moved into its submergence location. Dredging and relocation of the mooring dolphins would allow the drydock to submerge and lift vessels in place without the need for the drydock to be moved. This would improve operational efficiencies because wide-bodied vessels could be moored at Pier 3 North concurrently with drydocked vessels while under repair at the Pride of San Diego drydock. Accordingly, this would eliminate the need to run the diesel engines of two separate vessels concurrently during docking and undocking activities as well as the need for tugboats to move the drydock. In addition, Project Element 1 proposes to dredge sediment around the Pride of San Diego ramp wharf and eastern mooring dolphin. This would remove potentially contaminated sediment that was not accessible during the remedial dredging that occurred in 2015 under Regional Water Quality Control Board (RWQCB) mandated Cleanup and Abatement Order (CAO) No. R9-2012-0024. During remedial activities, sand, including gravelly sand, was placed in areas that were not accessible. Proposed replacement of the mooring dolphins may allow access to these areas; therefore, potentially contaminated gravelly sand, sand, and sediment may be removed during dredging.

In total, Project Element 1 proposes to dredge approximately 98,800 cubic yards (cy) of material. Figure 3-4 depicts the proposed conceptual dredge design to achieve compliance with the CAO, which includes both Project Elements 1 and 6. (Figure 3-5 depicts the conceptual dredge design for Project Element 6 only.) Based on preliminary assessments conducted by the project proponent, it was conservatively estimated that 20 percent of the dredge material for Project Element 1 would contain contaminated sediment, although additional analysis indicates the estimate may be closer to 11 percent.[7]

[5] A *sump* is defined as a pit or other type of hollow area that collects liquids.

[6] Referred to as *translated*. *Translation* means to move the dock in a specific direction—north, south, east, or west.

[7] Where applicable throughout this EIR, the more conservative estimate is used for CEQA analysis purposes. For example, Sections 4.1, *Air Quality and Health Risk*, and 4.3, *Greenhouse Gas Emissions and Energy*, conservatively analyzed both the high end of trucks (i.e., 20 percent upland disposal) and the high end of tug and scow trips (i.e., 89 percent ocean disposal) to quantify project emissions.



COLOR	#	PROJECT DESCRIPTION
	1	PRIDE OF SAN DIEGO DRYDOCK DREDGING / MOORING
	2	PRIDE OF SAN DIEGO WHARF REPLACEMENT / REALIGNMENT
	3	FENDER SYSTEM REPAIR AND REPLACEMENT
	4	PIER 3 SOUTH NEARSHORE DREDGING
	5	PIER 3 MOORING DOLPHIN
	6	PIER 3 LUNCHROOM WHARF REPLACEMENT / REALIGNMENT
	7	QUAYWALL MODIFICATIONS AT SOUTH END OF PROPERTY
	8	PORT SECURITY BARRIER (PSB) REPLACEMENT (NAVY SECURITY REQ.)
	9	SMALL BOAT MOORING FLOAT REPLACEMENT
	10	CENTRAL TOOL ROOM REPLACEMENT / RELOCATION
	11	NEW PRODUCTION BUILDING
	12	ADMINISTRATIVE OFFICE COMPLEX
	13	PIER 1 RESTROOM (EXISTING) DEMOLITION
	14	MAIN ELECTRICAL UTILITY SERVICE
	15	SANITARY AND POTABLE WATER CAPACITY INCREASE

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Figure 3-1
Project Elements
BAE Systems Waterfront Improvement Project

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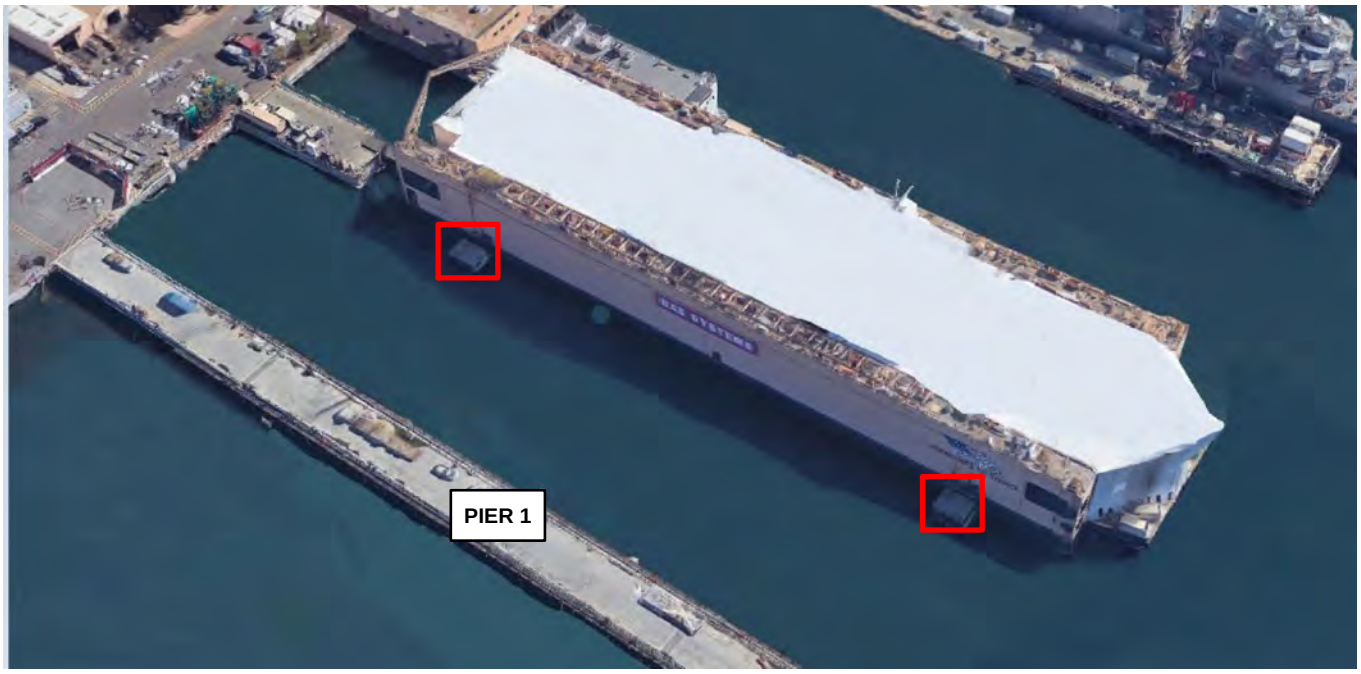
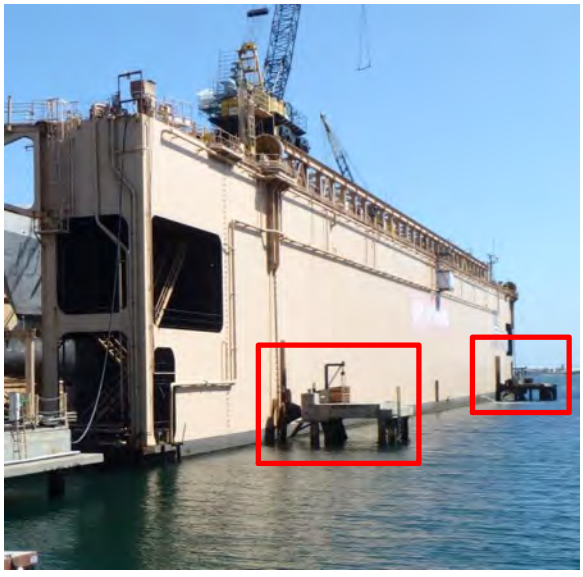


Photo of existing Pride of San Diego mooring dolphins to be demolished in-way-of new Pride of San Diego mooring dolphin construction.



Existing Pride of San Diego dolphins to be demolished for new dolphin construction

Existing Pride of San Diego dolphin to be demolished for new dolphin construction

Figure 3-2
Project Element 1: Pride of San Diego Dry Dock Dredging / Mooring
BAE Systems Waterfront Improvement Project

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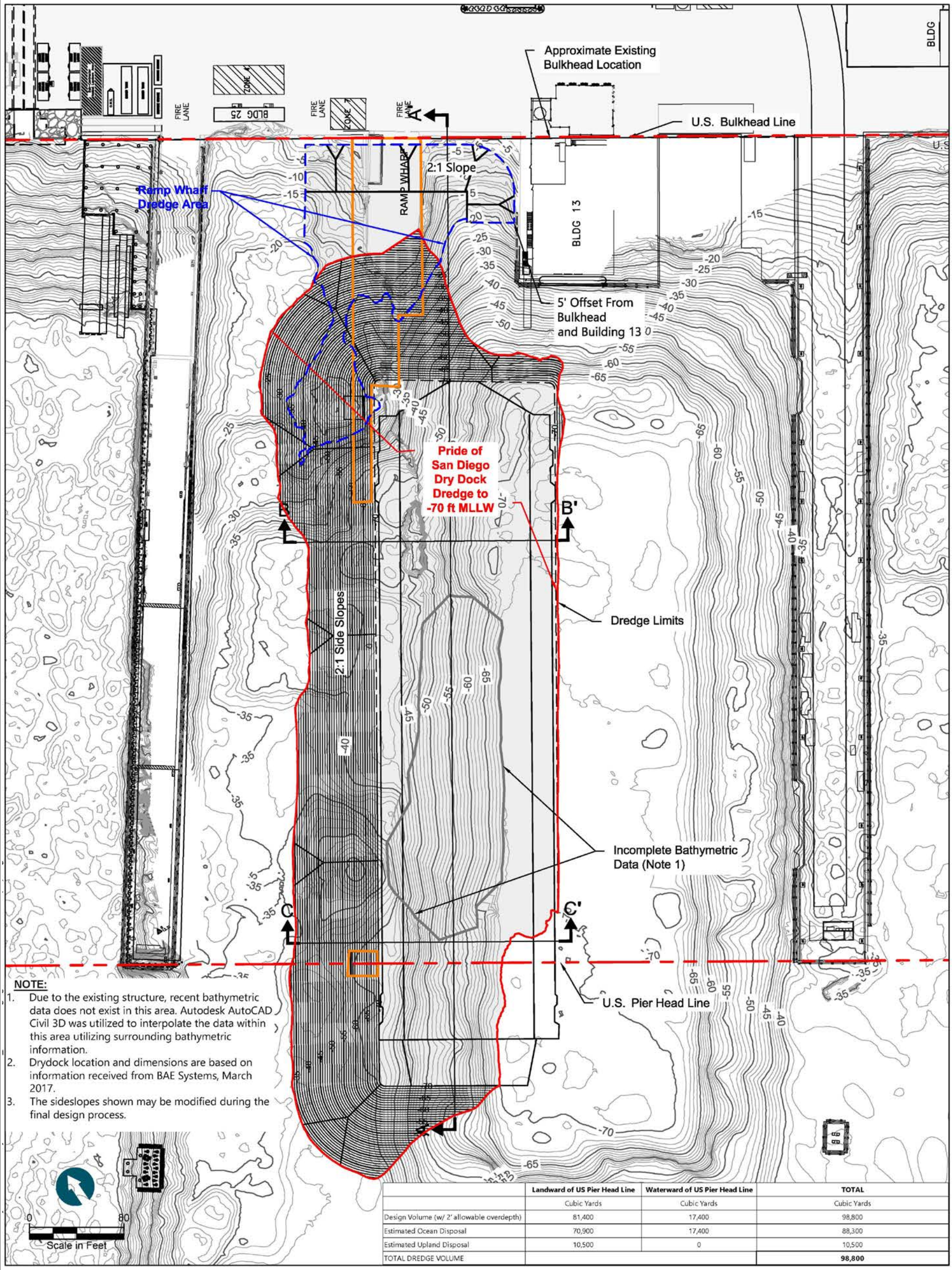

NOTE:

1. Due to the existing structure, recent bathymetric data does not exist in this area. Autodesk AutoCAD Civil 3D was utilized to interpolate the data within this area utilizing surrounding bathymetric information.
2. Drydock location and dimensions are based on information received from BAE Systems, March 2017.
3. The sideslopes shown may be modified during the final design process.

	Landward of US Pier Head Line	Waterward of US Pier Head Line	TOTAL
	Cubic Yards	Cubic Yards	Cubic Yards
Design Volume (w/ 2' allowable overdepth)	81,400	17,400	98,800
Estimated Ocean Disposal	70,900	17,400	88,300
Estimated Upland Disposal	10,500	0	10,500
TOTAL DREDGE VOLUME			**98,800**

SOURCE: Upland topography from Digital Mapping Inc., dated September 2009, and supplemented by Environmental Data Solutions survey dated April 13, 2013. Pre-dredge bathymetric data is from CLE Engineering survey dated February 12, 2017 supplemented with post-sand cover survey from San Diego Shipyards North project, completed January 2016.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.
VERTICAL DATUM: Mean Lower Low Water (MLLW).

LEGEND:

-25 Existing Contour

-30 Proposed Dredge Contour

Proposed Site Improvements

Ramp Wharf Dredge Limits

POSD Dry Dock Dredge Limits

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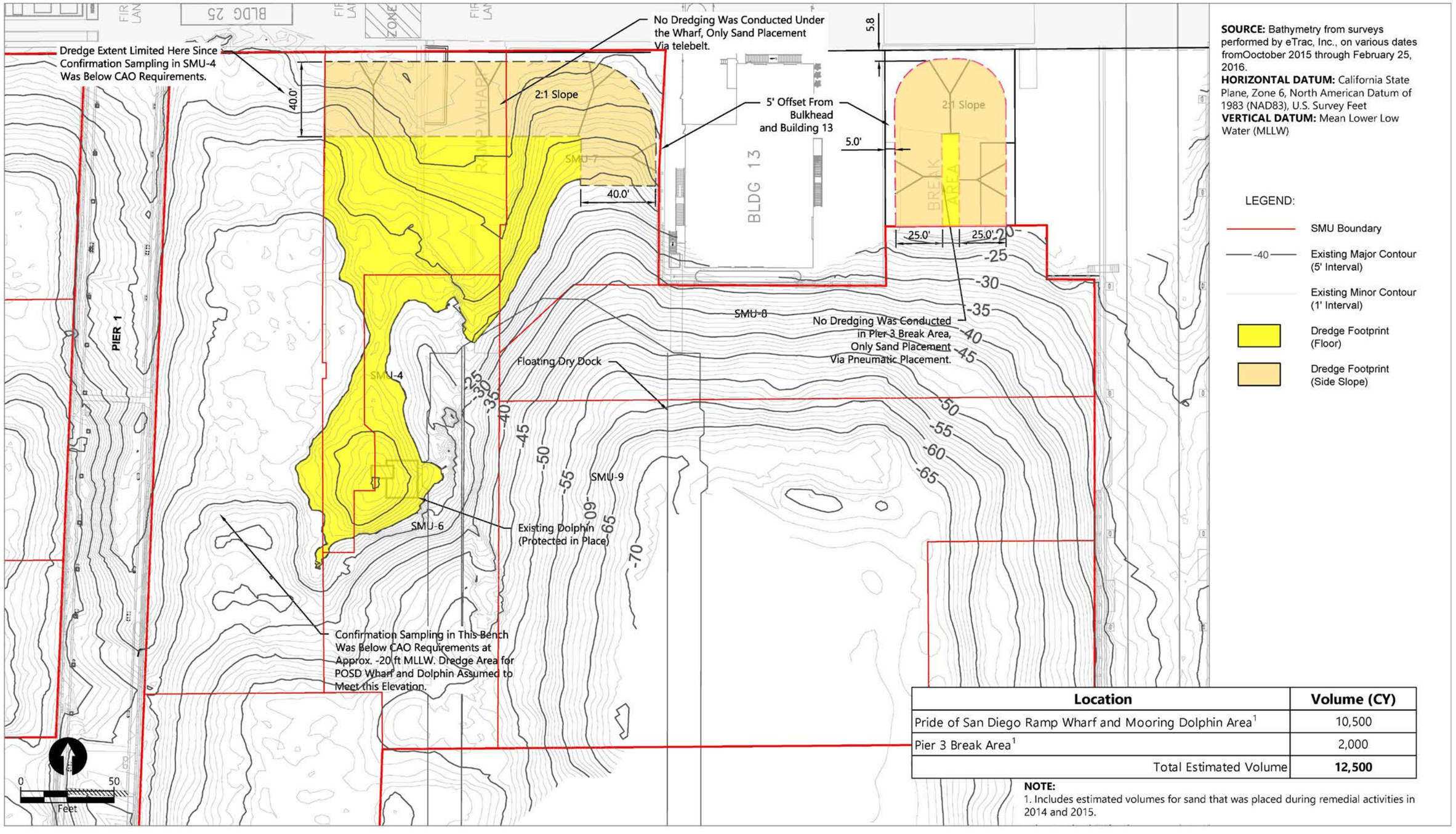
Figure 3-3
Project Element 1 Conceptual Dredge Design
BAE Waterfront Improvement Project



Location	Volume (CY)
Pride of San Diego Ramp Wharf and Mooring Dolphin Area[1]	10,500
Pier 3 Break Area[1]	2,000
Total Estimated Volume	**12,500**

NOTE:
1. Includes estimated volumes for sand that was placed during remedial activities in 2014 and 2015.

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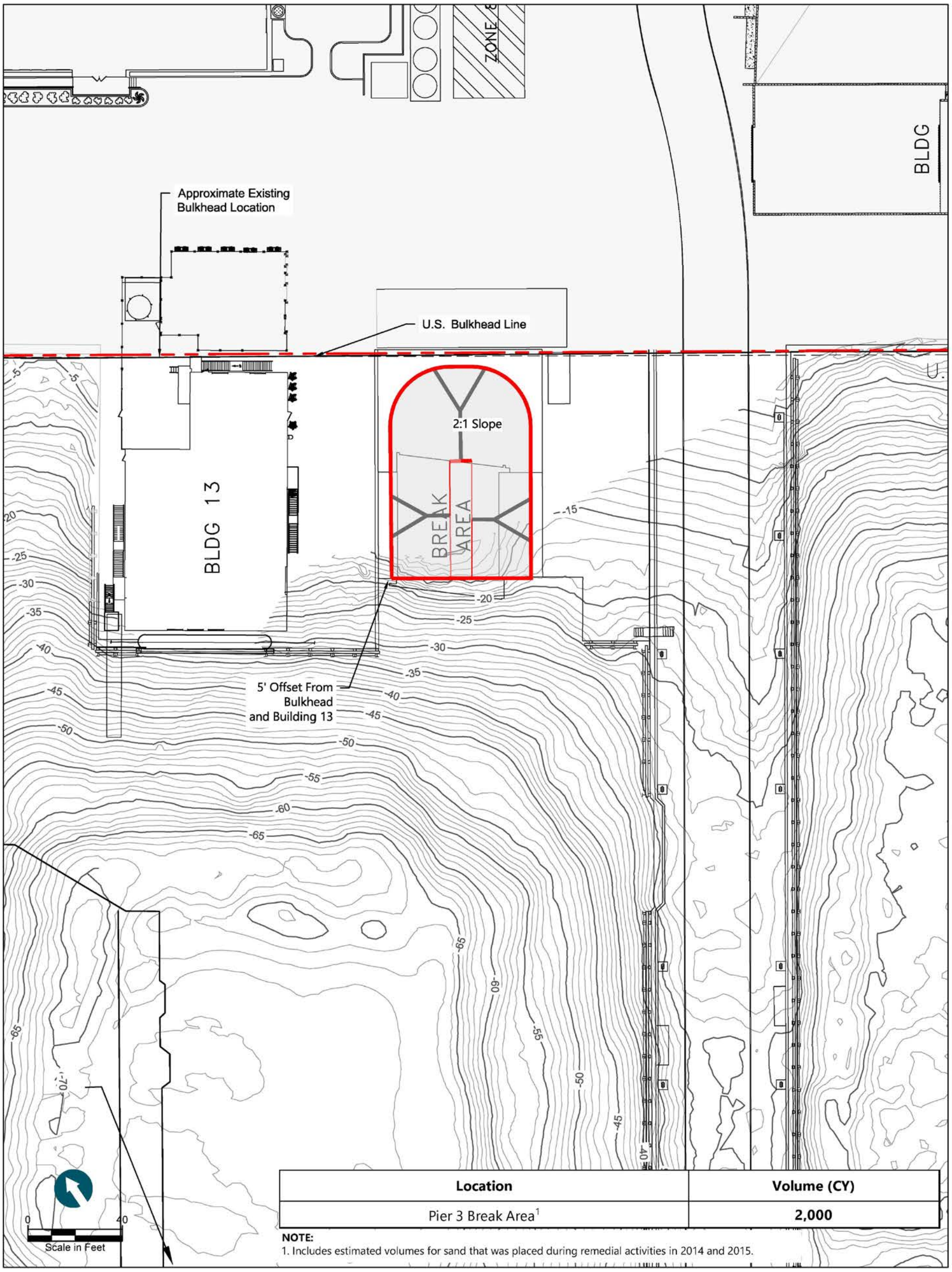
Figure 3-4
Project Element 1 and Project Element 6 Conceptual CAO Dredge Areas
BAE Waterfront Improvement Project



Location	Volume (CY)
Pier 3 Break Area[1]	2,000

NOTE:
1. Includes estimated volumes for sand that was placed during remedial activities in 2014 and 2015.

SOURCE: Upland topography from Digital Mapping Inc., dated September 2009, and supplemented by Environmental Data Solutions survey dated April 13, 2013. Pre-dredge bathymetric data is from CLE Engineering survey dated February 12, 2017 supplemented with post-sand cover survey from San Diego Shipyards North project, completed January 2016.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.
VERTICAL DATUM: Mean Lower Low Water (MLLW).

LEGEND:

—25— Existing Contour

Dredge Limit Boundary

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Figure 3-5
Project Element 6 Pier 3 Break Area Conceptual Dredge Design
BAE Waterfront Improvement Project

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Therefore, the analysis contained within this EIR assumes approximately 80 to 89 percent of all dredged materials for Project Element 1 would be disposed of at an approved Ocean Dredge Material Disposal Site (i.e., U.S. Environmental Protection Agency [EPA] disposal site LA-5); the remaining 11 to 20 percent would be unsuitable for unconfined aquatic disposal, per U.S. Army Corps of Engineers (USACE) and EPA disposal criteria, and would be transported to an approved disposal facility capable of accepting contaminated sediments. It should be noted that, in the event that unconfined aquatic disposal is not suitable, only approximately 15,280 cy of the proposed 98,800 total cy of sediment would be dredged to comply with CAO No. R9-2012-0024.

The following actions are proposed as part of Project Element 1:

- Shifting the Pride of San Diego drydock west by approximately 100 feet.
- Replacing two existing 17.5- by 21-foot mooring dolphins (368 square feet for each dolphin), including removing twenty-six 18-inch-square concrete piles and 85 cy of concrete caps and installing thirty-eight 24-inch octagonal precast concrete piles with 900 total square feet of surface area.
    - Demolition of the existing mooring dolphins, concrete piles, and concrete caps would generate approximately 1,005 cy of debris.
- Relocating the drydock sump, which would require dredging to -70 feet mean lower low water (MLLW). The following dredging specifics are proposed:
    - Dredging approximately 98,800 cy[8] of material, including 2 feet of overdepth, consisting of:
        - 81,400 cy within District (leasing) jurisdiction.
        - 17,400 cy within CCC (permitting) jurisdiction.
    - Disposing of up to approximately 19,800 cy of dredged material (i.e., up to 20 percent of the total dredged material) at an approved upland disposal site, such as the Otay Landfill.
    - Disposing of up to approximately 87,900 cy of dredged material (i.e., up to 89 percent of the total dredged material) at the Ocean Dredge Material Disposal Site (i.e., EPA's San Diego disposal site LA-5).
    - Transporting up to 36 scows[9] (2,500 cy capacity each) to the LA-5 disposal site.

Dredging operations, including equipment maintenance activities, shift changes, barge changes, and movement about the site would be conducted 24 hours per day, 7 days a week, for 100 days.

3.4.2 Pride of San Diego Drydock Wharf Replacement and Realignment (Project Element 2)

Once drydock dredging and moorage replacement have been completed (i.e., Project Element 1), wharf and ramp modifications would be needed. Specifically, Project Element 2 would extend the existing Pride of San Diego wharf to provide a material handling area adjacent to the northeastern

[8] Volume based on pre-dredge bathymetric survey data from CLE Engineering, composite surveys dated February 2017 and January 2016, and conceptual dredging volumes provided by Anchor QEA, dated July 2019.

[9] A *scow* is a low, flat barge-like vessel used to carry material.

portion of the drydock and encompass the eastern gripper[10] mooring dolphin. An apron would be installed at the end of the drydock, while a new pedestrian access ramp and support platform would be installed on the south side of the drydock to minimize the number of in-water structures required to access and support the drydock at its proposed new location. The new replacement structure would be incorporated into the existing Pride of San Diego wharf ramp. Figure 3-6 provides existing photos for this project element.

For the purposes of this analysis, complete demolition and construction activities are assumed, which would be the reasonably foreseeable worst-case scenario. The following actions are proposed as part of Project Element 2.

- Demolishing 5,540 square feet of existing wharf and twenty 18-inch piles, which would generate approximately 408 cy of debris.
- Installing 12,500 square feet of cast-in-place decking on 73 octagonal piles[11] and six concrete precast piles,[12] extending from the existing wharf structure to northeastern portion of the Pride of San Diego drydock. New in-water structures (fixed) associated with the new wharf would be built to an increased elevation of +12 feet MLLW.
- Installing an apron[13] at the end of the drydock and a new pedestrian access ramp and support platform on the south side for material handling adjacent to the drydock.

3.4.3 Fender System Repair and Replacement (Project Element 3)

The existing fender[14] systems are experiencing natural deterioration due to age and routine damage from decades of use. New fenders are required where shoreline features have been reconstructed.

The following actions are proposed as part of Project Element 3.

- Removing and replacing in place the 503 existing 14-inch by 89-foot steel H-pile[15] fenders. Removal of the existing fenders would generate approximately 269 cy of debris.
- Installing 122 new steel H-pile fenders, for a total of 625 fenders. The new fender locations are as follows:
    - Bulkhead installation at the south side of Pier 1, resulting from remediation and fill of the former marine railways in 2004.
    - Bulkhead replacement along the shoreline south of Pier 3 to the southern property line.
    - The west-facing perimeter of the proposed new marginal wharf area associated with Pier 3 North Lunchroom Wharf Replacement and Realignment (Project Element 6).

[10] A gripper is a mechanical feature of a mooring system, used for securing floating drydocks to a mooring dolphin.

[11] Octagonal piles are eight-sided concrete support structures.

[12] *Precast piles* are concrete piles that are formed in circular, square, rectangular, or octagonal shapes. Precast piles are manufactured in a casting yard before transport to the project site.

[13] An *apron* is the space allotted for maneuvering a vehicle into alignment with the dock.

[14] A *fender* is a piece of equipment that protects a pier, berth, jetty, or other vessel from a berthing vessel. Fenders are typically made of rubber, foam, or plastic in order to absorb energy from the berthing vessel.

[15] A *steel H-pile* is an in-water support structure with a cross beam that forms an H-like shape.

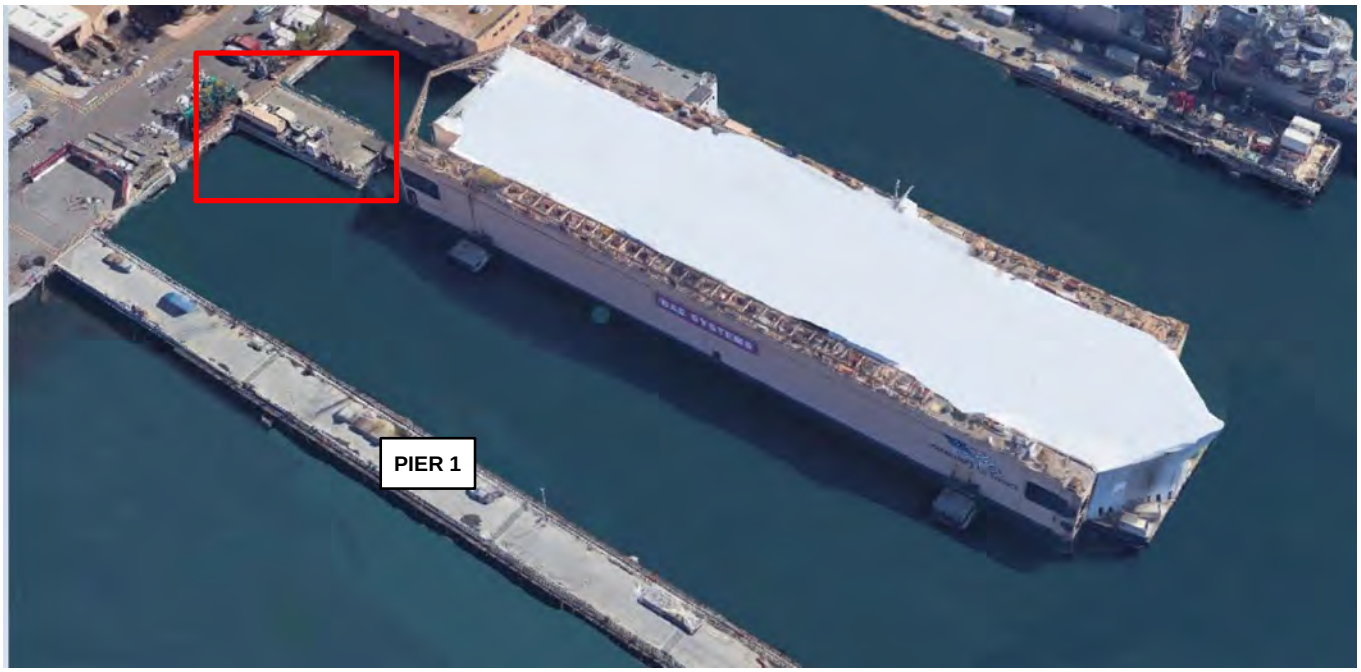
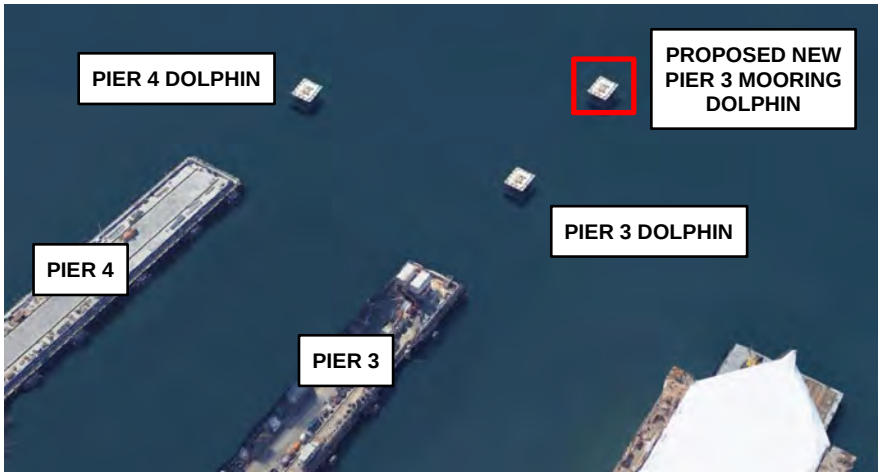


Photo of existing Pride of San Diego ramp wharf to be demolished in-way-of new extended wharf structure.



Approximate location of new pier 3 mooring dolphin

Existing pier 3 mooring dolphin; proposed new dolphin would consist of same design

Figure 3-6
Project Element 2: Pride of San Diego (POSD) Wharf Replacement / Realignment and Project Element 5: Pier 3 Mooring Dolphin
BAE Systems Waterfront Improvement Project

In addition, fenders are occasionally damaged when struck by vessels, in which case they need to be replaced quickly in order to provide safe moorage for vessels. Therefore, for analysis purposes, it is assumed that up to 39 steel H-pile fenders per year would be replaced over the life of the existing lease (until 2034).

3.4.4 Pier 3 South Nearshore Dredging (Project Element 4)

Dredged material has entered the Pier 3 berth sump; therefore, this project element proposes to dredge approximately 15,000 cy of material. Figure 3-7 depicts the conceptual dredge plan for Project Element 4. In addition, the Pier 3 sump requires modification for safe passage of tugboats while maneuvering large ships.

The following actions are proposed as part of Project Element 4:

- Dredging approximately 15,000 cy from the toes of the dredge sump to the limit line elevation of the new bulkhead (-17 feet MLLW). Dredging would extend to an operational depth of -35 feet MLLW plus 2 feet of overdepth dredging.
- Placing dredged material directly onto dredge scows, with no stockpiling of materials on the site; loading directly onto trucks from the scows; and disposing of materials. Dredged material is dewatered, treated, and disposed of in accordance with existing permit and landfill requirements.

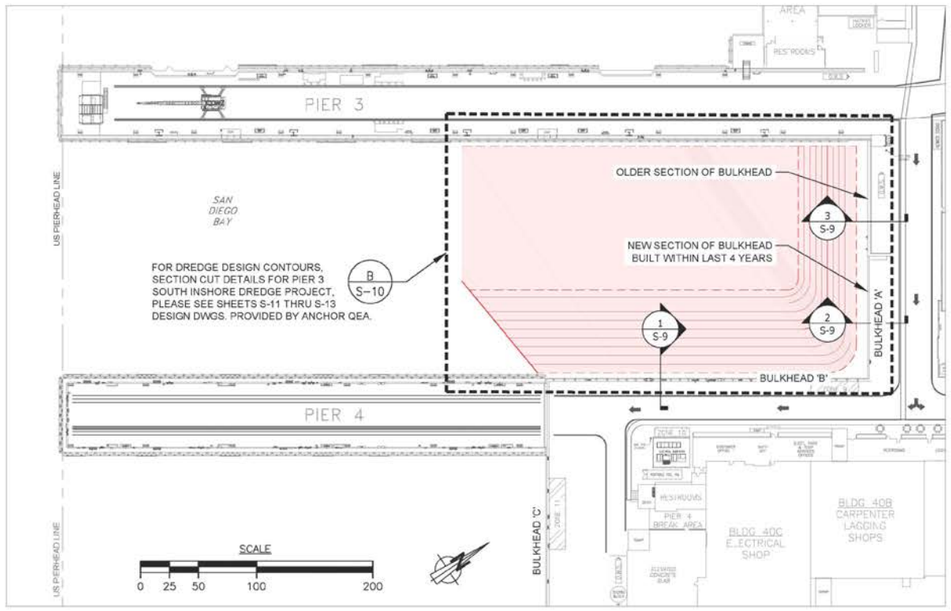
Dredging operations, including equipment maintenance activities, shift changes, barge changes, and movement about the site would occur 24 hours per day, 7 days per week, for 69 days.

For Project Element 4, the extent of contamination within the sediment in this area is currently unknown. Therefore, there are two scenarios under consideration for disposal of dredged materials:

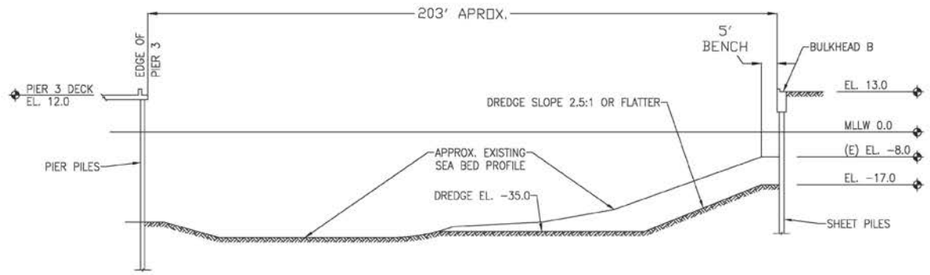
- The **50/50 Scenario** assumes that half of the total dredged material (7,500 cy) generated during Project Element 4 would be suitable for ocean disposal and half (7,500 cy) would require upland disposal. This scenario would result in approximately three scows to dispose of the material at the ocean disposal site, with each scow trip conveying 2,500 cy. The remaining half of the dredged material would be taken to upland locations using haul trucks with an estimated 15 cy capacity per truck.
- The **All-Truck Scenario** assumes that all dredged material (15,000 cy) would be disposed of at an upland location using haul trucks with an estimated 15 cy capacity per truck.

3.4.5 Pier 3 Mooring Dolphin (Project Element 5)

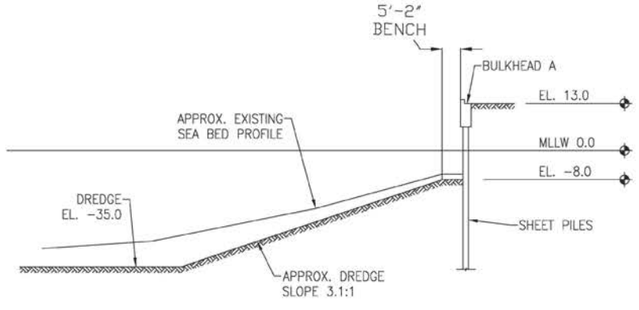
Installation of an additional mooring dolphin would be necessary to ensure safe vessel moorage, especially during extreme storm surge or other climatic conditions (e.g., wind and tide). The mooring dolphin would provide a fixed structure for securing the bow of large vessels and be designed consistent with existing mooring dolphins at the BAE Systems facility. The proposed new mooring dolphin would be entirely within CCC's jurisdiction. Figure 3-6 above provides existing and representative photos for this project element.



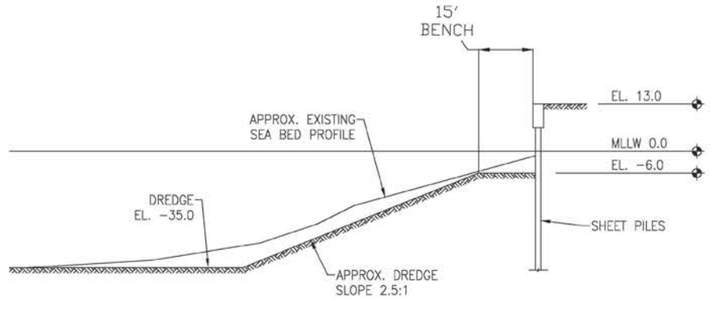
A S-9 PIER 3 SOUTH DREDGE BASIC PLAN OVERVIEW



1 S-9 BULKHEAD B SECTION CUT - DREDGE LIMITATION STUDY
(ANALYSIS AND DESIGN PERFORMED BY TRITON ENGINEERS)



2 S-9 BULKHEAD A NEWER BULKHEAD SECTION CUT - DREDGE LIMITATION STUDY
(ANALYSIS AND DESIGN PERFORMED BY TRITON ENGINEERS)



3 S-9 BULKHEAD A SECTION CUT - DREDGE LIMITATION STUDY
(ANALYSIS AND DESIGN PERFORMED BY TRITON ENGINEERS)

PIER 3 SO. DREDGE OVERVIEW & BULKHEAD LIMITATIONS			
DATE	BAE SYSTEMS INSPIRED WORK	PAGE #	SHEET #
5-12-2017		10 OF 27	S-9

Figure 3-7
Project Element 4 Conceptual Dredge Plan
BAE Waterfront Improvement Project

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The following actions are proposed as part of Project Element 5:

- Installing one 16- by 20-foot, 3-foot-thick mooring dolphin 970 feet offshore (i.e., 270 feet west of the U.S. Pierhead Line). The height of the new mooring dolphin would extend to +13 feet MLLW. The following components are proposed for the new mooring dolphin:
  - Eight 24-inch concrete octagonal piles.
  - Two 150-ton double bitts.[16]

Sixteen steel H-pile fenders, 12 cylindrical fenders, whalers,[17] and chocks[18] around the perimeter of the proposed mooring dolphin.

3.4.6 Pier 3 North Lunchroom Wharf Replacement and Realignment (Project Element 6)

The Pier 3 wharf is a timber structure at the northern foot of Pier 3 that is aging and in need of replacement. The timber deck, which is supported by twenty-seven 12-inch-square precast concrete piles, was originally installed in the 1950s or 1960s but underwent significant modifications in 1985. The structure is currently used by employees during lunch breaks. In addition, an open area, which is currently surrounded by structures, would be covered. As part of the replacement, dredging may remove potentially contaminated sediment that was not accessible during the remedial dredging associated with CAO No. R9-2012-0024. An estimated 2,000 cy of potentially contaminated sediment would be dredged from this area (Anchor QEA 2019). Figure 3-8 provides representative photos for this project element, Figure 3-4 depicts the conceptual dredge design to achieve compliance with CAO No. R9-2012-0024 and Figure 3-5 depicts the conceptual dredge design for Project Element 6.

The following actions are proposed as part of Project Element 6:

- Demolishing the existing overwater, 1,150-square-foot restroom structure; removing 2,915 square feet of wood decking; and removing 595 square feet of metal. Removal of these existing materials would generate approximately 77 cy of debris.
- Removing twenty-seven 12-inch concrete pilings and one H-pile.
- Installing forty-eight 24-inch octagonal pre-cast concrete pilings.
- Constructing a new overwater structure consisting of 8,800 square feet of cast-in-place decking (including a berm edge and stormwater collection system) to replace the existing overwater structure that would be demolished. The height of the new decking would extend to +13 feet MLLW.
- Dredging approximately 2,000 cy of material from beneath the Pier 3 break area and disposing of it at an approved upland disposal site, such as the Otay Landfill.

[16] A *double bitt* is a type of bollard with two metal protrusions, which are used to secure lines from vessels to a dock. (A *bollard* is a short, thick post on the deck of a ship, or a wharf, for securing lines from a ship.)

[17] *Whalers* are the large wooden crossbars that support the bulkhead, which is part of the pier. (The *bulkhead*, as defined here, refers to a retaining wall along the waterfront.)

[18] *Chocks* are metal fixtures that hold lines in position so that vessels can tie up to a bollard, bitt, etc.

3.4.7 Quay Wall Modifications (Project Element 7)

A rock revetment slope is affecting vessel mooring and requires reinstallation. Figure 3-8 provides existing photos for this project element. The following actions are proposed as part of Project Element 7:

- Dredging 300 cy of rock, which would be disposed of at a local recycling facility.
- Dredging 500 cy of sediment in the immediate vicinity of the submerged sheet pile structure, which would be disposed of at an approved upland disposal site, such as the Otay Landfill.
- Installing up to 50 linear feet of a submerged sheet pile structure.

3.4.8 Port Security Barrier Replacement (Project Element 8)

A Port Security Barrier (PSB) is maintained around the facility, as required by the U.S. Navy, for vessels within the BAE Systems facility. The PSB deters small craft from approaching Navy vessels while they are undergoing repair. The U.S. Navy has instituted newer, stricter requirements for the PSB system, resulting in the need to replace the existing PSB with a new design. The proposed new PSB would be partially within CCC jurisdiction. Figure 3-9 provides existing and representative photos for this project element.

The following actions are proposed as part of Project Element 8:

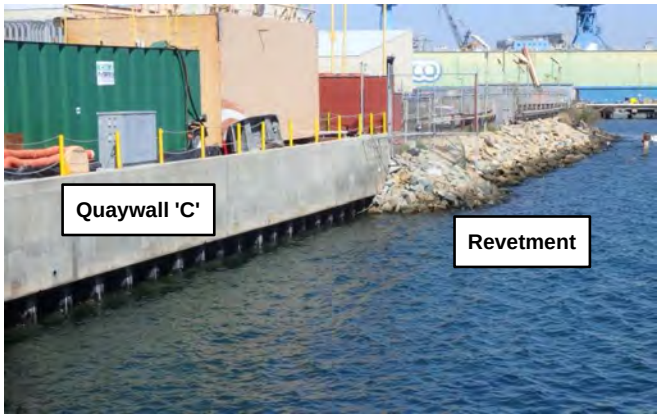
- Removing the existing 3,500-linear-foot floating boom and replacing it with a new 3,500-foot hard barrier. The new PSB includes the following components:
    - Ten 8- by 7.55-foot buoys secured by three anchors per buoy location.
    - 3,500 linear feet of hard barrier (PSB-T or PSB-V type) with navigational aid lights.
- Removing and disposing of the existing barrier, buoys, and anchors. Disposing of 3,500 linear feet, or approximately 120 cy, of debris, and recycling 13 tons of scrap steel and 19 cy of concrete.

3.4.9 Small-Boat Mooring Float Replacement (Project Element 9)

The small-boat mooring float allows personnel and materials to be deployed for waterfront facility maintenance and inspection as well as other surveillance activities, including drills and exercises, conducted on site. In addition, as part of the enhanced site security requirements instituted by the U.S. Navy, BAE Systems is required to maintain on-water security, including security patrol vessels. Figure 3-10 provides existing photos for this project element. The following actions are proposed as part of Project Element 9:

- Removing and replacing four piles that support the float.
- Replacing the existing 320-square-foot aged timber moorage float system (160 square feet for each float) with two 200-square-foot concrete floats. The new floats would include one 45-foot-long aluminum gangway, low-voltage electrical service, and potable water.
- Installing four 18-inch-round precast concrete piles.

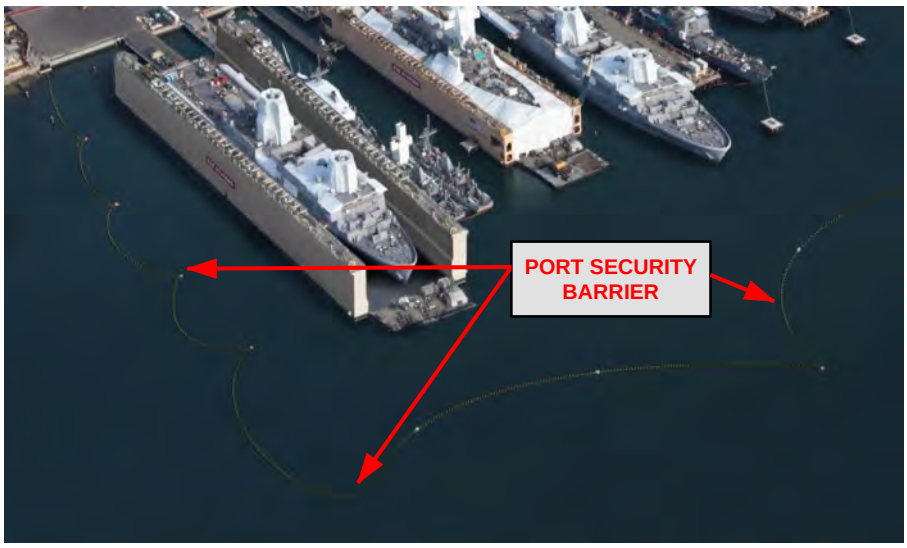
Pier 3 break area and outline of proposed wharf structure



Pier 4 South Quaywall, looking towards south property line

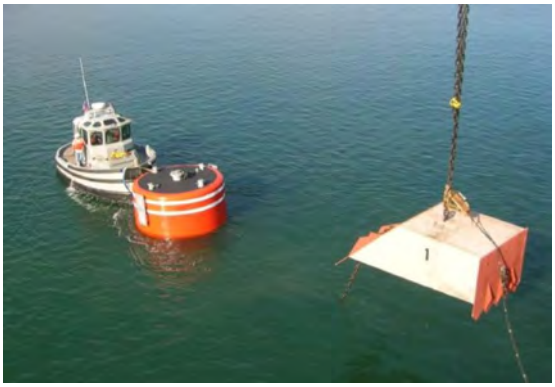
Subsurface and sloped revetment to be removed

Figure 3-8
Project Element 6: Pier 3 Lunchroom Wharf Replacement / Realignment and
Project Element 7: Quaywall Modifications at South End of Property
BAE Systems Waterfront Improvement Project



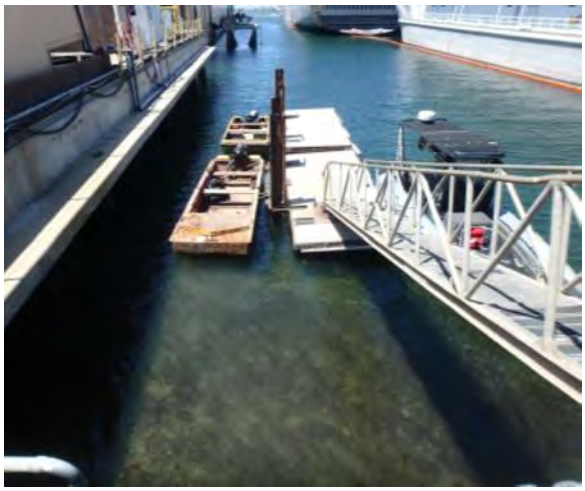
Existing Port Security Barrier (PSB) perimeter around facility waterfront

Representative PSB Barrier (float sections spanning waterway)



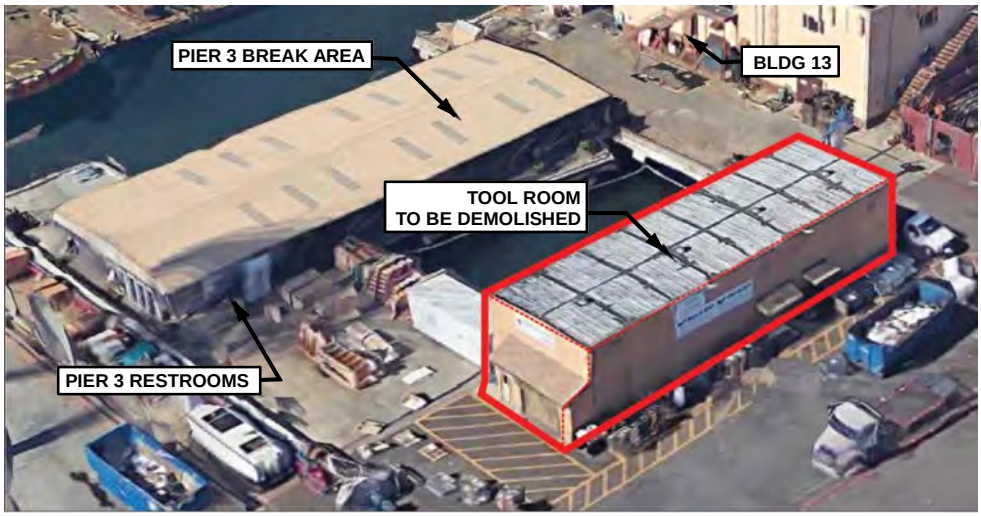
Representative PSB buried conc. anchor block & mooring buoy

Figure 3-9
Project Element 8: Port Security Barrier (PSB) Replacement (Navy Security Req.)
BAE Systems Waterfront Improvement Project



Existing small craft float

Concrete float concept design mockup



Location of existing tool room to be demolished and incorporated into proposed wharf structure building.

Figure 3-10
Project Element 9: Small Boat Mooring Float Replacement and
Project Element 10: Central Tool Room Replacement / Relocation
BAE Systems Waterfront Improvement Project

3.4.10 Central Tool Room Demolition and Reconstruction (Project Element 10)

The existing central tool room is an aging structure at the foot of Pier 3, on the south side of the project site. The structure would be demolished, and a new tool room would be constructed on the proposed new wharf structure (as proposed as part of the Pier 3 North Lunchroom Wharf Replacement and Realignment [Project Element 6]). Figure 3-10 provides existing photos for this project element. The following actions are proposed as part of Project Element 10:

- Demolishing the existing 2,000-square-foot central tool room structure, which would generate approximately 16 cy of debris.
- Excavating approximately 150 cy of soil to a maximum depth of 2 feet for the new building foundation. The majority of the excavated soil material would be recompacted and used as the base for new asphalt.
- Constructing a three-story replacement structure that would provide an approximately 21,900-square-foot work space and a 7,300-square-foot building footprint. The height of the proposed new building would extend to +50 feet MLLW.
- Replacing the existing Pier 3 restroom facilities within the new central tool room or incorporating the existing Pier 3 restrooms into the new structure.
- Providing utilities and related infrastructure (e.g., potable water, sanitary sewer service, compressed air, natural gas, electrical, computer, communications) within the new tool room.

3.4.11 New Production Building (Project Element 11)

Project Element 11 would involve demolishing the existing production building and constructing a new production building near the existing Building 6/7 (see Figure 3-1). This proposed building would increase the efficiency of material assembly. The first floor of the new structure would be used for production and equipped with an overhead bridge crane. The second and third floors would contain engineering, production support, and administration functions. Figure 3-11 provides existing photos for this project element. The following actions are proposed as part of Project Element 11:

- Demolishing the existing 17,675-square-foot production building, which would generate approximately 698 cy of debris.
- Excavating approximately 2,600 cy of soil to a maximum depth of 4 feet for the new building foundation. The majority of the excavated material would be reused as backfill around foundations or for the concrete slab under the new production building. However, it is anticipated that approximately 400 cy of excavated soil material would not be suitable for reuse and therefore would be disposed of at an approved upland disposal site.
- Constructing a new three-story production building with a 48,379-square-foot work space and a 16,475-square-foot footprint, with a height of up to 50 feet.
- Installing an overhead bridge crane within the first floor of the new production building.

3.4.12 Administrative Office Building (Project Element 12)

The existing offices are trailers that BAE Systems rents/leases for customer use in support of ship repair contracts performed on the site. These facilities provide space for the government contracts, quality assurance, and program management personnel who have been assigned to these contracts. This project element includes construction of permanent administrative office spaces. The first floor would contain production spaces, a tool room, and restroom. The second and third floors would contain office space and a break room. The new administrative office building would accommodate existing personnel, with the intention of reducing/eliminating the need for double and triple occupancies, which currently occur at several work stations in the production spaces throughout the project site. Figure 3-12 provides existing photos for this project element.

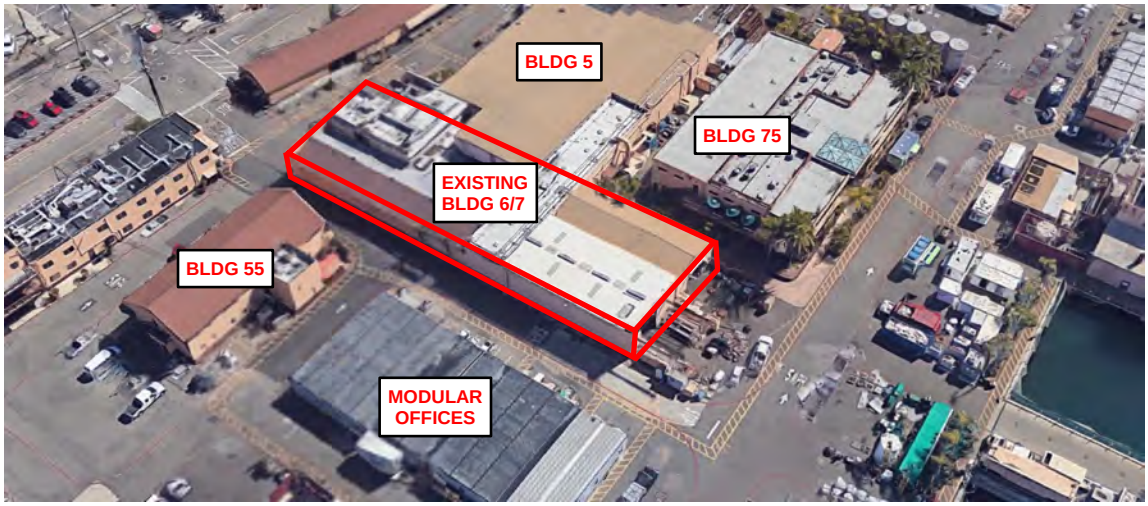
The following actions are proposed as part of Project Element 12:

- Disassembling and removing four trailers, totaling approximately 8,016 square feet, which would generate approximately 150 cy of debris.
- Demolishing approximately 8,600 square feet of asphalt pavement and excavating for water and sewer service piping, footings/foundations, and general recompaction activities. It is anticipated that approximately 650 cy of soil material would be excavated to a maximum depth of 5 feet and a maximum of 200 cy of material would be disposed of at an approved upland disposal site.
- Constructing a new three-story administrative office building with approximately 46,000 square feet of work space, a building footprint of 16,000 square feet, and a height of up to 55 feet.

3.4.13 Pier 1 Restroom Renovation and/or Demolition (Project Element 13)

The existing 506-square-foot restroom facility requires reconfiguration to increase capacity and improve functionality for employees, customers, and contractors. The restrooms would be retrofitted with more water efficient fixtures, LED lighting, and other features to increase utility and efficiency.

As an alternative, upon completion of Project Element 12 (Administrative Office Building), which includes a restroom facility, the Pier 1 restroom may be demolished if it is determined that it is no longer needed. The demolition would generate approximately 51 cy of debris, and excavation would be limited to removal of the buried piping to the Pier 1 lift station. It is anticipated that approximately 40 cy of soil material would be excavated to a maximum depth of 5 feet, and 10 cy of material would be disposed of at an approved upland disposal site. Figure 3-12 provides existing photos for this project element.



Location of existing bldg 6 & 7 to be demolished in-way-of new production building in similar footprint

Bldg 6/7 (east) to be demolished in-way-of new prod. bldg.

Bldg 6/7 (west) to be demolished in-way-of new prod. bldg.

Figure 3-11
Project Element 11: New Production Building
BAE Systems Waterfront Improvement Project

Existing modular offices footprint of new administrative office complex

Modular offices to be removed in-way-of administrative office construction

Existing pier 1 restroom to be demolished and incorporated into new admin complex

Figure 3-12
Project Element 12: Administrative Office Complex and
Project Element 13: Pier 1 Restroom (Existing) Demolition
BAE Systems Waterfront Improvement Project

3.4.14 Main Electric Utility Service Update (Project Element 14)

Project Element 14 would reconfigure the electrical utility distribution system in Building 13. This would involve relocation of the San Diego Gas & Electric main in Building 13 to Building 65, alongside East Belt Street, adjacent to the shipyard's existing four-way switch. Relocation of this electrical main would increase overall site safety by allowing San Diego Gas & Electric technicians access to critical electrical components outside the secure property perimeter. In addition, this project element would also provide additional space in the Building 13 electrical room, allowing BAE Systems to reconfigure and/or modernize the electrical equipment as needed. The following actions are proposed as part of Project Element 14:

- Replacing and upgrading electrical distribution equipment to ensure reliability and protect site infrastructure.
- Relocating the existing San Diego Gas & Electric main (i.e., meter) from Building 13 to Building 65. Existing electrical conduits within the project site would be reused to pull electrical cables to the relocated main in Building 65.

3.4.15 Sanitary Sewer and Potable Water Utility Services (Project Element 15)

The existing sanitary sewer and potable water service feeds have not been modified since the original installation in 1983. The hotel service requirements of current naval and commercial vessels necessitate improvements to sanitary sewer and potable water services. If implemented, this project element would include the replacement of existing sanitary and potable water feeds currently connected to existing utility services, which would require minor trenching. At this time, the exact locations and details of the specific sanitary and potable water feeds that would be replaced is unknown. Therefore, it is assumed that these improvements could occur throughout the project site.

3.5 Project Construction

3.5.1 Schedule

Construction of the various project elements is anticipated to begin in June 2021, with Project Element 3 (Fender Systems Repair and Replacement) and Project Element 4 (Pier 3 South Nearshore Dredging), and last through March 2026. Construction of each project element would not be performed in the order in which they are numbered in Figure 3-1. As shown in Table 3-1, construction of the various project elements would primarily occur sequentially, with little to no overlap between elements; however, construction of some elements may occur concurrently as indicated in Table 3-1. All construction activities would occur between 7:00 a.m. and 7:00 p.m. except for dredging activities, which would potentially occur 24 hours a day, 7 days a week for their duration. Table 3-1 lists the project elements in chronological order and provides the anticipated timing, duration, and construction crew size for each project element. Note that the anticipated construction schedule in Table 3-1 is approximate and is provided for analysis purposes, and the actual start and end dates may vary.

Table 3-1. Proposed Construction Schedule

#	Project Element	Anticipated Schedule	Approximate Duration (months)	Crew Size	Truck Trips
3[1]	Fender System Repair and Replacement (Fender Repair and Replacement)	June 2021–July 2021	0.75	6	60
9	Small-Boat Mooring Float Replacement	July 2021–August 2021	1.00	5	7
2	Pride of San Diego Drydock Wharf Replacement and Realignment	September 2021–December 2021	4.00	13	256
1	Pride of San Diego Drydock Dredging and Moorage	September 2021–December 2021	3.25	12	1,380
7	Quay Wall Modifications	January 2022–February 2022	1.00	10	10
3[1]	Fender System Repair and Replacement (Fender System New Construction)	February 2022–March 2022	1.50	6	60
8	Port Security Barrier Replacement	May 2022–July 2022	2.00	6	75
3[1]	Fender System Repair and Replacement (Fender System Maintenance and Replacement)	July 2022–August 2022	1.50	6	60
6	Pier 3 Lunchroom Wharf Replacement and Realignment	September 2022–December 2022	3.50	7	289
14	Electric Utility Service Update	February 2023–May 2023	3.50	5	5
15	Sanitary Sewer and Potable Water Utility Services	June 2023–August 2023	3.00	3	5
4	Pier 3 South Nearshore Dredging *All Truck Scenario*	September 2023–November 2023	2.25	10	1,000
4	Pier 3 South Nearshore Dredging *50/50 Scenario*	September 2023–November 2023	2.25	10	500
5	Pier 3 Mooring Dolphin	November 2023–December 2023	1.50	5	24
11	New Production Building	January 2024–October 2024	9.25	16	258
12	Administrative Office Building	November 2024–August 2025	9.50	16	213
13	Pier 1 Restroom Renovation and/or Demolition	June 2025–July 2025	1.00	10	25
10	Central Tool Room Demolition and Reconstruction	September 2025–March 2026	7.00	13	22

Note: The project construction schedule has been structured to minimize in-water work during the California least tern nesting/foraging season, where feasible.

[1] This project element would occur over three separate subphases: fender system repair and replacement, new fender installation, and fender system maintenance and replacement.

3.5.2 Equipment

In-water construction activities require specific types of construction equipment, including a floating crane, used for driving concrete piles; deck barges for delivering or storing materials; and tugboats for moving equipment, the drydock, and vessels. Landside construction activities would require use of an 80-ton land-based mobile crane, trucks for the delivery of construction materials, forklifts for support, a drilling rig, an impact hammer, and a vibratory hammer. Trucks for pouring concrete could also be required. Generally, it is anticipated that the project would require the use of rebar, structural steel, concrete, electrical and mechanical systems, tools, and construction equipment.

The types of equipment listed in Table 3-2 would be required during the various stages of construction.

Table 3-2. Anticipated Construction Equipment

Project Elements	Construction Stage	Equipment[1]
1, 4, 6, and 7	Dredging	• A dredge crane on a barge (for Project Elements 1 and 4) • Scow/barge with an ocean-going tugboat (for Project Elements 1 and 4) • Dump trucks • Runoff control features and containment structures • Pusher tugboat and survey vessel • Tractor/loader/backhoe
1–3, 6, 10–13	Demolition of Existing Structures	• Crane • Forklift • Miscellaneous construction equipment, including, but not limited to, pump trucks, asphalt pavers, and compactors • Other material handling equipment, including, but not limited to, cranes, forklifts, front-end loaders, excavators, and Bobcat skid steers • Welders • Generator • Tractor/loader/backhoe • Tugboat
1–12, 14, and 15	Construction	• Crane • Forklifts • Miscellaneous construction equipment, including, but not limited to, pump trucks, asphalt pavers, and compactors • Other material handling equipment, including, but not limited to, cranes, forklifts, front-end loaders, excavators, and Bobcat skid steers • Welders • Generators

[1]This is a comprehensive list of equipment that would be used for the project element; however, not every piece of equipment would be required for each element.

3.5.3 Demolition and Disposal

As shown in Table 3-3, eight of the project elements require demolition of existing structures and disposal of the subsequent debris. The construction waste generated from this demolition would be transported from the site and disposed of at an approved landfill. A minimum of 65 percent of the construction waste would be recycled in accordance with the City of San Diego Construction and Demolition Debris Ordinance. Similar to disposal of construction waste, contaminated dredged sediment generated by the proposed project would be designated for upland disposal and transported to an approved landfill. Table 3-3 delineates the amount of demolition material that would be generated by the eight project elements that require demolition.

Table 3-3. Landside Demolition Disposal

Project Element		Weight (tons)	Volume[1] (cubic yards)
1	Pride of San Diego Drydock Dredging and Moorage Replacement	2,032	1,005
2	Pride of San Diego Drydock Wharf Replacement and Realignment	884	408
3	Fender System Repair and Replacement	1,352	269
6	Pier 3 North Lunchroom Wharf Replacement and Realignment	125	77
10	Central Tool Room Demolition and Reconstruction	101	16
11	New Production Building	838	698
12	Administrative Office Building	291	150
13	Pier 1 Restroom Renovation and/or Demolition	6	51
	Total	**5,629**	**2,674**

[1] Scrap steel generated during demolition and construction would be handled through the BAE Systems facility scrap recycling program and, therefore, is not accounted for in the volume of demolition disposal.

Up to approximately 15,000 cy of dredged materials from the Pier 3 South Nearshore Dredging (Project Element 4) would be disposed of at an approved upland landfill, such as the Otay Landfill and/or Sycamore Landfill.[19] The dredged materials would be placed in dredge scows; no stockpiling on the site is proposed. Dredged material is dewatered, treated, and disposed of in accordance with existing permit and landfill requirements.

Additionally, approximately 2,000 cy of material would be dredged beneath the Pier 3 break area as part of the Pier 3 North Lunchroom Wharf Replacement and Realignment (Project Element 6). The Quay Wall Modifications (Project Element 7) would also include dredging of 300 cy of rock, which would be disposed of at a local recycling facility, as well as 500 cy of sediment. The dredged sediment from both of these project elements would be disposed of at an approved upland disposal site.

Moreover, approximately 98,800 cy of material would be dredged as part of the Pride of San Diego Drydock Dredging and Moorage Replacement (Project Element 1). Dredged materials from this project element are planned for ocean disposal at the LA-5 disposal site if suitable for unconfined

[19] As discussed under Section 3.4.4 above, the extent of unsuitable materials dredged under Project Element 4 is currently unknown. Therefore, there are two scenarios under consideration for disposal of dredged materials: the 50/50 Scenario and All Truck Scenario. The 50/50 Scenario assumes that half of the total dredged material (7,500 cy) generated would be suitable for ocean disposal and half (7,500 cy) would require disposal at an approved landfill.

aquatic ocean disposal. To determine the suitability of the dredged material for unconfined aquatic ocean disposal, BAE Systems would conduct a dredged material suitability study in consultation with the USACE and EPA as part of the Ocean Dumping Permit process. Any dredged material that is unsuitable for ocean disposal would be disposed of at an approved upland landfill (see discussion under Section 3.4.1).

As discussed in Section 3.4.1, in the event that unconfined aquatic disposal is not suitable, only approximately 15,280 cy of the proposed 98,800 total cy of sediment would be dredged to comply with CAO No. R9-2012-0024.

3.5.4 Construction Worker Parking

Construction equipment laydown and parking would be provided onsite adjacent to the construction zones for each project element. In the event of excess parking demand, BAE Systems has an existing agreement with the nearby Hilton San Diego Bayfront for additional overflow parking and a shuttle service to transport workers to the project site. All construction workers who cannot be accommodated onsite and/or would need to park offsite would be required to park at the Hilton San Diego Bayfront, and all construction personnel would receive parking passes for the duration of the construction period for that project element(s). Once parked at the Hilton San Diego Bayfront, construction personnel would be required to use vanpools to and from the project site.

3.5.5 Best Management Practices

3.5.5.1 Water Quality

Construction staging activities would occur within the project site. The proposed project is anticipated to include pavement resurfacing, grading, or soil disturbance greater than 100 square feet but less than 1 acre. In addition, the proposed project would include redevelopment of 5,000 square feet of impervious surfaces on an existing site with 10,000 square feet of impervious surfaces. Therefore, the proposed project is categorized as a Priority Development Project and subject to permanent best management practices (BMPs), per the District's *BMP Design Manual* and as required by the Municipal Stormwater Permit. A Stormwater Quality Management Plan for Priority Development Projects that identifies and supports the use of permanent structural BMPs, as appropriate, is also required. A Construction BMP Plan would also be developed as part of the proposed project, outlining the specific BMPs that would be implemented during construction. The Construction BMP Plan would be approved by the District prior to commencement of construction activities. Components of the plan include BMPs to eliminate or reduce pollutants in stormwater runoff and non-stormwater discharges from the project site during construction. The plan includes the following types of construction BMPs: erosion management, material pollution control, sediment control, soil stabilization, tracking control, wind erosion control, waste management, and spill prevention and control.

The BAE Systems San Diego Ship Repair Yard operates and maintains a Stormwater Diversion System (SWDS) to eliminate or reduce stormwater discharges to surrounding receiving waters (i.e., San Diego Bay). The relevant proposed project elements would incorporate existing BMPs, including the SWDS, or modify/develop project-specific BMPs, as appropriate. The SWDS consists of 36 catch basins and associated piping as well as secondary containment. The perimeter of the site is bermed, including the piers, overwater structures, and drydocks. The system is designed to capture the first inch of stormwater that falls on the facility, which is 100 percent impervious.

Collected stormwater is held in 11 tank systems (DS1 through DS11) and managed in accordance with the BAE Systems Industrial User Discharge Permit, issued by the City of San Diego Industrial Wastewater Control Program. Once it has been determined that the stormwater meets Industrial User Discharge Permit parameters, it is discharged into the on-site sewer. Additional system capacity would not be required.

Standard operating procedures (SOPs) and BMPs during in-water construction activities will be implemented. Practices and procedures may include the District's *Best Management Practices and Environmental Standards for Overwater Structural Repair and Maintenance Activities for Existing Port Facilities Conducted by the San Diego Unified Port District* (District 2019) as may be augmented by the RWQCB during the Clean Water Act Section 401 Water Quality Certification process and will adhere to construction parameters established in the CAO R9-2012-0024. These BMPs and SOPs are further discussed in Section 4.4, *Hazards and Hazardous Materials* and Section 4.5, *Hydrology and Water Quality* of this EIR. The BMPs and SOPs for pile installation or removal techniques may be modified dependent on technique employed (i.e. use of an impact hammer, and/or jetting, and/or spudding) which itself is dependent on conditions encountered.

3.5.6 Project Operation

Several of the project elements are infrastructure maintenance and modernization improvements and would not change existing operations at the project site. However, the dredging and mooring improvements under Project Element 1 (Pride of San Diego Drydock Dredging and Moorage Replacement), as well as Project Element 4 (Pier 3 South Nearshore Dredging) and Project Element 5 (Pier 3 Mooring Dolphin), would allow BAE Systems to improve operational efficiency and service newer and larger classes of vessels compared to existing conditions. Each of these operational changes are described in further detail below.

As discussed further in Section 3.4.1, the current configuration of the Pride of San Diego Drydock and sump requires the drydock to be moved from its mooring to the west and south in order to submerge and dock or undock a vessel each time a vessel comes in for drydock servicing. Implementation of Project Element 1 would improve operational efficiencies by allowing the drydock to submerge and lift vessels in place without the need for the drydock to be moved, thereby reducing the amount of time and effort needed to service vessels at drydock. This in-turn would allow wide-bodied vessels to be concurrently moored at Pier 3 North, eliminating the need to run the diesel engines of two separate vessels concurrently during docking and undocking activities as well as the need for tugboats to move the drydock.

The largest naval vessels that can currently berth at Pier 3 are Amphibious Transport Dock (LPD-17) vessels, which are 684 feet in length. Pier 3 is not designed for the wind, tide, and mooring loads, as well as overall length, to accommodate larger vessels, such as an Amphibious Assault Ship (LHD/LHA), which is 844 feet in length and has a 106-foot beam. The proposed improvements at Pier 3 (Project Elements 4 and 5) would include approximately 15,000 cy of nearshore dredging and the installation of an additional mooring dolphin. With the proposed improvements, the facility would be able to moor the larger Amphibious Assault Ships, as well as larger commercial ships, at the Pier 3 South berth; however, no change in the mooring capacity would occur at the Pier 3 North berth as the existing shoreline infrastructure creates an inadequate pier length for supporting larger vessels.

Because of the changes to mooring capacity at Pier 3 South, the number of vessel crew and laborers onsite could also change, depending on the specific ship mix at the site. For example, commercial vessels do not generally carry a large crew, while large naval vessels occasionally do. Crew size may also be dependent on the length of the repair contract and/or the type of work being done on the vessel. Table 3-4 provides the dimensions and crew sizes for vessels that are currently serviced or could be serviced in the future at the site.

Table 3-4. Vessel Dimensions and Crew Size Ranges

Ship Class[1,2]	Length (feet)	Width (feet)	Draft (feet)	Crew Size Range[4]
Cruisers (CG)	567	55	34	272–340
Destroyers (DDG)	505	66	31	278–348
Dock Landing Ships (LSD-49)	610	84	21	318–397
Amphibious Transport Docks (LPD-17)	684	105	23	266–333
Littoral Combat Ships (LCS)	418	104	14	35–43
General-Purpose Amphibious Assault Ship (LHA)	844	106	26	847–1,059
Multi-Purpose Amphibious Assault Ship (LHD)	843	104	27	966–1,208
Dry Cargo/Ammunition Ships (T-AKE)[3]	689	106	30	172
Fleet Replenishment Oilers (T-AO)[3]	755	107	35	139
Expeditionary Fast Transport (T-EPF)[3]	338	94	13	22

[1] All vessel classes, except littoral combat ships (LCS), use an existing mooring dolphin that is approximately 150 feet past the end of the pier (i.e., west of the U.S. Pierhead Line), which is approximately 850 feet from shore.

[2] Types of vessels that are currently serviced at the site include CG, DDG, LSD-49, LPD-17, LCS, T-AKE, T-AO, and T-EPF.

[3] Military Sealift Command (MSC)/Commercial.

[4] Workforce of Navy vessels typically reduced when coming into berth by approximately 20 percent while under repair. Vessels depicted with varying crew sizes reflect the range between reduced and full crew sizes.

The proposed improvements at Pier 3 South (Project Elements 4 and 5) would change the number and types of vessels that could be moored at the site when a large ship is moored on the south side of the pier. The specific ship mix that the facility could support is dependent on the size of the vessel moored and its effects on adjacent berths. Because of the increased width of the larger vessels (Navy or commercial) that could be moored at Pier 3 South, the mooring of vessels at Pier 4 North would be eliminated as there would no longer be enough width between Pier 3 South and Pier 4 North to accommodate both. However, the proposed improvements at Pier 3 South would not preclude two smaller ships from being concurrently serviced at Pier 3 South and Pier 4 North, consistent with existing operations at the site.

Figure 3-13 depicts one of the potential berthing configurations, based on the changes in ship mix that could occur with the proposed project (Scenario 2 in Table 3-5). However, the mooring of vessels at Pier 4 North could still occur when cruisers (CG) (567 feet long/55 feet wide) or destroyers (DDG) (505 feet long/66 feet wide) are moored at Pier 3 South (current state). In addition, when a larger Navy ship is moored at Pier 3 South, the attendant berthing barge would be required to moor at either Pier 3 North or Pier 4 South. As a result, the potential berthing capacity of the site would be reduced by two vessels. Using the most conservative crew assumptions (Amphibious Assault Ships [LHD] at Pier 3 South), Table 3-5 compares the three potential berthing scenarios and identifies which vessels can moor at Pier 4 South when an LHD is moored at Pier 3 South following project implementation.

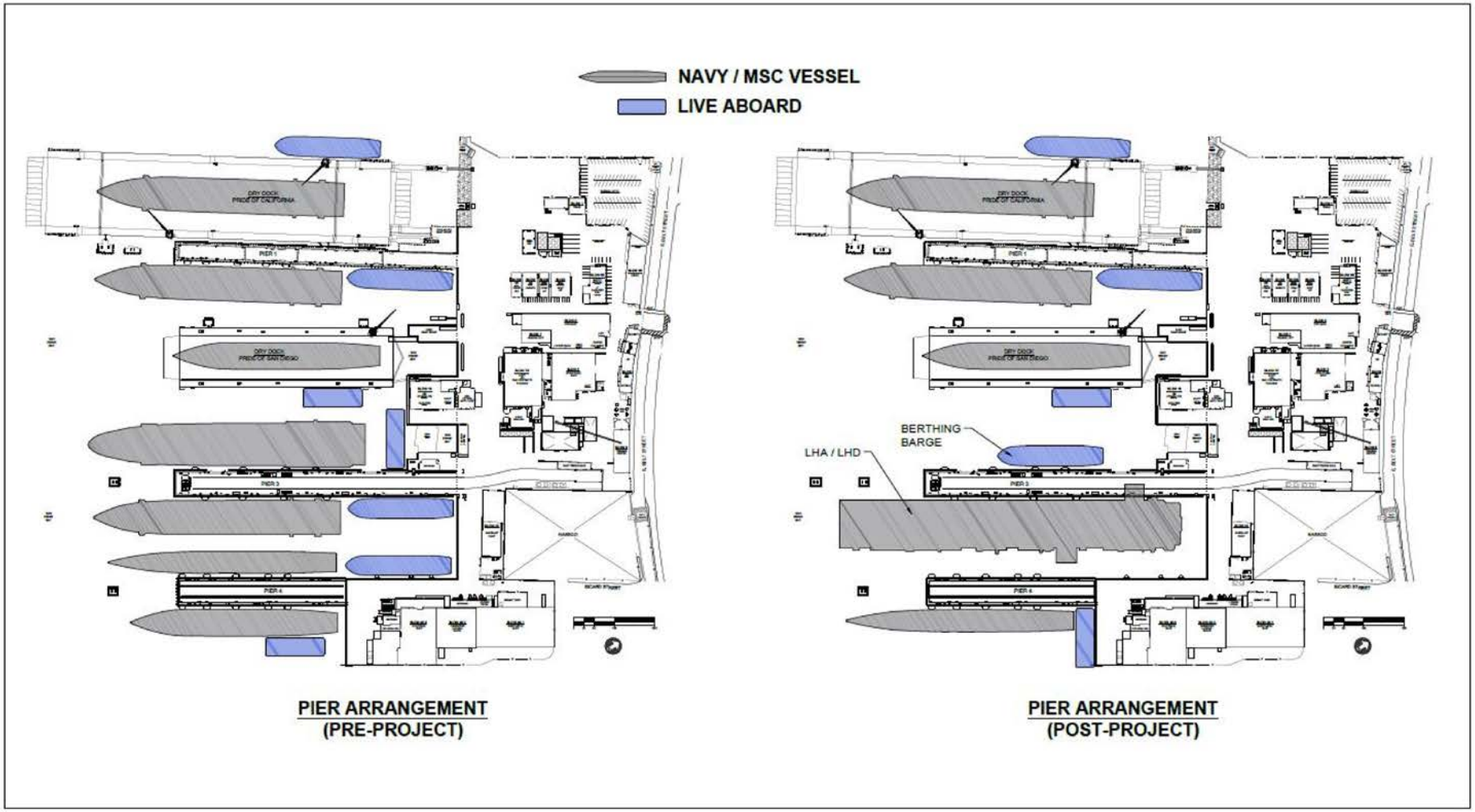


Figure 3-13
Existing and Potential Post-Project Berthing Configurations
BAE Systems Waterfront Improvement Project

Table 3-5. Vessel Crew and Labor Comparison Before and After Project (LHD Berthed at Pier 3 South)

Scenario		Existing Vessel Crew and Labor Size				Subtotal	Total	Proposed Vessel Crew and Labor Size				Subtotal	Total	Delta[3]
1	Pier[1]	3S	3N	4S	4N		2,216	3S	3N	4S	4N		1,844	-372
	Ship Type[2]	CG	DDG	DDG	CG			LHD	None	DDG	None			
	Crew	272	278	278	272	1,100		966	0	278	0	1,244		
	Labor	279	279	279	279	1,116		321	0	279	0	600		
2	Pier[1]	3S	3N	4S	4N		1,974	3S	3N	4S	4N		1,838	-136
	Ship Type[2]	LSD	LPD	DDG	CG			LHD	None	CG	None			
	Crew	318	266	278	272	1,134		966	0	272	0	1,238		
	Labor	141	141	279	279	840		321	0	279	0	600		
3	Pier[1]	3S	3N	4S	4N		1,572	3S	3N	4S	4N		1,447	-125
	Ship Type[2]	LSD	DDG	LCS	CG			LHD	None	LCS	None			
	Crew	318	278	35	272	903		966	0	35	0	1,001		
	Labor	141	124	125	279	669		321	0	125	0	446		

[1] 3S = Pier 3 South; 3N = Pier 3 North; 4S = Pier 4 South; 4N = Pier 4 North.

[2] CG = Cruisers; DDG = Destroyers; LSD = Dock Landing Ships; LPD = Amphibious Transport Docks; LHD = Amphibious Assault Ship; LCS = Littoral Combat Ships.

[3] Delta is the overall change in crew and labor size between existing and proposed project conditions for each scenario.

Another difference between existing and proposed conditions is the number of ship repair days per year. Under proposed conditions, when a larger ship is berthed at Pier 3 South, only the south side of Pier 3 would be used instead of both sides (north and south), as under current conditions, because the attendant berthing barge would be required to moor at either Pier 3 North or Pier 4 South. This would potentially limit the ability of vessels to be moored and serviced at Pier 3 North under these circumstances. However, this would occur only when an LHA/LHD is berthed at Pier 3 South. This would decrease overall operational efficiency (occupancy) at Pier 3 and therefore result in fewer days per year when Pier 3 would be active with ship maintenance and repair. The addition of the mooring dolphin at Pier 3 would support the berthing of an LHA/LHD and would not increase capacity for other classes of vessels or work at the site. With the limitations presented by the current Pier 3, such as ability to moor larger/longer vessels, BAE Systems is not able to use this pier for larger/longer ships.

Table 3-6 identifies the anticipated change in the annual average number and duration of ships moored and/or serviced at the BAE Systems facility. As shown in Table 3-6, there would be no change between the existing and projected number of vessels serviced as well as the number of days spent in the drydock. However, there would be a change in the number of vessels serviced at berth (i.e., at Piers 3 and 4). Specifically, there would be three fewer CG/DDG vessels annually under the proposed condition than under the existing condition (i.e., five vessels vs. two, respectively). This would be offset by the new capability to service LHA/LHD vessels, which would add one such vessel for approximately 220 days. Overall, the average number of days vessels are in service at berth under the proposed project condition would be nearly identical to the existing condition (i.e., 156 vs. 157, respectively).

Table 3-6. Projected Changes in Average Number and Duration of Vessels Moored/Serviced (Annual)

	Drydocked				Berthed			
	Existing[1]		Proposed		Existing[1]		Proposed	
Ship Class	Number	Duration (Days)	Number	Duration (Days)	Number	Duration (Days)	Number	Duration (Days)
CG/DDG	2	153	2	153	5	168	2	168
LPD/LSD	1	278	1	278	2	194	1	194
LCS	1	124	1	124	1	30	1	30
LHA/LHD	0	0	0	0	0	0	1	220
Total[2]	**4**	**177**	**4**	**177**	**8**	**157**	**5**	**156**

[1] Existing data for 2015 to 2018 (2018 actuals through August and projections for September to December 2018).
[2] The duration totals represent the average duration of each vessel moored/serviced at the site annually.

Vessels calling on the BAE Systems facility generally require “ship assist” tugboat services to move them in and out of the shipyard. Naval vessels would come to the BAE Systems San Diego Ship Repair Yard from either Naval Base San Diego (most common) or a commercial shipyard (least common). It should be noted that LHD/LHA vessels would not arrive from sea or depart to sea immediately prior to arrival/departure at the BAE Systems San Diego Ship Repair Yard. Rather, it is anticipated that this class of vessel would transit between BAE Systems and Naval Base San Diego on all occasions. Tugs are also required when transitioning a ship to or from a BAE Systems pier or into or out of drydock. Overall, tugboat activity would decrease on an annual basis compared to existing conditions due to the reduced number of vessels that would be serviced annually, as well as the

operational efficiencies gained at the Pride of San Diego Drydock, which would no longer require the drydock to be moved in order to submerge and dock or undock a vessel. A detailed discussion of the changes in tug activity resulting from the proposed project is provided in Section 4.1, *Air Quality and Health Risk*. In addition, BAE Systems provides temporary portable diesel engines on the ships to provide minimal power for lighting and other systems during transit in and out of the facility. Furthermore, portable fire pumps are usually provided for fire protection during the movement of vessels in and out of the shipyard.

3.6 Project Review and Approvals

The District is the lead agency under CEQA and responsible for permitting and carrying out the proposed project. In addition, several other federal, state, and local permits and approvals will be required for the proposed project. The permits and approvals listed below may be required to implement the proposed project.

3.6.1 Federal Agencies

U.S. Army Corps of Engineers

- Authorize individual/nationwide Section 404 Permit (Clean Water Act [CWA]; 33 U.S. Code [USC] Section 1341)
- Authorize Section 10, Rivers and Harbors Act Permit
- Enforce Marine Protection, Research, and Sanctuaries Act of 1972, Section 103
- Enforce 40 Code of Regulations, Part 227, Criteria for the Evaluation of Permit Applications for Ocean Dumping Materials

U.S. Environmental Protection Agency

- Authorize Ocean Dumping Permit

U.S. Coast Guard

- Obtain concurrence with Ocean Dumping Permit (EPA)

National Marine Fisheries Service and U.S. Fish and Wildlife Service

- Obtain concurrence with Ocean Dumping Permit (EPA)

3.6.2 State Agencies

State Water Resources Control Board, Regional Water Quality Control Board

- Authorize Section 401 Certification (CWA, 33 USC Section 1341, if the project requires a USACE 404 Permit) and Water Discharge Requirements for dredging

California Coastal Commission

- Authorize a non-appealable Coastal Development Permit for activities outside District's permitting jurisdiction for Project Elements 1, 5, and 8

California Department of Fish and Wildlife

- Obtain concurrence with the Ocean Dumping Permit (EPA)

3.6.3 Local Agencies

San Diego Unified Port District

- Certification of the EIR
- Adoption of the Mitigation Monitoring and Reporting Program
- Adoption of the Findings of Fact
- Adoption of the Statement of Overriding Considerations, if applicable

Authorization for issuance of a non-appealable Coastal Development Permit City of San Diego

- Issuance of ministerial permits (e.g., grading, building, electrical)

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Chapter 4
Environmental Analysis

Introduction

In accordance with Sections 15128 and 15143 of the State CEQA Guidelines, Sections 4.1 through 4.9 of Chapter 4 of this Draft EIR contain a discussion of the potential significant environmental effects resulting from the proposed project, including information related to existing site conditions, criteria for determining the significance of potential environmental impacts, analyses of the type and magnitude of environmental impacts, and feasible mitigation measures that would reduce or avoid significant environmental impacts.

Potential Environmental Impacts

This chapter provides an analysis of the following environmental resource and issue areas.

4.1 *Air Quality and Health Risk*

4.2 *Biological Resources*

4.3 *Greenhouse Gas Emissions and Energy*

4.4 *Hazards and Hazardous Materials*

4.5 *Hydrology and Water Quality*

4.6 *Land Use and Planning*

4.7 *Noise and Vibration*

4.8 *Sea-Level Rise*

4.9 *Transportation, Circulation, and Parking*

The District determined during preparation of the Initial Study/Environmental Checklist (Appendix A) that the proposed project would have either a less-than-significant impact or no impact associated with the following resources: Aesthetics; Agriculture and Forestry Resources; Cultural Resources; Geology and Soils; Mineral Resources; Population and Housing; Public Services; Recreation; Tribal Cultural Resources; Utilities and Service Systems; and Wildfire. These issues are described in Section 6.3, *Effects Not Found to Be Significant,* of this Draft EIR.

Format of the Environmental Analysis

Each of the 9 environmental resource sections of this chapter includes the following subsections.

Overview

This subsection briefly describes the thresholds of significance considered in the particular resource section, identifies any reports which contain information presented in the environmental analysis, and summarizes the environmental effects of the proposed project and any necessary mitigation measures.

Existing Conditions

According to Section 15125 of the State CEQA Guidelines, an EIR must include a description of the existing physical environmental conditions in the vicinity of a project to provide the "baseline condition" against which project-related impacts are compared. Normally, the baseline condition is the physical conditions that exist when the NOP is published; however, a different baseline may be used in specific cases where it is deemed appropriate and supported by substantial evidence. The NOP was published on March 7, 2019. Unless indicated otherwise, the environmental setting described in each of the following sections will be that which existed at the time the NOP was published.

Applicable Laws and Regulations

This subsection provides a summary of regulations, plans, policies, and laws at the federal, state, and local levels that are relevant to the proposed project as they relate to the particular environmental resource area in discussion. Compliance with these applicable laws and regulations is mandatory unless noted otherwise within the analysis. Therefore, as it relates to the *Project Impact Analysis* below, compliance is assumed because it is required by law, as specified in a tenant lease, and mitigation generally would not be required when the proposed project's compliance with an existing law or regulation would avoid or reduce a significant impact.

Project Impact Analysis

This subsection describes the methodology used for the analysis of the potential environmental impacts; identifies the criteria for determining the significance of potential impacts; discusses the facts, data, and other information that relates to potential environmental impacts; determines whether the environmental impacts would be significant; identifies feasible mitigation measures that may avoid or reduce the significant impacts; and states a conclusion as to whether the environmental impacts would be considered significant and unavoidable, less than significant with mitigation incorporated, or less than significant (see definitions below). Each topic analyzed is divided into specific issues, based on potential impacts, and addresses construction and operational impacts separately wherever relevant. The discussion of potential impacts is based on the applicable threshold of significance (see below) for each issue. Where potential impacts are significant, feasible mitigation measures are identified to minimize, rectify, reduce, eliminate, or compensate for significant impacts with the goal of reaching a less-than-significant impact determination.

Methodology

Each methodology subsection describes the means used to analyze potential impacts on a particular resource, discussing the steps followed and listing any studies relied on to determine significance.

Thresholds of Significance

Thresholds of significance are criteria used to assess whether potential environmental effects are significant. The significance criteria used in this analysis are primarily based on the recommendations provided in Appendix G of the State CEQA Guidelines. The thresholds of significance define the type, amount, and/or extent of impact that would be considered a significant adverse change in the environment. The thresholds of significance for some environmental topics, such as certain air quality and noise issues, are quantitative, while thresholds for other topics, such

as visual quality, are often qualitative. The thresholds of significance are intended to assist the reader in understanding how an impact is determined to be significant and are based on substantial evidence in the administrative record.

Project Impacts and Mitigation Measures

Impact Discussion

The analysis of environmental impacts considers both the construction and operation of the proposed project. As required by Section 15126.2(a) of the State CEQA Guidelines, direct, indirect, short-term, long-term, onsite, and/or offsite impacts are addressed, as appropriate, for the environmental issue being analyzed. This EIR utilizes the following terms to describe the level of significance of impacts identified during the course of the environmental analysis.

No Impact: This term is used when the project's construction and/or operation would have no adverse effect on a resource.

Less than Significant: This term is used to refer to impacts resulting from implementation of the proposed project that would not exceed the defined thresholds of significance, and potentially significant impacts that are reduced to a level that does not exceed the defined thresholds of significance after implementation of mitigation measures. In the latter case, the determination is commonly stated as "less than significant with mitigation incorporated."

Significant: This term is often used to refer to impacts resulting from implementation of the proposed project that exceed the defined thresholds of significance before identification of any mitigation measures. A "significant effect" is defined by Section 15382 of the State CEQA Guidelines as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment [but] may be considered in determining whether the physical change is significant." For impacts that exceed a threshold of significance, mitigation measures that avoid or reduce the potential significant impact are identified, which may cause the impact to be reclassified as less than significant if it is sufficiently reduced, or the impact may remain significant, in which case it is referred to as a significant and unavoidable impact (or unavoidable significant impact).

Significant and Unavoidable: This term is used to refer to significant impacts resulting from implementation of the proposed project that cannot be eliminated or reduced to below a threshold of significance through implementation of feasible mitigation measures.

Mitigation Measures

Section 15126.4 of the State CEQA Guidelines requires an EIR to "describe feasible measures which could minimize significant adverse impacts." Mitigation includes avoiding an impact altogether, minimizing impacts, rectifying impacts, reducing or eliminating impacts over time, or compensating for impacts by replacing or providing substitute resources. The State CEQA Guidelines define feasibility as "capable of being accomplished in a successful manner within a reasonable period of time taking into account economic, legal, social, technological, or other considerations." This subsection lists the mitigation measures that could reduce the severity of impacts identified in the *Impact Discussion* subsection. Mitigation measures are the specific environmental requirements for

construction or operation of the proposed project that will be included in the Mitigation Monitoring and Reporting Program and adopted as conditions of approval of the proposed project.

Section 4.1
Air Quality and Health Risk

4.1.1 Overview

This section describes the existing conditions and applicable laws and regulations for air quality and health risk. The section also discusses the proposed project's potential to increase air emissions in the region. Impacts on air quality are considered significant if the proposed project were to (1) conflict with or obstruct implementation of the applicable air quality plan, (2) result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard, (3) expose sensitive receptors to substantial pollutant concentrations, or (4) result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

This section relies on the emission modeling descriptions provided in the Air Quality and Greenhouse Gas (GHG) Technical Memorandum (Appendix C). As described in Section 4.1.4.3, *Project Impacts and Mitigation Measures*, the proposed project would not result in any significant impacts related to air quality and health risk. No mitigation measures are required.

4.1.2 Existing Conditions

4.1.2.1 Climate and Atmospheric Conditions

Regional

The proposed project is within the San Diego Air Basin (SDAB), which covers all of San Diego County. The SDAB is bordered by the Pacific Ocean to the west, the South Coast Air Basin (SCAB) to the north, the Salton Sea Air Basin to the east, and the U.S.–Mexico border to the south.

The climate of San Diego is classified as Mediterranean but is incredibly diverse because of the topography. The climate is dominated by the Pacific High pressure system that results in mild, dry summers and mild, wet winters. San Diego experiences an average of 201 days above 70°F and 9–13 inches of rainfall annually (mostly, November–March). El Niño and La Niña patterns have large effects on the annual rainfall received in San Diego (SDAPCD 2018a).

An El Niño is a warming of the surface waters of the eastern Pacific Ocean. It is a climate pattern that occurs across the tropical Pacific Ocean that is associated with drastic weather occurrences, including enhanced rainfall in Southern California. La Niña is a term for cooler than normal sea surface temperatures across the Eastern Pacific Ocean. San Diego receives less than normal rainfall during La Niña years (SDAPCD 2018a).

The Pacific High drives the prevailing winds in the SDAB. The winds tend to blow onshore in the daytime and offshore at night. In the summer, an inversion layer is created over the coastal areas and increases the ozone (O_3) levels. In the winter, San Diego often experiences a shallow inversion layer which tends to increase carbon monoxide and particulate matter (PM) less than or equal to

2.5 microns in diameter (PM2.5) concentration levels due to the increased use of residential wood burning (SDAPCD 2018a).

In the fall months, the SDAB is often impacted by Santa Ana winds, which result from a high-pressure system over the Nevada-Utah region that overcomes the westerly wind pattern and forces hot, dry winds from the east to the Pacific Ocean. These winds are powerful and incessant. They blow the air basin's pollutants out to sea. However, a weak Santa Ana can transport air pollution from the South Coast Air Basin and greatly increase the San Diego O_3 concentrations. A strong Santa Ana also primes the vegetation for firestorm conditions (SDAPCD 2018a).

Local

The weather station closest to the project site is the San Diego/Lindbergh Field Station, approximately 3 miles to the northwest. Given its proximity, historic climatic conditions at San Diego/Lindbergh Field over the period of record (1914–2012) are assumed to be representative of the prevailing climatic conditions. The annual average temperature at Lindbergh Field is 63°F, with an average winter temperature of 57°F and an average summer temperature of 69°F (WRCC 2012a). Total annual precipitation averages 10.13 inches. Precipitation occurs mostly during the winter and relatively infrequently during the summer (WRCC 2012b).

The project site is in the vicinity of two wind monitoring stations operated by the San Diego Air Pollution Control District (SDAPCD): Perkins Elementary School, approximately 0.6 mile north-northwest of the project site in the Barrio Logan community, and the San Diego/Lindbergh Field Station, approximately 3 miles northwest of the project site. Wind patterns at Perkins Elementary School indicate a prominence of westerly winds that average 4.27 miles per hour (1.91 meters per second), with calm winds present approximately 10.03 percent of the time. Wind monitoring data recorded at the San Diego/Lindbergh Field Station indicate a more west–northwest prominence, averaging 6.33 miles per hour (2.83 meters per second) with calm winds present approximately 0.84 percent of the time (Gould pers. comm.). A wind rose showing wind directions, speeds, and frequency in the project vicinity is shown in Appendix C.

4.1.2.2 Air Quality Conditions

Regional Attainment

The Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (EPA) to designate areas within the country as either attainment or nonattainment for each criteria pollutant based on whether the National Ambient Air Quality Standards (NAAQS) have been achieved. Similarly, the California CAA requires the California Air Resources Board (CARB) to designate areas within California as either attainment or nonattainment for each criteria pollutant based on whether the California Ambient Air Quality Standards (CAAQS) have been achieved. If a pollutant concentration is lower than the state or federal standard, the area is classified as being in attainment for that pollutant. If a pollutant violates the standard, the area is considered a nonattainment area. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated unclassified. Under the California CAA, areas are designated as nonattainment for a pollutant if air quality data show that a state standard for the pollutant was violated at least once during the previous 3 calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a state standard and are not used as a basis for designating areas as nonattainment. The attainment status of San Diego County is summarized in Table 4.1-1.

Table 4.1-1. Federal and State Attainment Status for San Diego County

Criteria Pollutant	Federal Designation	State Designation
Ozone (O_3) (8-hour)	Nonattainment – Moderate	Nonattainment
Carbon Monoxide (CO)	Attainment	Attainment
Respirable Particulate Matter (PM10)	Unclassifiable[1]	Nonattainment
Fine Particulate Matter (PM2.5)	Attainment	Nonattainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead (Pb)	Attainment	Attainment
Sulfates	(No federal standard)	Attainment
Hydrogen Sulfide	(No federal standard)	Unclassified
Visibility	(No federal standard)	Unclassified

Source: SDAPCD 2019a, EPA 2019d.

[1] At the time of designation, if the available data do not support a designation of attainment or nonattainment, the area is designated as unclassifiable.

Local Criteria Pollutant Concentrations

SDAPCD maintains and operates a network of ambient air monitoring stations throughout the County. The purpose of the monitoring stations is to measure ambient concentrations of the pollutants and determine whether the ambient air quality meets the CAAQS and NAAQS. The ambient monitoring station closest to the proposed project is the San Diego–Beardsley Street (Barrio Logan) station (CARB 80142), approximately 0.6 mile to the north-northwest. This station closed in November 2016. The SDAPCD relocated the site to Sherman Elementary School (approximately 1 mile north of the project site in the Sherman Heights neighborhood) and began operating the site in July 2019, but at the time of this analysis, there was not sufficient data to report here. Therefore, only monitoring data through 2016 from San Diego-Beardsley Street is included.

Concentrations of pollutants from the San Diego–Beardsley Street station over a 4-year period (2013–2016) of complete data are presented in Table 1 of Appendix C. Monitoring has shown the following pollutant concentrations trends: the 8-hour O_3 CAAQS was exceeded twice in 2014; 24-hour PM10 CAAQS was exceeded once in 2013, 2015, and 2016, but did not exceed the NAAQS in those same years; and 24-hour PM less than or equal to 2.5 microns in diameter (PM2.5) NAAQS was exceeded once each in 2013 and 2014. No violations of the carbon monoxide (CO) CAAQS or NAAQS or the nitrogen dioxide (NO_2) NAAQS were recorded. As discussed further below, the CAAQS and NAAQS define clean air and represent reasonable standards below which ambient air quality will not result in adverse health impacts. Existing violations of the O_3, PM10, and PM2.5 ambient air quality standards indicate that certain individuals exposed to this pollutant may experience certain health effects, including increased incidence of cardiovascular and respiratory ailments.

4.1.2.3 Pollutants of Concern

Criteria Pollutants

The federal and state governments have established NAAQS and CAAQS, respectively, for six criteria pollutants: O_3, CO, lead (Pb), NO_2, sulfur dioxide (SO_2), and PM, which consists of PM10 and PM2.5. Ozone is considered a regional pollutant because its precursors affect air quality on a regional scale.

Pollutants such as CO, NO_2, SO_2, and Pb are considered local pollutants that tend to accumulate in the air locally. PM is both a local and a regional pollutant. The primary criteria pollutants of concern generated by the project are O_3 precursors (regional organic gases [ROG] and nitrogen oxides [NO_X]), CO, and PM.[1]

All criteria pollutants can have human health and environmental effects at certain concentrations. The ambient air quality standards for these pollutants (Table 4.1-5) are set to protect public health and the environment within an adequate margin of safety (CAA Section 109). Epidemiological, controlled human exposure, and toxicology studies evaluate potential health and environmental effects of criteria pollutants, and form the scientific basis for new and revised ambient air quality standards.

Principal characteristics and possible health and environmental effects from exposure to the primary criteria pollutants generated by the project are discussed below.

- **Ozone**, a component of urban smog, is photochemical oxidant that is formed when ROG and NO_X (both by-products of the internal combustion engine) react with sunlight. ROG are compounds made up primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of ROG are emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. The two major forms of NO_X are nitric oxide (NO) and NO_2. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO_2 is a reddish-brown irritating gas formed by the combination of NO and oxygen. In addition to serving as an integral participant in O_3 formation, NO_X also directly acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens.

  Ozone poses a higher risk to those who already suffer from respiratory diseases (e.g., asthma), children, older adults, and people who are active outdoors. Exposure to O_3 at certain concentrations can make breathing more difficult, cause shortness of breath and coughing, inflame and damage the airways, aggregate lung diseases, increase the frequency of asthma attacks, and cause chronic obstructive pulmonary disease. Studies show associations between short-term O_3 exposure and non-accidental mortality, including deaths from respiratory issues. Studies also suggest long-term exposure to O_3 may increase the risk of respiratory-related deaths (EPA 2019a). The concentration of O_3at which health effects are observed depends on an individual's sensitivity, level of exertion (i.e., breathing rate), and duration of exposure. Studies show large individual differences in the intensity of symptomatic responses, with one study finding no symptoms to the least responsive individual after a 2-hour exposure to 400 parts per billion (ppb) of O_3 and a 50 percent decrement in forced airway volume in the most responsive individual. Although the results vary, evidence suggests that sensitive populations (e.g., asthmatics) may be affected on days when the 8-hour maximum O_3 concentration reaches 80 ppb (EPA 2019b).

  In addition to human health effect, O_3 has been tied to crop damage, typically in the form of stunted growth, leaf discoloration, cell damage, and premature death. Ozone can also act as

[1] As discussed, there are also ambient air quality standards for SO_2, Pb, sulfates, hydrogen sulfide, vinyl chloride, and visibility particulates. However, these pollutants are typically associated with large stationary sources (such as manufacturing), which are not included as part of the project.

a corrosive and oxidant, resulting in property damage such as the degradation of rubber products and other materials.

- **Carbon monoxide** is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. In the study area, high CO levels are of greatest concern during the winter, when periods of light winds combine with the formation of ground-level temperature inversions from evening through early morning. These conditions trap pollutants near the ground, reducing the dispersion of vehicle emissions. Moreover, motor vehicles exhibit increased CO emission rates at low air temperatures. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation. Exposure to CO at concentrations above the CAAQS or NAAQS (see Table 4.1-5) can also cause fatigue, headaches, confusion, dizziness, and chest pain. Ambient CO has no ecological or environmental effects (CARB 2019a).
- **Particulate matter** consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now regulated—inhalable coarse particles, or PM10, and inhalable fine particles, or PM2.5. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind on arid landscapes also contributes substantially to local particulate loading. Additionally, secondary formation of PM, primarily in the form of fine particulate, occurs through the chemical transformation of precursors such as NO_X, SO_2, ammonia, and ROGs.

  Particulate pollution can be transported over long distances and may adversely affect people, especially those who are naturally sensitive or susceptible to breathing problems. Numerous studies have linked PM exposure to premature death in people with preexisting heart or lung disease. Other symptoms of exposure may include nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lunch function, and increased respiratory symptoms. Exposure to concentrations of PM above the current ambient air quality standards may result in these health effects (California Air Resources Board 2019c). Similar to ozone, the elderly and those with preexisting heart and lung diseases are at greater risk to the harmful effects of PM exposure. Children are also at increased risk because they breathe faster than adults, and therefore inhale more air per pound of body weight and tend to spend more time outdoors. The CAAQS and NAAQS for PM are set to protect these sensitive populations and define the number of particles that can be present in outdoor air without threatening the health of infants, children, or the elderly (California Air Resources Board 2019c). The CAAQS and NAAQS for PM are shown in Table 4.1-5.

  Depending on its composition, both PM10 and PM2.5 can also affect water quality and acidity, deplete soil nutrients, damage sensitive forests and crops, affect ecosystem diversity, and contribute to acid rain (EPA 2019d).
- **Nitrogen dioxide** is formed by the combination of NO and oxygen through internal combustion. Long-term exposure to NO_2 can aggregative respiratory diseases, such as asthma, leading to increased hospital admissions (EPA 2019c). Controlled studies demonstrate effects (airway reactivity) among asthmatics at a short-term (less than 3 hours) exposure to 0.3 part per million NO_2. Effects among healthy individuals occurred at high levels of exposure (1.5 to 2 ppm) (McConnell et al. 2002). For reference, the 1-hour CAAQS for NO_2 is 0.18 ppm (see Table 4.1-5). In additional to human health effects, NO_2 can also reduce visibility and react with water, oxygen, and other chemicals to contribute to acid rain, which can harm sensitive ecosystems (EPA 2019c).

- **Sulfur dioxide** is a product of fuel combustion. The predominant source of SO_2 emissions within the County is mobile source fuel combustion, primarily aircraft, ocean going vessels, and on-road vehicles. In recent years emissions of SO_2 have been significantly reduced by the increasingly stringent controls placed on the sulfur content of fuels used in stationary sources and mobile sources. SO_2 is a precursor to fine PM formation in the form of sulfates, such as ammonium sulfate. Short-term exposure to SO_2 can aggravate the respiratory system, making breathing difficult. Controlled laboratory studies indicate that brief exposure (5 to 10 minutes) of exercising asthmatics to an average SO_2 level of 0.4 part per million can result in increases in air resistance. Healthy adults do not show any symptoms to SO_2 at levels as high 1 part per million (ppm), even after up to 3 hours of exposure. Based on the concentration needed to protect sensitive individuals (e.g., asthmatics), CARB and EPA have adopted the CAAQS and NAAQS for SO_2 (see Table 4.1-5) (SCAQMD 2017). In addition to public health impacts, SO_2 can also affect the environment by damaging foliage and decreasing plant growth (EPA 2019e).
- **Lead** is a soft metal that was previously added to gasoline and emitted to the environment through motor vehicle exhaust. Since lead was removed from gasoline, emissions have declined, and the primary source of emissions is now metal processing facilities and leaded aviation gasoline. Lead can also be resuspended into the air when contaminated soil or paints are disturbed. Lead emissions can be inhaled and ingested, leading to accumulation of lead particles in bone. Lead exposure can lead to cognitive function decrements, behavioral problems, kidney and heat disease, decreased immunity and red blood cell counts, and reproductive and developmental effects (CARB 2019b).

Health Effects of Criteria Pollutants

Criteria air pollutants are recognized to have a variety of health effects on humans. Research by CARB shows that exposure to high concentrations of air pollutants can trigger respiratory diseases—such as asthma, bronchitis, and other respiratory ailments—and cardiovascular diseases. A healthy person exposed to high concentrations of air pollutants may become nauseated or dizzy, may develop a headache or cough, or may experience eye irritation and/or a burning sensation in the chest. Ozone is a powerful irritant that attacks the respiratory system, leading to the damage of lung tissue. Inhaled particulate matter, NO_2, and SO_2 can directly irritate the respiratory tract, constrict airways, and interfere with the mucous lining of the airways. Exposure to CO, when absorbed into the bloodstream, can endanger the hemoglobin, the oxygen-carrying protein in blood, by reducing the amount of oxygen that reaches the heart, brain, and other body tissues. When air pollutant levels are high, children, the elderly, and people with respiratory problems are advised to remain indoors. Outdoor exercise also is discouraged because strenuous activity may cause shortness of breath and chest pains. A brief summary of the criteria pollutants and their effects on human health and the environment is provided in Table 4.1-2.

Table 4.1-2. Health Effects Summary of the Major Criteria Pollutants

Pollutants	Sources	Primary Effects
Ozone (O_3)	• Atmospheric reaction of organic gases with NO_2 in sunlight	• Aggravation of respiratory and cardiovascular diseases • Irritation of eyes • Impairment of cardiopulmonary function • Plant leaf injury
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust • High temperature stationary combustion • Atmospheric reactions	• Aggravation of respiratory illness • Reduced visibility • Reduced plant growth • Formation of acid rain
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon containing substances, such as motor exhaust • Natural events, such as decomposition of organic matter	• Reduced tolerance for exercise • Impairment of mental function • Impairment of fetal development • Death at high levels of exposure • Aggravation of some heart diseases (angina)
Particulate Matter (PM2.5 and PM10)	• Stationary combustion of solid fuels • Construction activities • Industrial processes • Atmospheric chemical reactions	• Reduced lung function • Aggravation of the effects of gaseous pollutants • Aggravation of respiratory and cardio-respiratory diseases • Increased cough and chest discomfort • Soiling • Reduced visibility
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels • Smelting of sulfur-bearing metal ores • Industrial processes	• Aggravation of respiratory diseases (asthma, emphysema) • Reduced lung function • Irritation of eyes • Reduced visibility • Plant injury • Deterioration of metals, textiles, leather, finishes, coatings, etc.
Lead (Pb)	• Contaminated soil	• Impairment of blood function and nerve construction • Behavioral and hearing problems in children

Source: SCAQMD 2007

Toxic Air Contaminants

TACs are pollutants that have no ambient standard but pose the potential to increase the risk of developing cancer or acute or chronic health risks. The most relevant TAC associated with the proposed project is diesel particulate matter (DPM). DPM was established as a TAC in 1998, while some of the chemicals in diesel exhaust, such as benzene and formaldehyde, had previously been identified as TACs and listed as carcinogens under either the state's Proposition 65 or federal Hazardous Air Pollutants program. The diesel emissions that are generated within the Barrio Logan

community and surrounding areas have been previously documented as posing potential hazard to residents and visitors (City of San Diego 2013).

For TACs like DPM that are known or suspected carcinogens, CARB has consistently found that there are no levels or thresholds below which exposure is risk-free. Therefore, no NAAQS or CAAQS exist for TACs. Individual TACs vary greatly in the risks they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment (OEHHA). Adverse health effects of TACs can be carcinogenic (cancer-causing), short-term (acute) noncarcinogenic, and long-term (chronic) noncarcinogenic. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to the brain and nervous system, and respiratory disorders.

4.1.2.4 Existing Emissions and Ambient Health Risks

Regional Health Risks

Between 1990 and 2007, CARB monitored outdoor concentrations for various TACs at two sites in the SDAB: Chula Vista and El Cajon. Based on this information, CARB estimated the overall ambient cancer risk from all pollutants in the SDAB at 607 chances per million, 420 chances per million of which were attributed to DPM (CARB 2009). Note that DPM is not directly monitored because an accepted measurement method does not currently exist, but CARB estimated concentrations based on monitored PM10 data and the results from several studies on chemical speciation of ambient data (e.g., ratio of DPM to monitored PM10).

More recently, the State released the California Communities Environmental Health Screening Tool (CalEnviroScreen), which provides a relative ranking of communities based on a selected group of environmental, health, demographic, and socioeconomic indicators. The resultant score is the relative pollution burden and vulnerabilities in one census tract compared to others; the score is not a measure of health risk. Each tract's score is then ranked relative to all areas in the state. Those areas with a high score and percentile have relatively high pollution burdens and population sensitivities; those areas with low score and percentile values have relatively lower pollution burdens and population sensitivities. Neighborhoods near the project site represent some of the highest rankings (e.g., worst air quality) in the state. The census tract northwest of the project site (6073005100), as well as the Barrio Logan community where the project is located (census tract 6073005000) and east/north of Interstate 5 (census tract 6073004900), are within the worst 95–100 percent in the state. Thirty-eight communities in the San Diego region have been identified as disadvantaged and will be the target of cap-and-trade investment to improve public health, quality of life, and economic opportunity (Cal/EPA 2018).

Note that while the results of CalEnviroScreen provide information on background pollution that allows the state to prioritize funding resources, the scoring results are not directly applicable to project-level or cumulative impact analyses required under CEQA. As such, the information provided by CalEnviroScreen cannot substitute for analyzing a specific project's cumulative impacts as required in a CEQA environmental review (Cal/EPA 2018). The information presented herein regarding CalEnviroScreen is for illustrative purposes only.

The area near the project site (collectively known in the Community Air Protection Program as the *Portside Environmental Justice Neighborhoods*)[2] includes several census tracts with high (poor) ratings as part of the CalEnviroScreen 3.0, including four census tracts that are in the 98th percentile in the state and another eight that are in the 85th percentile. Over 50,000 residents live in this area and are subject to pollution exposure (SDAPCD 2018a). The Portside Environmental Justice Neighborhoods, along with other areas selected for monitoring throughout the state, will see additional new actions through potential regulations, focused incentive investments, enforceable agreements, and engagement with local land use authorities to reduce emissions and exposure to air pollution.

Criteria Pollutant Inventory for the Project Site

BAE Systems is required by CARB to report criteria pollutant emissions from activities per the Air Toxics "Hot Spots" Program at least every 4 years (SDAPCD 2019b). A summary of criteria pollutant reporting for the previous two reporting timeframes is provided in Table 4.1-3. Activity at BAE Systems ship repair yard that generates emissions includes exhaust associated with equipment used within the BAE Systems leasehold (e.g., generators, loaders, forklifts) as well as process-related emissions from welding, painting, blasting, and any other activities related to ship repair. Overall, the Air Toxics "Hot Spots" Program has dramatically reduced emissions both locally and across the state, with the most significant reductions due to the use of “green” solvents and improved equipment controls of heavy metal emissions (SDAPCD 2019b).

Table 4.1-3. BAE Systems Criteria Pollutant Emissions Reporting (tons per year)

Year	ROG	NO_X	CO	PM10	PM2.5	SO_X
2017	12.2	2.9	1.0	1.1	0.8	<0.0
2016	12.2	2.9	1.0	1.1	0.8	<0.0
2015	12.2	2.9	1.0	1.1	0.8	<0.0
2014	12.2	2.9	1.0	1.1	0.8	<0.0
2013	21.7	7.3	1.8	2.3	1.3	<0.0
2012	21.7	7.3	1.8	2.3	1.3	<0.0
2011	21.7	7.3	1.8	2.3	1.3	<0.0
2010	21.7	7.3	1.8	2.3	1.3	<0.0

Source: CARB 2019c.
ROG = reactive organic gas; NO_X = nitrogen oxide; CO = carbon monoxide; PM10 and PM2.5 = particulate matter less than or equal to 10 and 2.5 microns in diameter, respectively; SO_X = sulfur oxide

Toxic Air Contaminant Inventory for the Project Site

BAE Systems is required by CARB to report TACs per the Air Toxics "Hot Spots" Program at least every 4 years (SDAPCD 2019b). Processes at the BAE Systems site that generate TACs include blasting of coated and uncoated surfaces, welding, painting and solvent use, and fuel combustion. A summary of TACs for recent years is provided in Table 4.1-4. Similar to criteria pollutants discussed

[2] The Community of Portside Environmental Justice Neighborhoods includes Barrio Logan and portions of National City, Sherman Heights, and Logan Heights. This includes the following census tracts: 6073005000, 6073004900, 6073003902, 6073003601, 6073003901, 6073005100, 6073003603, 6073004000, 6073003502, 6073021900, 6073004700, and 6073011602.

above, the Air Toxics "Hot Spots" Program has dramatically reduced TAC emissions both locally and across the state, with the most significant reductions due to the use of “green” solvents and improved equipment controls of heavy metal emissions (SDAPCD 2019b).

Table 4.1-4. BAE Systems Toxic Air Contaminant Emissions Reporting (pounds per year)

Pollutant	2014–2017	2010–2013	Pollutant	2014–2017	2010–2013
1,2,4-Trimethylbenzene	1,294	3,155	Hexane	3	4
1,3-Butadiene	7	9	Lead	1	2
2,2,4-Trimethylpentane	--	1	Manganese	27	30
Acetaldehyde	26	32	Methyl ethyl ketone {2-Butanone}	97	2,555
Acrolein	1	1	Mercury	0	0
Aluminum	17	93	Methanol	66	13
Arsenic	0	0	Methyl isobutyl ketone (Hexone)	92	3,386
Barium	20	53	Naphthalene	1	1
Benzene	6	8	n-Butyl alcohol	4,785	8,487
Cadmium	3	2	Ammonia	1	0
Chlorobenzene	0	0	Nickel	13	23
Chlorobenzenes	--	0	PAHs, total	1	1
Chromium	14	20	Phenol	4	0
Cobalt	0	1	Phosphorus	0	0
Copper	289	2,090	Propylene	16	26
Chromium, hexavalent (& compounds)	1	0	Propyleneglycol	3	194
Dibutyl phthalate	4	--	Selenium	0	0
Diesel engine exhaust, particulate matter (Diesel PM)	187	701	Silica, crystalline (respirable)	86	38
Ethyl benzene	960	1,950	Silver	7	2
Ethylene glycol	--	2	Styrene	30	270
Formaldehyde	58	70	Toluene	4	121
Glycol ethers (and their acetates)	66	751	Xylenes (mixed)	1,175	3,380
Hydrochloric acid	6	8	Zinc	37	775

Source: CARB 2019c.

4.1.2.5 Sensitive Receptors

The impact of air pollutant emissions on sensitive members of the population is a special concern. Sensitive receptors are defined as locations where pollutant-sensitive members of the population may reside or where the presence of air pollutant emissions could adversely affect use of the land. CARB has identified the following people as the most likely to be affected by air pollution: children

younger than 14, the elderly older than 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as *sensitive receptors* (CARB 2005). Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder-care facilities, elementary schools, and parks. Most health studies indicate that health effects are strongest within 1,000 feet of emission sources (CARB 2005).

The project site is surrounded by various industrial uses (including other ship repair facilities) to the north, south, and east, with San Diego Bay to the west. The sensitive receptors closest to the project site include the Woodbury School of Architecture to the north, residences within the Barrio Logan neighborhood to the north, Cesar Chavez Park to the northwest, and Perkins Elementary and Monarch School to the northeast. Table 4.1-5 summarizes the distances of the closest sensitive receptors from the edge of the project boundary, the edge of waterside construction activities, and the center of the project site.

Table 4.1-5. Distance to Sensitive Receptors from the Project Site (feet)

Receptor	Edge of Project Boundary	Edge of Waterside Construction	Center of Project Site
Residences			
Main St and South Evans St	1,180	1,680	1,950
Sicard St and Newton Ave	1,430	1,920	2,070
South 26th St and Boston Ave	1,280	1,820	2,150
Woodbury School of Architecture	1,050	1,550	1,690
Cesar Chavez Park	1,700	1,700	2,350
Perkins Elementary and Monarch School	2,550	2,800	3,400

4.1.3 Applicable Laws and Regulations

The air quality management agencies of direct importance to the proposed project are EPA, CARB, and SDAPCD. EPA has established federal air quality standards for which CARB and SDAPCD have primary implementation responsibility. CARB and SDAPCD are also responsible for ensuring that state air quality standards are met. The following describes regulations applicable to the proposed project. Additional regulations that are not as applicable to the project but are applicable to the District as a whole are provided in Appendix C.

4.1.3.1 Federal

Clean Air Act and National Ambient Air Quality Standards

The CAA was first enacted in 1963 and has been amended numerous times in subsequent years (1967, 1970, 1977, and 1990). The CAA establishes the NAAQS and specifies future dates for achieving compliance. The CAA also mandates that each state submit and implement a State Implementation Plan (SIP) for local areas not meeting those standards. The plans must include pollution control measures that demonstrate how the standards will be met. Because the Port of

San Diego is within the SDAB, it is in an area designated as nonattainment for certain pollutants that are regulated under the CAA.

The 1990 amendments to the CAA identify specific emission-reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones. The sections of the CAA that would most substantially affect the development of the proposed project include Title I (Nonattainment Provisions) and Title II (Mobile-Source Provisions).

Title I provisions were established with the goal of attaining the NAAQS for criteria pollutants. Table 4.1-6shows the NAAQS currently in effect for each criteria pollutant. The NAAQS were amended in July 1997 to include an 8-hour standard for O_3 and adopt a standard for PM2.5. The 8-hour O_3 NAAQS was further amended in October 2015.

Table 4.1-6. Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[1]	NAAQS[2]
Ozone (O_3)	1 hour	0.09 ppm[3]	--
	8 hour	0.070 ppm	0.070 ppm
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm
	8 hour	9.0 ppm	9 ppm
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	100 ppb
	Annual Arithmetic Mean	0.030 ppm	53 ppb
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	75 ppb
	24 hour	0.04 ppm	0.14 ppm
Respirable Particulate Matter (PM10)	24 hour	50 µg/m^3	150 µg/m^3
	Annual Arithmetic Mean	20 µg/m^3	--
Fine Particulate Matter (PM2.5)	24 hour	--	35 µg/m^3
	Annual Arithmetic Mean	12 µg/m^3	12.0 µg/m^3
Sulfates	24 hour	25 µg/m^3	--
Lead (Pb)	30 day average	1.5 µg/m^3	--
	Calendar quarter	--	1.5 µg/m^3
	Rolling 3-Month Average	--	0.15 µg/m^3
Hydrogen Sulfide	1 hour	0.03 ppm	--
Vinyl Chloride	24 hour	0.01 ppm	--

Source: CARB 2016.
[1] The California Ambient Air Quality Standards (CAAQS) for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM10, and PM2.5 are values not to be exceeded. All other California standards shown are values not to be equaled or exceeded.
[2] The National Ambient Air Quality Standards (NAAQS), other than O_3 and those based on annual averages, are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than 1. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, is equal to or less than the standard.
ppm = parts per million by volume; ppb = parts per billion; µg/m^3 = micrograms per cubic meter.

4.1.3.2 State

Clean Air Act

The California CAA, signed into law in 1988, requires all areas of the state to achieve and maintain the CAAQS by the earliest practical date. The CAAQS incorporate additional standards for most of the criteria pollutants and set standards for other pollutants recognized by the state. In general, the California standards are more health protective than the corresponding NAAQS. California has also set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Table 4.1-6 shows the CAAQS currently in effect for each criteria pollutant.

CARB and local air districts bear responsibility for achieving California's air quality standards, which are to be achieved through district-level air quality management plans that would be incorporated into the SIP. In California, EPA has delegated authority to prepare SIPs to CARB, which, in turn, has delegated that authority to individual air districts. CARB traditionally has established state air quality standards, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving SIPs.

The California CAA substantially adds to the authority and responsibilities of air districts. The California CAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The California CAA also emphasizes the control of "indirect and area-wide sources" of air pollutant emissions. The California CAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish traffic control measures.

Toxic Air Contaminants Regulations

California regulates TACs primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Toxic Air Contaminant Identification and Control Act (AB 1807) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks. In August 1998, CARB identified particulate emissions from diesel-fueled engines as TACs. In September 2000, CARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. As an ongoing process, CARB reviews air contaminants and identifies those that are classified as TACs. CARB also continues to establish new programs and regulations for the control of TACs, including DPM, as appropriate. Among the programs and strategies CARB has developed to reduce diesel emissions for various sources, many are applicable to sources that are present at the Port, including off-road sources (cargo-handling equipment, locomotives, construction equipment), on-road trucks (drayage trucks), and marine vessels (harbor craft, OGVs, and shore power).

4.1.3.3 Regional

San Diego Unified Port District Plans and Programs

The Port Master Plan (PMP) is the governing land use document for physical development within the District; however, there are also other District programs that apply to air quality, and the District's Climate Action Plan has co-benefits to air quality. The District developed the Green Port Program to support the goals of the Green Port Policy, which was adopted in 2008. The Green Port Program supports resource conservation, waste reduction, and pollution prevention. The Clean Air Program provides a framework for the District's commitment to reducing air emissions, through which control measures have been implemented to reduce air emissions, building upon regulatory and voluntary efforts.

San Diego Air Pollution Control District Plans, Rules, and Regulations

Local air pollution control districts have the primary responsibility for the development and implementation of rules and regulations designed to attain the NAAQS and CAAQS, as well as the permitting of new or modified sources, development of air quality management plans, and adoption and enforcement of air pollution regulations. SDAPCD is the local agency responsible for the administration and enforcement of air quality regulations in San Diego County.

Regional Air Quality Strategy and State Implementation Plan

CARB, SDAPCD, and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The San Diego Regional Air Quality Strategy (RAQS) outlines SDAPCD's plans and control measures designed to attain and maintain the state standards, while San Diego's portions of the SIP are designed to attain and maintain federal standards. The RAQS was initially adopted in 1991 and is updated on a triennial basis. The RAQS was updated in 1995, 1998, 2001, 2004, and 2009, and most recently in December 2016. The RAQS does not currently address the state air quality standards for PM10 or PM2.5. SDAPCD has also developed the air basin's input to the SIP, which is required under the federal CAA for areas that are out of attainment of air quality standards. Both the RAQS and SIP demonstrate the effectiveness of CARB measures (mainly for mobile sources) and SDAPCD's plans and control measures (mainly for stationary and area-wide sources) for attaining the O_3 NAAQS. The SIP is also updated on a triennial basis. SDAPCD adopted its attainment plan and Reasonable Available Control Technology Demonstration for the 2008 8-hour O_3 NAAQS. In addition, the *Measures to Reduce Particulate Matter in San Diego County* report (SDAPCD 2005) proposes measures to reduce PM emissions and recommends measures for further detailed evaluation and, if appropriate, future rule development (or non-regulatory development, if applicable), adoption, and implementation in San Diego County, in order to attain PM CAAQS.

CARB recently adopted the *2016 State Strategy for the State Implementation Plan* (2016 SIP Update). This strategy describes proposed state measures to achieve the reductions necessary from the mobile sector and consumer products to meet O_3 and PM2.5 NAAQS over the next 15 years. The 2016 SIP Update will incorporate regional SIPs (to be developed) as well as the Scoping Plan Update, California's Sustainable Freight Action Plan, and the Short-Lived Climate Pollutant Strategy, and implementation of Senate Bill 375. CARB notes that while existing programs have achieved tremendous success in reducing NO_X emissions, further reductions are required.

Air Toxics "Hot Spots" Program

The SDAPCD implements CARB's Air Toxics "Hot Spots" Program locally. The program requires facilities emitting toxic substances to quantify emissions, identify impacted areas, notify individuals exposed to elevated risks, and then develop and implement strategies to reduce potential significant risks. SDAPCD produces an annual report, which summarizes the latest results regarding emission estimates, the results of local Health Risk Assessments (HRAs), and the current status of public notifications and risk reduction requirements. The latest report is for the year 2018 (SDAPCD 2019b). Approximately 3,000 facilities within the county are required to comply with the program, including BAE Systems.

SDAPCD Rules and Regulations

SDAPCD is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws. The proposed project may be subject to the following SDAPCD rules, and others, during construction.

- **Regulation 2, Rule 20.2—New Source Review Non-Major Stationary Sources:** establishes Air Quality Impact Analysis (AQIA) Trigger Levels, which set emission limits for non-major new or modified stationary sources.
- **Regulation 2, Rule 20.3—New Source Review Major Stationary Sources and Prevention of Significant Deterioration Stationary Sources:** establishes AQIA Trigger Levels, which set emission limits for major new or modified stationary sources or Prevention of Significant Deterioration stationary sources. Major sources are defined in Regulation 8 as sources that emit 100 tons per year of PM10, SO_X, CO, and lead; and 50 tons per year of NO_X and volatile organic compounds (VOC) in federal O_3 nonattainment areas.
- **Rule 50—Visible Emissions:** establishes limits for the opacity of emissions within the SDAPCD. The proposed project is subject to Rule 50(d)(1) and (6) and should not exceed the visible emission limitation.
- **Rule 51—Nuisance:** prohibits emissions that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; endanger the comfort, repose, health, or safety of any such persons or the public; or cause injury or damage to business or property.
- **Rule 52—Particulate Matter:** establishes limits for the discharge of any particulate matter from nonstationary sources.
- **Rule 54—Dust and Fumes:** establishes limits for the amount of dust or fume discharged into the atmosphere in any 1 hour.
- **Rule 55—Fugitive Dust Control:** sets restrictions on visible fugitive dust from construction and demolition projects.
- **Rule 67—Architectural Coatings:** establishes limits to the VOC content for coatings applied within the SDAPCD.
- **Rule 67.7—Cutback and Emulsified Asphalts:** establishes general provisions and limits to the VOC content for asphalt materials applied within the SDAPCD.
- **Rule 69.2—Industrial and Commercial Boilers, Process Heaters and Steam Generators:** establishes emissions testing and standards for boilers with a heat input rating of 5 million British thermal units (BTU) per hour or more.

- **Regulation 8, Rules 1200–1210:** establishes rules and procedures governing new, relocated, or modified emission units that may increase emissions of one or more TAC. While the project is not necessarily subject to the requirements of this regulation, the risk assessment guidelines and procedures published as part of this regulation are used in the health risk assessment herein.

4.1.4 Project Impact Analysis

4.1.4.1 Methodology

Air quality impacts associated with construction and operation of the proposed project were assessed and quantified using industry standard and accepted software tools, techniques, and emission factors. A summary of the methodology is provided below. A full list of assumptions and emission calculations can be found in Appendix C. The methodology used to estimate air pollutant emissions discussed below is the same that was used to estimate GHG emissions, as described in Section 4.3, *Greenhouse Gas Emissions and Energy*.

Short-term Construction Emissions

Construction of the proposed project would generate emissions of ROG, NO_X, CO, SO_X, PM10, and PM2.5 that could result in short-term impacts on ambient air quality in the study area. Emissions would originate from construction of landside and waterside components. Sources of emissions associated with landside activities include off-road equipment exhaust, employee and haul truck vehicle exhaust (on-road vehicles), architectural coatings, and earth movement. Landside construction emissions were estimated using a combination of emission factors and methodologies from the California Emissions Estimator Model (CalEEMod), version 2016.3.2, CARB's EMFAC2017 model, and EPA's AP-42 *Compilation of Air Pollutant Emission Factors* based on project-specific construction data (e.g., schedule, equipment types and numbers, and truck volumes) provided by the project proponent.

Construction of the waterside components would generate emissions from dredging and operation of scows, tugboats, and survey vessels to haul materials and move equipment around the project site. Emissions from dredging equipment and haul trucks were estimated using CalEEMod and EMFAC, respectively. Emissions from marine vessels were estimated using emission factors and assumptions from CARB's *Harborcraft Emission Inventory Methodology* (2010) and other sources, as described in Appendix C.

Dredging would occur for three project elements: Project Element 1 (Pride of San Diego Drydock Dredging and Moorage), Project Element 4 (Pier 3 Near Shore Dredging), and Project Element 6 (Pier 3 North Lunchroom Wharf Replacement and Realignment).

There are two options for disposing of dredged materials associated with the proposed project. Materials that are contaminated would be disposed of at a landfill that is approved to handle contaminated sediment. These materials are stockpiled at the project site, subject to applicable regulations and control standards, as described in Section 4.5, *Hydrology and Water Quality*; loaded directly onto trucks from the dredge barge; and disposed of at the approved landfill. Materials that are not contaminated would be disposed of at the Ocean Dredge Material Disposal Site (i.e., EPA ocean disposal site LA-5).

For Project Element 1 (Pride of San Diego Drydock Dredging and Moorage Replacement), the total quantity of dredged materials is assumed to be approximately 98,800 cubic yards (CY). As discussed in Chapter 3, *Project Description*, it is anticipated that between 11 percent (10,900 CY) and 20 percent (19,800 CY) of the dredge material would be contaminated and would be transported via truck to an approved (upland) disposal facility capable of accepting contaminated sediment. It is anticipated that the remaining materials—between 80 percent (79,000 CY) and 89 percent (87,900 CY)—would meet U.S. Army Corps of Engineers and EPA disposal criteria and would be disposed of at the EPA's LA-5 ocean disposal site via tug and scow. To ensure a conservative analysis, both the high end of trucks (assumed to be 1,350 total trucks based on a 15 CY truck capacity and 19,800 CY of material) and the high end of tug and scow trips (assumed to be 36 total scows based on a 2,500 CY scow capacity and 87,900 CY of material) were analyzed.

For Project Element 4 (Pier 3 South Nearshore Dredging), the quantity of dredged materials that is suitable for ocean disposal is currently unknown. As discussed in Chapter 3, there are two disposal scenarios for Project Element 4 construction:

1. The "50/50 Scenario" assumes half of all dredged material would be disposed at the LA-5 ocean disposal site using scows, and the remaining half would be disposed of at an approved landfill using haul trucks.
2. The "All Truck Scenario" assumes all dredged material would be disposed at an approved landfill using haul trucks.

Emissions from both scenarios were analyzed in this impact analysis.

For Project Element 6, all dredged material is assumed to be contaminated; thus, all materials would be disposed of at an approved upland location.

The amount of emissions generated on a daily and annual basis from landside and waterside construction would vary, depending on the intensity and types of activities occurring simultaneously, as well as the phasing and schedule. For purposes of analysis, landside construction is expected to occur 5 days per week and would last approximately 5 years starting in 2021. In-water construction activities required for the waterside components are expected to occur 5 days per week for all waterside components except for dredging operations, which would occur 7 days per week for the duration of those dredging phases. Refer to Appendix C for detailed information on the construction schedule, phasing, equipment and vehicles inventories, and modeling method.

Note that the anticipated construction schedule analyzed herein is approximate and is provided for analysis purposes, and the actual start and end dates may vary. While overall construction timing may vary and may occur later than assumed here, is it assumed the sequence of phases relative to other phases and activities would not change. If the schedule is delayed, then concurrent elements would still occur concurrently (i.e., phase overlaps would be the same, albeit at a later date).

Long-Term Operational Emissions

As discussed in Chapter 3, Section 3.5.6, *Project Operation*, several of the project elements are infrastructure maintenance and modernization improvements and would not change the nature of existing operations at the project site. The proposed project would not expand operations or result in additional employment or vehicle trips compared to existing conditions. However, the dredging and mooring improvements under Project Element 1 (Pride of San Diego Drydock Dredging and Moorage

Replacement), Project Element 4 (Pier 3 South Nearshore Dredging), and Project Element 5 (Pier 3 Mooring Dolphin) would allow BAE Systems to service newer and larger classes of vessels compared to existing conditions, which could result in some changes to activities associated with berthing and servicing vessels. The operational efficiencies of the proposed project would result in the following changes, which are analyzed herein.

1. As discussed in Chapter 3, Section 3.5.6, the proposed project would reduce the potential berthing capacity of the site by two vessels and reduce the number of vessels that could be serviced at berth annually by three vessels (see Table 3-6). Because tugs are required to transition a ship to or from a BAE Systems pier or in or out of drydock, the reduction in annual vessel calls would decrease tugboat activity, thereby reducing emissions.

2. The proposed improvements—specifically, the improvements associated with Project Element 1 (The Pride of San Diego Drydock Dredging and Moorage Replacement)—would lead to more efficient vessel movements. This would result in the drydock no longer needing to be moved in order to submerge and dock or undock a vessel. These improvements would ensure safe navigation even in extreme weather events. More tug power is currently required to transition vessels during these extreme weather events. These improvements would reduce that need, thereby reducing emissions.

3. When vessels berth or dock, their engines are off. Portable diesel engines and portable fire pumps (for fire protection) are placed on board the ships to supplement the vessel's power needs and to ensure safe movement within the berthing area. The reduction in annual vessel calls would decrease portable diesel engine and fire pump activity, thereby reducing emissions. Under existing conditions, there are two general tug scenarios, which vary depending on the size of vessel, weather, and availability of tugs for use.

4. Emissions from other sources not directly related to the change in calls, including energy and water consumption, motor vehicles trips, wastewater and waste generation, and ship repair processes, are also likely to decrease consistent with the decrease in number of vessels being serviced annually, the reduction in the number of tugs required, and the decrease in number of employees. However, given that the amount of decrease was not known at the time of analysis, these sources were analyzed qualitatively.

Table 4.1-7 summarizes the change in total tugboat power required on a per call and annual basis. Existing conditions include two separate tug scenarios to represent the range in tug power needed to handle typical and extreme weather events under the current layout. Under proposed project conditions, there is only one tug scenario, as proposed improvements would reduce the need for additional tug power during extreme weather events.

As shown in Table 4.1-7, the range in tug activity on a per-call basis is expected to increase from 12,000–13,500 horsepower per call (depending on the tug mix) to 14,500 horsepower per call after implementation of the proposed project. However, given the reduction in calls, total tug horsepower is expected to decrease from 96,000–108,000 to 72,500 horsepower annually. This will decrease emissions on an annual basis through the life of the project.

Similarly, as shown in Table 4.1-8, portable equipment activity on a per call basis is not expected to change, but given the reduction in calls, total equipment horsepower is expected to decrease on an annual basis. This will decrease emissions on an annual basis through the life of the project.

Table 4.1-7. Tug Activity by Scenario

Tug Scenario		Type	#	Activity per Call HP	Hours	Total HP	Activity per Year Calls	Total HP
Existing	Scenario 1	Assist Tug	2	6,000	1	12,000[1]	8	96,000[2]
	Scenario 2	Assist Tug	3	4,000	1	13,500[1]	8	108,000[2]
		Pusher Tug	1	1,500	1		8	
Project	All Calls	Assist Tug	2	5,000	1	14,500	5	72,500
		Pusher Tug	3	1,500	1		5	

[1] Total tug power per call ranges from 12,000 to 13,500 horsepower, depending on the weather scenario and tug availability.
[2] Total tug power per year ranges from 96,000 to 108,000 horsepower, depending on the mix of weather scenarios and tug availability.
Note: all numbers are approximate.
HP = horsepower

Table 4.1-8. Equipment Activity by Scenario

Tug Scenario		Type	#	Activity per Call HP	Hours	Total HP	Activity per Year Calls	Total HP
Existing	All Calls	Generator	2	550	5	7,250[1]	8	58,000[2]
		Fire Pump	2	175	5		8	
Project	All Calls	Generator	2	550	5	7,250[1]	5	36.250[2]
		Fire Pump	2	175	5		5	

[1] Total equipment power per call is the same under both existing weather scenarios as well as the project scenario.
[2] Total equipment power per year is based on the power per call and the number of annual calls.
Note: all numbers approximate.
HP = horsepower.

Mass daily emissions from tugs and equipment were estimated using a combination of emission methods and emission factors from published best available documentation. Emissions from portable diesel equipment (generators and fire pumps) activities are based on activity data from the project proponent assuming Tier 4 generators and Tier 3 fire pumps, which are in use under both existing and project conditions. Emissions from tugboat activities were estimated based on methodologies and guidance published by CARB for estimating emissions from commercial watercraft and activity information provided by the project proponent. A full list of assumptions and emission calculations for project operations can be found in Appendix C.

4.1.4.2 Thresholds of Significance

The following significance criteria are based on Appendix G of the State CEQA Guidelines and provide the basis for determining significance of impacts associated with air quality resulting from the proposed project. The determination of whether an air quality impact would be significant is based on the thresholds described below and the professional judgment of the District as Lead Agency and the recommendations of qualified personnel at ICF, all of which is based on the evidence in the administrative record.

Impacts are considered significant if the proposed project would result in any of the following.

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Appendix G of the State CEQA Guidelines further indicates the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the significance determinations. The thresholds used for determining significance of criteria pollutant emissions are presented in Table 4.1-9. These thresholds are based on criteria established by the SDAPCD and supported by additional evidence provided by the County of San Diego.

Neither the City of San Diego nor the District has developed CEQA thresholds of significance for air quality. The SDAPCD does not provide specific quantitative thresholds for determining the significance of air quality impacts under CEQA. However, the SDAPCD does specify AQIA trigger levels for new or modified stationary sources (SDAPCD Rules 20.2 and 20.3). If these incremental levels for stationary sources are exceeded, an AQIA must be performed for the source. Although these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes these levels may be used to evaluate increases in emissions.

SDAPCD Rule 20.2, which outlines these significance trigger level thresholds, states that any project which results in an emissions increase equal to or greater than any of these levels, must:

> demonstrate through an AQIA . . . that the project will not (A) cause a violation of a State or national ambient air quality standard anywhere that does not already exceed such standard, nor (B) cause additional violations of a national ambient air quality standard anywhere the standard is already being exceeded, nor (C) cause additional violations of a State ambient air quality standard anywhere the standard is already being exceeded, nor (D) prevent or interfere with the attainment or maintenance of any State or national ambient air quality standard.

For projects whose stationary-source emissions are below these criteria, no AQIA is typically required, and project level emissions are presumed to be less than significant. For CEQA purposes, these screening level thresholds (SLTs) can be used to demonstrate that a project's total emissions (e.g., stationary and fugitive emissions, as well as emissions from mobile sources) would not result in a significant impact on air quality.

SDAPCD Rules 20.2 and 20.3 do not have AQIA thresholds for emissions of VOC and PM2.5. The County of San Diego notes that the use of the screening level for VOC specified by the South Coast Air Quality Management District (SCAQMD), which generally has stricter emissions thresholds than the SDAPCD, is recommended for evaluating projects in San Diego County. For PM2.5, the EPA "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published September 8, 2005, which quantifies significant emissions as 10 tons per year, was identified by the County of San Diego as an appropriate screening threshold. If project emissions exceed these SLTs, specific modeling will be required for NO_2, SO_2, CO, and would require evidence that the project's ground-level concentrations, including appropriate background levels, do not exceed the NAAQS and CAAQS. For ozone precursors, PM10 and PM2.5, exceedances of the SLTs result in a significant impact because the SDAB is currently not in attainment for PM10, PM2.5, and ozone.

Table 4.1-9. Air Quality Thresholds

Air Contaminant	Emission Rate (pounds per hour)	(pounds per day)[1]	(tons per year)
Respirable Particulate Matter (PM10)	--	100	15
Fine Particulate Matter (PM2.5)[2]	--	55	10
Nitrogen Oxides (NO_X)	25	250	40
Lead (Pb)[3]	--	3.2	0.6
Volatile Organic Compounds (VOC)[4]	--	75	13.7[5]
Sulfur Oxides (SO_X)	25	250	40
Carbon Monoxide (CO)	100	550	100

Source: SDAPCD Regulation II, Rule 20.2; County of San Diego 2007.

[1] According to San Diego County, the daily thresholds are most appropriate when assessing impacts from standard construction and operational emissions. Therefore, daily thresholds are used to evaluate project significance, while hourly and annual thresholds are provided for informational purposes only.

[2] Based on EPA's "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published September 8, 2005, and also SCAQMD's Air Quality Significance Thresholds (SCAQMD 2015). Rule 20.2 was amended in 2018 to include PM2.5 AQIA of 67 pounds per day. However, as the 55 pounds per day rate used by SCAQMD and recommended by the County of San Diego is lower (and more restrictive), 55 pounds per day is used here.

[3] Lead and lead compounds. Lead emissions are typically associated with industrial large stationary sources, such as ore and metals processing, lead smelters, waste incinerators, and lead-acid battery manufacturing or recycling, which are not included as part of the project.

[4] County SLTs for VOC were originally based on the threshold of significance for VOC from SCAQMD for the Coachella Valley. The terms VOC and ROG are used interchangeably, although VOC is used in this table because the City and County use the term VOC.

[5] 13.7 tons per year threshold is based on 75 pounds per day multiplied by 365 days per year and divided by 2,000 pounds per ton.

Health-Based Thresholds for Project-Generated Pollutants of Human Health Concern

The thresholds presented in Table 4.1-9 consider existing air quality concentrations and attainment or nonattainment designations under the NAAQS and CAAQS. The NAAQS and CAAQS are informed by a wide range of scientific evidence that demonstrates there are known safe concentrations of criteria pollutants. While recognizing that air quality is a cumulative problem, SDAPCD considers projects that generate criteria pollutant and O_3 precursor emissions below these thresholds to be minor in nature and would not adversely affect air quality because the health-protective NAAQS or CAAQS would not be exceeded. Regional emissions generated by the proposed project could increase photochemical reactions and the formation of tropospheric O_3 and secondary PM, which, at certain concentrations, could lead to increased incidence of specific health consequences. Although these health effects are associated with O_3 and particulate pollution, the effects are a result of cumulative and regional emissions. As such, for a project with relatively small emissions contributions (i.e., emissions below the regional air district thresholds), that project's incremental contribution cannot be traced to specific health outcomes on a regional scale, and a quantitative correlation of project-generated regional criteria pollutant emissions to specific human health impacts is not technically feasible. Similarly, there are no publicly available models that can precisely correlate localized CO, PM, and SO_2 emissions to health consequences at specific locations. Refer to Appendix C for additional information.

Localized Project-Generated Criteria Pollutants (CO, DPM and Asbestos)

Localized pollutants generated by a project are deposited and potentially affect population near the emissions source. Because these pollutants dissipate with distance, emissions from individual projects can result in direct and material health impacts to adjacent sensitive receptors. Models and thresholds are readily available to quantify these potential health effects and evaluate their significance (CAPCOA 2009, OEHHA 2015, CARB 2000). Locally adopted thresholds and analysis procedures for the localized pollutants of concern associated with the proposed project (DPM,[3] CO, and naturally occurring asbestos) are identified below.

Localized Carbon Monoxide Concentrations

The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below state and federal CO standards. If ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a state or federal standard, project emissions are considered significant if they increase 1-hour CO concentrations by 1.0 ppm or more or 8-hour CO concentrations by 0.45 ppm or more (SCAQMD 1993). The following are applicable local emission concentration standards for CO.

- CAAQS and NAAQS 1-hour CO standards of 20 and 35 ppm, respectively
- CAAQS and NAAQS 8-hour CO standard of 9.0 and 9 ppm, respectively

As in most urban areas, high short-term concentrations of CO, known as *hotspots*, can occur in San Diego County. Hotspots typically occur in areas of high motor vehicle use, such as in parking lots, at congested intersections, and along highways. Because elevated CO concentrations typically occur at locations with high traffic volumes and congestion, elevated CO concentrations are often correlated with level of service (LOS) at intersections. LOS expresses the congestion level for an intersection and is designated by a letter from A to F, with LOS A representing the best operating conditions and LOS F the worst. Significant concentrations of CO sometimes occur (depending on temperature, wind speed, and other variables) at intersections where LOS is rated at D or worse. Projects that do not generate CO concentrations in excess of the health-based CAAQS would not contribute a significant level of CO such that localized air quality and human health would be substantially degraded.

Localized Diesel Particulate Matter Concentrations

DPM is a form of localized PM (see above for a detailed discussion) that is generated by diesel equipment and vehicle exhaust. DPM has been identified as a TAC by CARB and is particularly concerning because long-term exposure can lead to cancer, birth defects, and damage to the brain and nervous system. The County has adopted incremental cancer and hazard thresholds to evaluate receptor exposure to DPM emissions, which are adapted from SDAPCD Regulation XII, Rule 1200. Projects that would result in exposure to TACs resulting in a maximum incremental cancer risk

[3] DPM is the primary TAC of concern for mobile sources—of all controlled TACs, emissions of DPM are estimated to be responsible for about 70 percent of the total ambient TAC risk (California Air Resources Board 2000). Given the risks associated with DPM, tools and factors for evaluating human health impacts from project-generated DPM have been developed and are readily available. Conversely, tools and techniques for assessing project-specific health outcomes as a result of exposure to other TAC (e.g., benzene) remain limited. These limitations impede the ability to evaluate and precisely quantify potential public health risks posed by TAC exposure.

(MICR) greater than 1 in 1 million without application of Toxics BACT,[4] MICR greater than 10 in 1 million with application of Toxics BACT, or a chronic and acute non-cancer health hazard index greater than 1 would be deemed as having a potentially significant impact related to health risks from DPM exposure. Because various Toxics BACTs are in place at the Port—including CARB rules on vessels, shore power, and drayage trucks—the MICR of 10 in 1 million is utilized herein.

Asbestos-Containing Materials

There are no quantitative thresholds related to receptor exposure to asbestos. However, SDAPCD Rule 40 requires the demolition or renovation of asbestos-containing building materials to comply with the limitations of the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations as listed in the Code of Federal Regulations.

Criteria for Cumulative Impacts

Potential cumulative air quality impacts would result when cumulative projects' pollutant emissions would combine to degrade air quality conditions to below acceptable levels. This could occur on a local level, such as through increases in vehicle emissions at congested intersections, or at sensitive receptor locations due to concurrent construction activities; at a regional level, such as the potential impact of multiple past, present, and reasonably foreseeable projects on O_3 within the SDAB; or globally, such as the potential impact of GHG emissions on global climate change.

Neither the District, nor the City of San Diego, nor SDAPCD has adopted quantitative thresholds to determine whether a project would make a cumulatively considerable contribution to air quality. The County of San Diego thresholds (see below) for cumulative air quality impacts are utilized for the analysis of the impacts of proposed project construction and operations related to emissions on air quality.

Cumulatively considerable net increases during the construction phase would typically happen if two or more projects near each other are simultaneously constructed. The following thresholds are used to determine the cumulatively considerable net increase in emissions during the construction phase.

- A project that has a significant direct impact on air quality with regard to emissions of PM10, PM2.5, NO_X, and/or ROGs (i.e., an exceedance of threshold values indicated in Table 4.1-9) would also have a significant cumulatively considerable net increase.
- In the event that direct impacts from the proposed project are less than significant, a project may still have a cumulatively considerable impact on air quality if the emissions of concern from the proposed project, in combination with the emissions of concern from other past, present, or reasonably foreseeable future projects within the proximity relevant to the pollutants of concern, are in excess of direct air quality impact thresholds.

The following thresholds are used to determine the cumulatively considerable net increase in emissions during the operation phase:

[4] Best Available Control Technology (BACT) is the level of air contaminant emission control or reduction required by state law and District rules for new, modified, relocated, and replacement emission sources. Examples of Toxics BACT include diesel particulate filters, catalytic converters, and selective catalytic reduction technology.

- A project that does not conform to the RAQS and/or has a significant direct impact on air quality with regard to operational emissions of PM10, PM2.5, NO_X, and/or ROGs (i.e., an exceedance of threshold values indicated in Table 4.1-9) would also have a significant cumulatively considerable net increase.
- Projects that cause road intersections to operate at or below LOS E for intersections with total (proposed project and surrounding project) peak-hour trips in excess of 3,000 trips and create a CO hotspot would create a cumulatively considerable net increase of CO.

4.1.4.3 Project Impacts and Mitigation Measures

Threshold 1: Implementation of the proposed project <u>would not</u> conflict with or obstruct implementation of an applicable air quality plan.

Impact Discussion

SDAPCD is required, pursuant to the NAAQS and CAAQS, to reduce emissions of criteria pollutants for which the County and air basin are in nonattainment (i.e., O_3, PM10, and PM2.5). The most recent SDAPCD air quality attainment plans are the 2016 RAQS and the 2016 O_3 attainment plan. The RAQS outlines SDAPCD's plans and control measures designed to attain the CAAQS for O_3, while the 2016 O_3 attainment plan includes SDAPCD's plans and control measures for attaining the NAAQS for O_3. The RAQS and SIP project future emissions and determine the strategies necessary for the reduction of stationary source emissions through regulatory controls. The RAQS relies on the emission projections and control measures outlined in the SIP. CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the region's cities and by the County of San Diego. The 2016 O_3 attainment plan represents SDAPCD's portion of the SIP. The SIP is a comprehensive plan of previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, State regulations, and federal controls that describes how each nonattainment area in the state will meet NAAQS, as described in Section 4.1.3.3, *Regional*.

The simplest test to assess project consistency is to determine if the project proposes development that is consistent with the growth anticipated by the relevant land use plans that were used in the formulation of the RAQS and SIP; if so, then the project would be consistent with the RAQS and SIP. Moreover, if the project is consistent with the overarching goals (i.e., to reduce emissions and attain NAAQS and CAAQS) and strategies (i.e., measures implemented to reduce emissions), then the project would be consistent with the RAQS and SIP.

The PMP is the governing land use document for physical development within the District. Projects that propose development consistent with growth anticipated by the current PMP are considered consistent with the RAQS and SIP. Moreover, if a project would propose development that is less dense than anticipated within the current PMP, the project would likewise be consistent with the RAQS and SIP because emissions would be less than estimated within the current PMP. If a project proposes development that is greater than that anticipated in the PMP and SANDAG's growth projections, the project would be in conflict with the RAQS and SIP, and might have a potentially significant impact on air quality because emissions would exceed those estimated for the existing land use plan (i.e., PMP). This situation would warrant further analysis to determine if a proposed project and surrounding projects would exceed the growth projections used in the RAQS for a specific subregional area.

As discussed in detail in Section 4.6, *Land Use and Planning*, the proposed project is within the PMP's Tenth Avenue Marine Terminal Planning District (Planning District 4) and most of the project site, lies within the Belt Street Industrial Subarea (Subarea 43). PMP land and water use designations within the project site include Marine Related Industrial and Specialized Berthing. The purpose of the proposed project is to maintain and improve facilities for the berthing needs of the current and future U.S. Naval assets and other customers. Construction and operation of the proposed project would not result in new berthing space or an increase in vessels serviced.

No changes in land uses would occur, and the proposed project would not result in land use designations that would be incompatible with existing onsite PMP land use designations. In addition, the project would be consistent with the District's Green Port and Clean Air Programs, which aim to reduce air pollution from operations at the Port and include various strategies that the District is employing to reduce criteria pollutant and GHG emissions from its largest sources. The proposed project would also comply with SDAPCD rules that have been implemented to reduce regional particulate matter and O_3 emissions—Rule 50 (Visible Emissions), Rule 51 (Nuisance), Rule 52 (Particulate Matter), Rule 54 (Dust and Fumes), Rule 55 (Fugitive Dust Control), and Rule 67 (Architectural Coatings)—and fugitive dust control measures during any demolition activities.

The proposed project would be consistent with current land use designations of the PMP and would not result in changes in land use or an increase in population. Therefore, the proposed project would be accounted for within SDAPCD's attainment forecasts and RAQS formulation. The project would not conflict with or obstruct the implementation of the applicable air quality plan. Therefore, the impact related to project implementation conflicting with obstructing implementation of an applicable air quality plan is considered less than significant, and no mitigation is required.

Level of Significance Prior to Mitigation

Implementation of the proposed project would not conflict with or obstruct implementation of the applicable air quality plans. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance after Mitigation

Impacts would be less than significant.

Threshold 2: Implementation of the proposed project <u>would not</u> result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.

Impact Discussion

As a result of past and present projects, the SDAB is currently in nonattainment for O_3 under NAAQS and for O_3, PM10, and PM2.5 under CAAQS, and will likely be further impeded by reasonably foreseeable future projects (see Chapter 5, *Cumulative Impacts*). Construction and operation of the proposed project have the potential to result in cumulatively considerable net increase of O_3

precursors (ROG and NO_X), PM10, and PM2.5. The construction- and operations-related air quality impacts are discussed below.

Construction Emissions

An estimate of emissions associated with project construction was calculated using the methods discussed above in Section 4.1.4.1, *Methodology,* and in Appendix C. Maximum daily emissions (pounds per day) during each year of construction of the proposed project are presented in Table 4.1-10. A breakdown of the maximum daily emissions for each year of construction is as follows:

- In 2021, maximum daily emissions are expected to occur when dredging for the Pride of San Diego drydock (Project Element 1) would overlap with Pride of San Diego drydock wharf construction work (Project Element 2). This peak overlap period would be brief (assumed to be 1 day) and would include Pride of San Diego in-water vessel activity (tugs, scow, and survey vessel) and haul trucks activity concurrent with Pride of San Diego wharf construction and truck activity (primarily deliveries). The peak day for all of construction occurs in the first year of construction (2021) but would be below thresholds.
- In 2022, maximum daily emissions are expected to occur when Project Element 6 (Pier 3 North Lunchroom Wharf Replacement and Realignment) demolition, construction, and piling would overlap. This overlapping period would occur as the demolition portion is finishing and pile driving construction begins. This overlapping period would be less than 1 week.
- In 2023, maximum daily emissions are expected to occur during Pier 3 South Nearshore Dredging (Project Element 4). The peak overlap period would occur during concurrent dredging and truck hauling activities.
- In 2024, maximum daily emissions are expected to occur during Administrative Office Building construction and demolition (Project Element 12).
- In 2025, maximum daily emissions are expected to occur during Central Tool Room Demolition and Reconstruction activities (Project Element 10).

Table 4.1-10. Estimate of Peak Day Construction Emissions by Year (pounds per day)

Year	ROG	NO_X	CO	PM10	PM2.5	SO_X
2021	27	221	153	9	8	<1
2022	7	53	39	3	2	<1
2023	10	32	26	2	2	<1
2024	8	27	25	2	1	<1
2025	7	26	25	2	1	<1
Significance Threshold	75	250	550	100	55	250
Exceed Threshold?	No	No	No	No	No	No

Source: Appendix C.
Notes: emissions may not add up due to rounding.

As shown in Table 4.1-10, construction of the proposed project would result in emissions below applicable significance thresholds. Therefore, construction-related criteria pollutant emissions would not exceed significance thresholds for pollutants for which the region is nonattainment under the NAAQS or CAAQS. Note that the peak day for construction would occur in 2021, as identified in the above list.

As discussed above, while there are two separate disposal scenarios for Project Element 4, these would not affect the peak day for construction as that peak day does not include Project Element 4. The emissions shown in Table 4.1-10 are representative of worst-case conditions. The two separate disposal scenarios would differ in total emissions over the entire construction duration due to the difference in sediment hauling (between tug/scow and trucks). The 50-50 Scenario would result in slightly higher emissions for all emission types except PM10, PM2.5, and SO_X. This is due to the increased tug and scow activity in the 50-50 scenario compared to the All-Truck scenario. However, under either scenario, emissions would be below thresholds, and the difference between the two scenarios would be minor. A detailed summary of project emissions by year and subphase is provided in Appendix C. This impact is considered less than significant for construction, and no mitigation is required.

Operational Emissions

As discussed in Section 4.1.4.1, the proposed project would result in operational efficiencies that would change the vessel fleet that could be serviced at the site. This change could result in larger but fewer ships serviced on a daily and annual basis. These larger ships require more tugboat power to berth safely, but because there would be fewer calls, annual activity and emissions would likely decrease.

Direct changes resulting from the larger ships includes potential changes to tugboat and equipment activity. An estimate of existing and future daily emissions on both the daily and annual time scale is presented in Table 4.1-11. As shown, daily emissions (from a single call) during project operations are expected to increase, but this increase would be below significance thresholds.

Indirect changes to operations include changes in vessel surface area, labor, and total working days, which would all decrease as a result of the larger but more infrequent vessel calls relative to existing conditions. The reduction in total vessel surface area would likely reduce ship repair processes (e.g., abrasive blasting, application of marine coatings, and welding), which result in both criteria pollutant and TAC emissions. While on an individual basis the ships may be larger, the total surface area serviced over the year is likely to decrease as a result. More information on the change in vessel dimensions and surface area with the proposed project is provided in Appendix C.

As discussed in Chapter 3, vessels carry a crew, and the size of the crew varies by vessel size and type (e.g., commercial or naval). The project would not add any new permanent employees, and would reduce the amount of labor at the site, but may increase the crew size due to the larger vessels. However, there would be an overall net reduction of personnel (both labor and crew) compared to existing conditions (refer to Chapter 3 for more information). Because labor and crew directly and indirectly emit emissions associated with vehicle commuting as well as utility consumption and generation (energy, water, waste), reducing activity at the project site is likely to reduce emissions overall.

Moreover, as discussed in Appendix C, the project would decrease occupancy at Pier 3 South, resulting in fewer days per year that vessels are berthed. While the air quality changes associated with fewer occupancy days were not quantified, it is reasonable to assume that this would reduce emissions on an annual basis given that activity at the BAE Systems site is related to the presence of vessels.

Overall, the project would result in newer and larger ships that demand more power to berth, but once berthed, overall activity is expected to decrease. Emissions on the worst-case call day would be

below thresholds, and emissions are expected to decrease annually. Thus, the proposed project would not exceed significance thresholds for any criteria pollutants, including those for which the region is in nonattainment. Operational impacts would be less than significant, and no mitigation is required.

Table 4.1-11. Estimate of Operational Emissions (pounds per day)

Condition	Source	Total HP	ROG	NO_X	CO	PM10	PM2.5	SO_X
Existing (Scenario 1)[1]	Generators and Fire Pumps	7,250	<1	4	14	<1	<1	<1
	Tug Activity	12,000	7	59	54	1	1	<1
	Total	**--**	**8**	**64**	**68**	**2**	**2**	**<1**
Existing (Scenario 2)[1]	Generators and Fire Pumps	7,250	<1	4	14	<1	<1	<1
	Tug Activity	13,500	9	69	61	2	2	<1
	Total	**--**	**9**	**74**	**75**	**2**	**2**	**<1**
Project	Generators and Fire Pumps	7,250	<1	4	14	<1	<1	<1
	Tug Activity	14,500	9	77	66	2	2	<1
	Total	**--**	**10**	**81**	**80**	**2**	**2**	**<1**
Net Change with Project								
Scenario 1		--	2	17	12	1	1	<1
Scenario 2		--	1	7	5	<1	<1	<1
Significance Threshold		--	75	250	550	100	55	250
Exceed Significant Threshold?		--	No	No	No	No	No	No

Source: Appendix C.

[1] Scenario 1 is two larger tugs and Scenario 2 is three smaller tugs and one pusher tug, as shown in Table 4.1-7.

Notes: Totals may not add exactly due to rounding.

Cumulative Emissions

The cumulative projects identified by the District within 1,000 feet of the proposed project site that could contribute cumulative impacts on localized air quality conditions include the following: BAE Systems—Pier 1 North Drydock, Associated Real Estate Agreements and Removal of Cooling Tunnels Project (Cumulative Project #3), Shipyard Sediment Remediation Project (Cumulative Project #4), Mitsubishi Cement Corporation at Warehouse C (Cumulative Project #18), and HII San Diego Shipyard Inc. Marginal Wharf Repair and As-Needed Pile Replacement Project (Cumulative Project #23). Construction of one or more of these projects would potentially overlap with the construction of the proposed project. Construction related to the nearby Mitsubishi Cement Corporation project (Cumulative Project #18) and HII San Diego Shipyard Inc. Marginal Wharf Repair and As-Needed Pile Replacement Project (Cumulative Project #23) would potentially overlap with the construction of the proposed project, which is scheduled to occur between 2021 and 2025. A full list of the cumulative projects considered in this EIR is provided in Chapter 5, *Cumulative Impacts*.

As discussed above and shown in Tables 4.1-10 and 4.1-11, criteria pollutant emissions are expected to be below significance threshold levels for all nonattainment criteria pollutants and precursors during construction and operations of the proposed project. Construction emissions from all nearby

projects, including those listed above, would result in criteria pollutant emissions, but these projects would be subject to the same SDAPCD rules and regulations that reduce emissions from the proposed project, including fugitive dust control per Rule 55 and VOC limits in coatings per Rule 67. The proposed project would not result in a cumulatively considerable net increase of any nonattainment pollutants during construction or operation. In addition, during operations, the proposed project would conform to the RAQS and SIP and would not create a CO hotspot (see analysis under Threshold 3 below). As such, the proposed project is not expected to result in a cumulatively considerable net increase in a nonattainment pollutant. Overall, this impact is considered less than significant, and no mitigation is required.

Level of Significance Prior to Mitigation

Construction

Construction of the proposed project would not result in cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard. Impacts would be less than significant.

Operation

Operation of the proposed project would not result in cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard. Impacts would be less than significant.

Mitigation Measures

Construction

No mitigation is required.

Operation

No mitigation is required.

Level of Significance after Mitigation

Construction

Impacts would be less than significant.

Operation

Impacts would be less than significant.

Threshold 3: Implementation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations.

Impact Discussion

Diesel Particulate Matter

DPM, which is classified as a carcinogenic TAC by CARB, is the primary exhaust pollutant of concern with regard to health risks to sensitive receptors. Diesel-powered construction equipment as well as heavy-duty truck movement and hauling both on and off site would emit DPM that could potentially expose nearby sensitive receptors to pollutant concentrations. For purposes of analysis, diesel PM10 exhaust emissions presented in this analysis are used as a surrogate for DPM, consistent with OEHHA guidance (2015). The closest sensitive land uses within the vicinity of the project site (relative to the project boundary) are the Woodbury School of Architecture, located 1,050 feet north; residences as close as 1,1,180 feet north; Cesar Chavez Park, located 1,700 feet northwest; and the Perkins Elementary and Monarch schools, located 2,550 feet north. See Table 4.1-5 for a summary of receptor distances from the project site.

Construction

Construction activities would be short term, occurring off and on over approximately 4.9 years (57 months), which is much shorter than the assumed 9-, 30-, or 70-year exposure period typically used to estimate lifetime cancer risks. Receptors that access the school, park, and residences would have limited exposure to diesel exhaust, with exposure limited to visitation that coincides with weekday construction activities. DPM emitted by these sources can remain airborne for several days. However, given the prevailing winds and meteorological conditions at the project site during daytime construction hours, pollutant emission concentrations would be expected to be well dispersed. Construction activities would be sporadic, transitory, and short term in nature; once construction activities end, so too would the source of emissions.

The vast majority of emissions would occur within and near the construction area. This includes all emissions from off-road equipment, a portion of truck activity, and all marine sources that are active in the dredging and construction area, including the dredger, push-knee tug, survey vessel, and a small portion of ocean-going tug activity. Activity away from the construction area includes all employee commuting, most of the truck travel, and marine sources associated with ocean disposal as the ocean-going tug pulls the scow away from the construction area.

Although a quantitative HRA was not performed for the proposed project, one was performed at the project site for the BAE Pier 1 North Drydock EIR (District 2015). The BAE Systems Pride of California Drydock is located directly northwest of the proposed project, within the same leasehold. Construction activities and sources of emissions for the BAE Drydock project were similar to those proposed here, and included demolition, dredging, and other activities that would result in combustion emissions from heavy-duty construction vehicles, barges, haul trucks, utility engines, and vehicles transporting construction employees. Construction activities would include similar emission-generating activities (landside and marine equipment types), in the same location, and in proximity to the same sensitive receptors as assumed in the Pier 1 North Drydock EIR. Thus, the results of the construction HRA for the Pier 1 North Drydock EIR are used as a proxy for determining risk associated with the proposed project.

The BAE Pier 1 North Drydock EIR assumed 1.5 pounds per day of DPM exhaust over an 18-month construction period assuming 22 working days per month, for a total of 0.297 ton (or 594 pounds) of DPM. The maximum risk was assumed to be at nearby residences, where the cancer risk was assumed to be 0.378 cases per million, which is far below the 10 per million threshold. For the proposed project, the average daily emission rate over the entire 57-month construction period is much lower than assumed in the BAE Pier 1 North Drydock EIR and equals 0.70 pound per day based on 0.613 ton (or 1,225 pounds) of DPM over 1,743 days for all sources, both within and away from the project area. Assuming health risk is proportional to total DPM emissions, scaling up the risk from the BAE Pier 1 North Drydock EIR to the proposed project would result in a risk value to 0.78 case per million, which is far below the 10 cases per million threshold. Thus, construction of the proposed project would not result in significant health risk at nearby sensitive receptor locations. Impacts would be less than significant, and no mitigation is required.

Operation

Once the proposed project is operational, TAC emissions would continue to result primarily from diesel-powered tugs and equipment, and industrial-type processes for ship repair such as abrasive blasting, application of marine coatings, and welding. As discussed above, ship repair processes are expected to decrease due to the decrease in vessel surface area and occupancy days at Pier 3 South. As shown in Table 4.1-11, diesel exhaust (in the form of PM10) would decrease annually relative to existing conditions due to the decrease in calls.

Emissions during construction would be short term and transitory and occur at distances (greater than 1,000 feet) not expected to expose sensitive receptor locations to substantial pollutant concentrations. Also, the predominant wind direction at the project site is west–northwest, which will potentially disperse pollutants away from the nearest residential and recreational receptors, both located northeasterly from the project site. The proposed project may also create a nuisance for nearby onsite visitors during hours of construction and operations, as diesel trucks could create occasional exposure to exhaust, but this would be minimal due to the transient nature of truck activity in the project vicinity. As such, impacts from the emission of TACs would be less than significant, and no mitigation is required.

Carbon Monoxide Hotspots

CO hotspot analyses address the implications of high short-term concentrations of CO, which typically occur at locations with high traffic volumes and congestion. For this reason, hotspots are often correlated with LOS at intersections. Due to the short-term and temporary nature of construction activities, CO emissions generated during construction of the proposed project are not anticipated to result in long-term CO hotspot impacts. Also, as mentioned previously, and discussed in further detail in Section 4.9, *Transportation, Circulation, and Parking,* subsection 4.9.2.1, operation of the proposed project is not expected to result in additional traffic. The decrease in labor at the project site would result in a decrease in overall worker trips, and therefore a decrease in traffic and congestion at roadways and intersections surrounding the project site. Consequently, the impact of traffic conditions from the proposed project on ambient CO levels is considered less than significant, and no mitigation is required.

Criteria Air Pollutants

High levels of criteria pollutants are associated with some form of health risk (e.g., asthma, asphyxiation). Adverse health effects associated with criteria pollutant emissions are highly

dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, the number and character of exposed individuals [e.g., age, gender]). Moreover, O_3 precursors (ROG and NO_X) affect air quality on a regional scale. Health effects related to O_3 are therefore the product of emissions generated by numerous sources throughout a region.

As part of the setting and updating of the NAAQS, EPA develops and considers quantitative characterizations of exposures and associated risks to human health or the environment associated, known as an Health Risk and Exposure Assessment (HREA), with recent air quality conditions and with air quality estimated to just meet the current or alternative standard(s) under consideration (EPA 2016). The HREA estimates population exposure to and resulting mortality and morbidity health risks associated with the full range of observed pollutant concentrations, as well as incremental changes in exposures and risks associated with ambient air quality adjusted to just meeting the existing NAAQS and just meeting potential alternative NAAQS under consideration (EPA 2014).

In terms of analyzing project-related emission, the air quality thresholds applied to the proposed project (see Table 4.1-9) are based on EPA's NSR program, which sets standards consistent with the NAAQS. However, existing models have limited sensitivity to small changes in criteria pollutant concentrations and, as such, translating project-generated criteria pollutants to specific health effects would not produce meaningful information, as project-related emissions are unlikely to show up in any regional model. In other words, increases in regional air pollution from project-generated VOC and NO_X would have no effect on specific human health outcomes that could be attributed to specific project emissions. Other criteria pollutant emissions, including CO, PM10, and PM2.5, generally affect air quality on a localized scale.

Health effects related to localized pollutants are the product of localized sources and emissions generated by numerous sources throughout a region. Certain air quality models, particularly dispersion models, could translate project-generated localized pollutants to specific localized health effects, such as nearby exposure to DPM, but these models have limited ability to translate project-generated pollutants to specific regional health effects.

As shown in Tables 4.1-10 and 4.1-11, construction and operation of the proposed project would result in emissions of criteria air pollutants that would be below significance thresholds. Because thresholds (see Table 4.1-9) serve as health-based thresholds, construction and operation of the proposed project would not result in adverse health effects associated with criteria pollutant emissions.

Moreover, construction and operation of the proposed project would not result in adverse health effects on the nearby populations associated with localized PM exhaust and CO, as implementation of the proposed project would result in emissions of localized pollutants (CO, PM10, and PM2.5) far below thresholds. Consequently, the health-related impacts of the proposed project's localized criteria air pollutant emissions are considered less than significant, and no mitigation is required.

Asbestos-Containing Materials

Demolition of existing structures results in fugitive dust and other particulates that may disperse to adjacent sensitive receptor locations. Asbestos-containing materials (ACMs) were commonly used as fireproofing and insulating agents prior the 1977, which is when the U.S. Consumer Product Safety Commission banned most ACM use due to their link to mesothelioma. However, buildings

constructed prior to 1977 that would be demolished by the project may have used ACM and could expose receptors to asbestos, which may become airborne with other particulates during demolition.

A discussion of asbestos-related impacts is presented in Section 4.4, *Hazards and Hazardous Materials.* As discussed therein, based on the age of the buildings and structures present onsite, there is a high likelihood that lead-based paint (LBP) and/or ACM are present on site. For example, buildings associated with the existing Production Shop have been present from as early as 1949. Given that the proposed project would involve demolition and redevelopment of the Production Shop (Project Element 11), there is potential for an accidental release of asbestos or lead during construction. However, any demolition or grading activities during construction would be required to comply with Title 8, Industrial Relations, of the California Code of Regulation, as discussed in Section 4.4. Compliance with the applicable regulations would ensure that impacts associated with removal and disposal of ACM and LBP would be less than significant, and no mitigation is required.

Level of Significance Prior to Mitigation

Construction

Construction of the proposed project would not expose sensitive receptors to substantial pollutant concentrations. Impacts would be less than significant.

Operation

Operation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations. Impacts would be less than significant.

Mitigation Measures

Construction

No mitigation is required.

Operation

No mitigation is required.

Level of Significance after Mitigation

Construction

Impacts would be less than significant.

Operation

Impacts would be less than significant.

Threshold 4: Implementation of the proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Impact Discussion

Although other emission types, such as odors, rarely cause any physical harm, they can be unpleasant and affect certain members of the public. These effects include distress that may often generate citizen complaints to local governments and air districts. Any project with the potential to frequently expose the public to emissions, such as odors, would be deemed as having a significant impact.

According to CARB's *Air Quality and Land Use Handbook*, land uses associated with odor complaints typically include sewage treatment plants, landfills, recycling facilities, and manufacturing (CARB 2005). Odor impacts on residential areas and other sensitive receptors, such as hospitals, daycare centers, and schools, warrant the closest scrutiny, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, work sites, and commercial areas.

Potential odor emitters during construction activities include diesel exhaust, asphalt paving, and architectural coatings. Construction-related activities near existing receptors would be temporary in nature, and construction activities would not result in nuisance odors that would violate SDAPCD Rule 51. Potential odor emitters during operations would include exhaust from vehicles, offroad equipment, and vessel activity. However, odor impacts would be limited to the circulation routes, parking areas, and areas immediately adjacent to terminal operations, and because activity as a whole (including labor, vessel calls, and overall tug activity) would decrease, odor impacts are not expected to exceed existing odor conditions. Odor-related impacts would be less than significant, and no mitigation is required.

Level of Significance Prior to Mitigation

Implementation of the proposed project would not result in other emissions such as those leading to odors that would adversely affect a substantial number of people. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance after Mitigation

Impacts would be less than significant.

Section 4.2
Biological Resources

4.2.1 Overview

This section describes the existing conditions and applicable laws and regulations for biological resources. The section also analyzes the proposed project's potential to impact biological resources during construction and operation. Impacts on biological resources are considered significant if the proposed project would: (1) have a substantial adverse effect on candidate, sensitive, or special-status species; (2) have a substantial adverse effect on riparian habitat or other sensitive natural community; (3) result in substantial interference with the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedance of the use of native wildlife nursery sites; or (4) conflict with applicable local policies or ordinances protecting biological resources or with the provisions of an applicable adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The analysis in this section is primarily based on the *Biological Technical Study and Essential Fish Habitat Assessment for the BAE Waterfront Infrastructure Maintenance, Repair, and Replacement Project* prepared by Merkel & Associates, Inc. (Merkel & Associates 2019), with additional information provided by the memorandum, *BAE Systems Construction – Airborne Noise Levels for Potential Impacts on Marine Mammals,* prepared by ICF noise analysts (ICF 2019). These two documents are included as Appendix D-1 and Appendix D-2 of this EIR, respectively. Additional analysis of terrestrial biology was conducted as a desktop review by ICF biologists and is incorporated directly into this EIR section, where applicable, and the full results of the desktop review are provided in Appendix D-3 of this EIR.

Table 4.2-1 summarizes significant impacts and mitigation measures discussed in detail in Section 4.2.4.4, *Project Impacts and Mitigation Measures*.

Table 4.2-1. Summary of Significant Biological Resources Impacts and Mitigation Measures

Summary of Potentially Significant Impact(s)	Summary of Mitigation Measure(s)	Level of Significance After Mitigation	Rationale for Finding After Mitigation
Impact-BIO-1: Water Quality Impairment Impacts on California Least Tern and California Brown Pelican Foraging	**MM-BIO-1**: Implement Construction Measures to Eliminate Water Quality Impairment Impacts on California Least Tern and California Brown Pelican Foraging	Less than Significant	Implementation of construction measures in accordance with CWA Sections 401 and 404, Rivers and Harbors Act Section 10, the NPDES permit, and the Stormwater Management and Discharge Control Ordinance would avoid any impact on California least tern and California brown pelican from

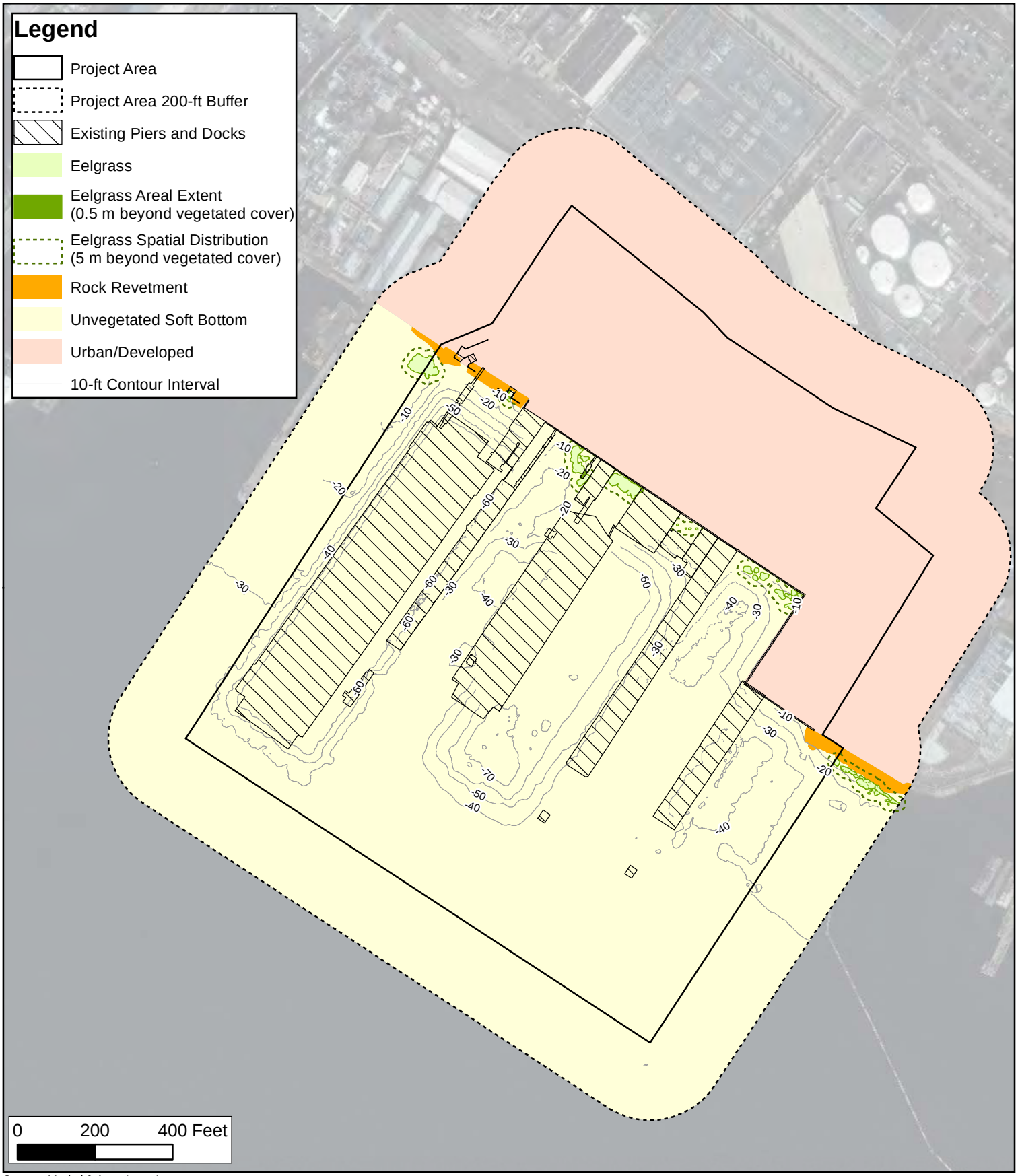
Summary of Potentially Significant Impact(s)	Summary of Mitigation Measure(s)	Level of Significance After Mitigation	Rationale for Finding After Mitigation
			increased turbidity associated with in-water construction activities.
Impact-BIO-2: Potential Disturbance or Destruction of Nests Protected by the Migratory Bird Treaty Act and California Fish and Game Code	**MM-BIO-2:** Avoid Nesting Season for Birds or Conduct Preconstruction Nesting Surveys	Less than Significant	Avoidance of the nesting season or implementation of this measure during construction that occurs within the nesting season to ensure compliance with the MBTA and California Fish and Game Code would avoid any impacts on nesting birds.
Impact-BIO-3: Potential Disruption of or Injury to Green Sea Turtles and Marine Mammals During Pile Driving Activities	**MM-BIO-3**: Implement a Marine Mammal and Green Sea Turtle Monitoring Program During Pile Installation Activities	Less than Significant	Implementation of a marine mammal and green sea turtle monitoring program approved by the District would avoid any impact on marine mammals and green sea turtles.
Impact-BIO-4: Loss of Open Water Habitat from Shipyard Operations	**MM-BIO-4**: Implement Overwater Coverage Mitigation in Coordination with the Appropriate Resource Agencies and the District to Compensate for Loss of Open Water Habitat	Less than Significant	Mitigation would adequately compensate for loss of open water habitat from overwater coverage by requiring implementation of any combination of the following mitigation options at a 1:1 ratio for no net increase in overwater coverage per the CWA: removing overwater coverage in the San Diego Bay; restoring or creating eelgrass habitat at a suitable mitigation site of equivalent size and value within San Diego Bay; purchasing credits for a suitable in lieu fee program or mitigation bank; and/or purchasing credits from the District's shading credit program.

Summary of Potentially Significant Impact(s)	Summary of Mitigation Measure(s)	Level of Significance After Mitigation	Rationale for Finding After Mitigation
Impact-BIO-5: Potential Water Quality Impairment or Construction-Related Impacts on Eelgrass	**MM-BIO-5**: Implement Eelgrass Protection Measures	Less than Significant	Implementation of eelgrass protection measures such as requiring pre- and post-construction surveys in accordance with the CEMP; silt curtains; performing monitoring; contractor education; and, in the event eelgrass is impacted, requiring restoration, creation, or purchase of eelgrass mitigation bank credits would reduce potential impacts on adjacent eelgrass to less than significant.

4.2.2 Existing Conditions

4.2.2.1 Terrestrial Environment

The terrestrial environs associated with the landside component of the proposed project is completely urban/developed and is subject to marine-related industrial activity on a daily basis. This portion of the project site consists of paved areas, roadway, buildings, and piers. The project site contains very little vegetation, limited to small areas of landscaped vegetation species. As shown in Figure 4.2-1, the landside portion is devoid of any natural vegetation, sensitive vegetation communities, natural wildlife habitat, and jurisdictional waters and wetlands.



Source: Merkel & Associates, Inc.

Figure 4.2-1
Habitat of Project Site
BAE Systems Waterfront Improvement Project

4.2.2.2 Marine Environment

The biological environs associated with the marine component of the proposed project currently includes habitats such as unvegetated soft bottom, vegetated soft bottom (including eelgrass beds), intertidal rip-rap, vertical bulkhead wall, pier piles, and open water. This combination of habitat types supports a wide array of marine life including marine mammals, green sea turtle (*Chelonia mydas*), fish, tunicates, crustaceans, and mollusks, all of which are common wildlife in San Diego Bay. In addition to providing habitat for a variety of marine species, there is also potential for foraging habitat in open water areas for avian species, including the federally and state-listed endangered California least tern (*Sterna antillarum browni*) and the state-protected California brown pelican (*Pelecanus occidentalis californicus*). Eelgrass (*Zostera marina*) and open water habitats are designated as Essential Fish Habitat (EFH) under the Magnuson-Stevens Fishery Management Conservation Act of 1976, as amended 1996 (Public Law 104-267) (MSFMCA). Eelgrass is further designated and protected as a Habitat Area of Particular Concern under the MSFMCA and the California Eelgrass Mitigation Policy through the National Marine Fisheries Service (NMFS) (NMFS 2014). A full description of each marine habitat type present within the waterside component of the proposed project can be found in Appendix D-1.

4.2.2.3 Candidate, Sensitive, and Special-Status Species

Special-status species are those plants or animals that have been officially listed, proposed for listing, or are candidates for listing as threatened or endangered under provisions of the federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA), as well as any animal species listed as a species of special concern or fully protected by the state, and plants listed on the California Native Plant Society's (CNPS) Rare Plant Ranking System. Sensitive species also include species listed by local or regional jurisdictions. The following describes the candidate, sensitive, and special-status species with the potential to occur or that have been observed within the project area.

Plant Species

Terrestrial

The analysis for sensitive plant species was performed for this project by reviewing the California Natural Diversity Database (CNDDB) and CNPS database, and requesting an official threatened and endangered species list from the U.S. Fish and Wildlife Service's (USFWS) Information, Planning, and Consultation System (IPAC). The CNDDB record search for sensitive terrestrial plant species was conducted for the project site and a 1-mile radius (CDFW 2018). The CNPS sensitive plant species search was conducted for the U.S. Geological Survey's Point Loma, California 7.5-minute quadrangle map. Due to the varying topography occurring within the Point Loma quadrangle map, the search was further refined to only include species with habitat requirements within 0 and 20 feet elevation, which would exclude plants that may occur in habitats that vary greatly from the current and historical conditions at the project site. The USFWS list of threatened and endangered species was generated by creating a polygon for the proposed project area through the IPAC web application tool. This search criteria yields a total of 32 sensitive plant species. Upon review of these resources, it was determined that because the site is urban/developed and lacks any natural terrestrial habitat, no sensitive plant species are likely to occur at the project site. A full description of these species and their potential to occur within the project site are presented in Appendix D-3.

Marine

The waterside component of the project site contains a number of habitat types, including unvegetated soft bottom, vegetated soft bottom, intertidal rip-rap, vertical bulkhead wall, pier piles, and open water. Eelgrass (part of the vegetated soft-bottom habitat type) and open water are defined as EFH under the 1996 amendment to the MSFMCA (see Section 4.2.3, *Applicable Laws and Regulations*). Eelgrass beds were observed and documented as the predominant plant species occurring within the vegetated soft bottom habitat type. The eelgrass beds within the proposed project occur along a narrow shoreline margin between overwater pier and dock structures. Eelgrass beds also extend outside the proposed project boundary, along the shoreline margin that continues both north and south along either side of the BAE Systems leasehold (refer to Figure 4.2-1). Open water habitat consists of any area within the water column that lacks any structure or vegetation. Additional eelgrass beds occur to the northwest, outside of the project boundary.

Eelgrass is a marine plant that provides predation refuge and serves as an important food source for a diverse group of marine species. Eelgrass beds reduce wave and current action, thus reducing erosion by stabilizing sediment. Eelgrass beds improve water quality by trapping suspended particulates and also generate oxygen for the marine environment during daylight hours. Although eelgrass is not a threatened or endangered species, it is considered EFH habitat and a Habitat Area of Particular Concern under the MSFMCA, the federal legislation that protects waters and substrates necessary for fish spawning, breeding, feeding, or growth to maturity. Eelgrass beds are also considered special aquatic sites under the 404(b)(1) guidelines of the CWA (see Section 4.2.3, *Applicable Laws and Regulations*).

Wildlife Species

Terrestrial

A CNDDB record search for special-status terrestrial wildlife species was conducted for the project site and a 1-mile radius (CDFW 2018). The USFWS list of threatened and endangered species was generated by creating a polygon for the project site through the IPAC web application tool. Thirteen special-status wildlife species have been recorded within 1 mile of the project site. A full description of these species and their potential to occur within the project site are presented in Appendix D-3.

Based on the database search and a review of existing site conditions, three sensitive terrestrial wildlife species have the potential to occur within or adjacent to the project site based on potential foraging opportunities. The landside portion of the project site contains suitable foraging habitat for American peregrine falcon (*Falco peregrines anatum*), and the adjacent open-water marine portion of the project area provides suitable foraging habitat for California least tern and California brown pelican. The project site has moderate potential for foraging for American peregrine falcon due to the open space available around the project site, and the site's proximity to the Coronado Bridge, which has potential to provide suitable nesting habitat. The landside portion of the project site does not contain any suitable foraging habitat for California least tern or California brown pelican because both birds feed almost exclusively on small fish species. Table 4.2-2 provides a full description of these species and their potential to occur within the project site.

The landside portion of the project site is subject to commercial human activities and routine landscape maintenance activities. The urban setting and frequent disturbances of the project area provide low-quality wildlife habitat for non-avian species. Existing ornamental trees found within

the project site provide suitable nesting habitat for a number of common bird species including, but not limited to, black-crowned night heron (*Nycticorax nycticorax*), house finch (*Haemorhous mexicanus*), snowy egret (*Egretta thula*), great blue heron (*Ardea herodias*), red-tailed hawk (*Buteo jamaicensis*), and American crow (*Corvus brachyrhynchos*).

Marine

Marine habitat types found within the project site are typical for bays and harbors in Southern California and, as such, contain species ubiquitous throughout San Diego Bay. Wildlife species observed include fish, polychaetes, anemones, mollusks, and crustaceans. A full explanation of species observed or with potential to occur at each habitat type is detailed in Appendix D-1.

The project site does not contain suitable habitat to continually support any protected, rare, threatened, or endangered marine species; however, a number of species have potential to occur within the project site on a transient basis. Green sea turtles (federally listed as threatened) are the only sensitive marine species with potential to occur on site. There is a population of resident Eastern Pacific green sea turtles most commonly observed in southern San Diego Bay. Green sea turtles can be observed elsewhere within the Bay and offshore; however, this is not a common occurrence, as this species preferentially occurs in southern San Diego Bay. There is very little habitat or foraging opportunities within the project site to attract green sea turtles, and any occurrence on site would be uncommon and transient in nature.

Harbor seal (*Phoca vitulina*), California sea lion (*Zalophus californianus californianus*), common dolphin (*Delphinus* spp.), coastal bottlenose dolphin (*Tursiops truncatus*), and California gray whale (*Eschrichtius robustus*), all of which are protected under the Marine Mammal Protection Act (MMPA), have potential to occur within the waterside portion of the project site. California sea lion may forage opportunistically when in the Bay and is commonly observed in north San Diego Bay; they are most commonly observed in marina environments, either foraging or using docks and other structures as temporary haul-out sites. California sea lion is uncommon in central San Diego Bay but is occasionally observed. During 145 monitoring days 7 California sea lion observations were made at the BAE Systems facility in 2016 (refer to Appendix D-1). While California sea lion is relatively uncommon in central San Diego Bay, the documented observations of California sea lions during prior BAE Systems construction work means they are considered to have moderate potential to occur within the waterside portion of the project site. Harbor seal forages in north San Diego Bay with occurrence much lower than California sea lions. There were no harbor seal observations during the same monitoring noted above; hence, their potential to occur at the project site is considered low. Common dolphin and coastal bottlenose dolphin are occasionally observed transiting north and north-central San Diego Bay; however, these species are unlikely to occur within the project site as they are rarely observed within industrial areas, and occurrence in south central and south San Diego Bay is rare. Their potential for occurrence within the project site is considered to be low. California gray whale is a regular migrant observed in offshore waters. California gray whale are uncommon in nearshore waters and rarely seen in San Diego Bay; the potential for California gray whale to occur within the project site is very low (Appendix D-1).

Table 4.2-2. Potential for Sensitive Wildlife Species to Occur within the Project Site

Common Name (*Scientific Name*)	Sensitivity Code and Status	Habitat Preference/Requirements	Verified On Site (Yes/No)	Potential to Occur	Rationale
Reptiles					
Green sea turtle (*Chelonia mydas*)	FT	Typically occurs within southern San Diego Bay within or adjacent to the shallow eelgrass beds. Individuals may enter or leave San Diego Bay and can be found between San Diego and Mexico.	No	Low	Green sea turtles may periodically occur on site as they are found throughout San Diego Bay; however, the project area does not offer ideal habitat requirements for the species to preferentially visit for foraging opportunities.
Birds					
American peregrine falcon (*Falco peregrines anatum*)	FPS	Occurs along coast; breeds in woodland, forest, and coastal habitats. Riparian areas are important year-round habitats.	No	Breeding: None Foraging: Moderate	Site is urban/developed. Current site conditions lack suitable natural or artificial cliff-like ledges for nesting. Project location has potential for foraging only. Falcon preys upon bird species commonly associated with urban areas.
California brown pelican (*Pelecanus occidentalis californicus*)	FPS	Nesting typically occurs on islands on ground or within shrubs. No nesting occurs in San Diego Bay. Commonly observed foraging throughout San Diego Bay and near coastal areas for schooling fish species such as anchovy, sardine, and mackerel.	No	Breeding: None Foraging: Yes	Pelicans are commonly found throughout San Diego Bay. Foraging potential is high anywhere schooling fish species can be found. Birds also commonly associate with fishing boats as recreational fishermen discard bait.
California least tern (*Sterna antillarum browni*)	FE SE FPS	Shallow estuaries, lagoons, and long marine shores.	No	Breeding: None Foraging: Yes	Site is urban/developed. Species nests in open areas relatively free of human disturbance on sandy or gravelly substrate, which may exist on some rooftop areas. Foraging occurs over open water for small fish species. Foraging and resting potential along rip-rap within project area.

Common Name (*Scientific Name*)	Sensitivity Code and Status	Habitat Preference/Requirements	Verified On Site (Yes/No)	Potential to Occur	Rationale

Source: CDFW 2018

Status:

Federal

FE – listed as endangered under the federal Endangered Species Act.

FT – listed as threatened under the federal Endangered Species Act.

State

SE - listed as endangered under the California Endangered Species Act.

ST – listed as threatened under the California Endangered Species Act.

FPS – fully protected species in California.

CSC – species of special concern in California.

4.2.3 Applicable Laws and Regulations

4.2.3.1 Federal

Rivers and Harbors Act (Section 10)

Pursuant to Section 10 of the Rivers and Harbors Act, the U.S. Army Corps of Engineers (USACE) is authorized to regulate any activity within or over any navigable water of the United States (WoUS). Rivers and Harbors Act Section 10 jurisdiction is defined as "those waters that are 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 322). The San Diego Bay portion of the project site is considered a traditional navigable water regulated under Section 10 of the Rivers and Harbors Act; therefore, construction activities proposed within the marine portion of the project site would require Section 10 compliance and coordination with USACE.

Endangered Species Act of 1973

Species listed as endangered and/or threatened by USFWS are protected under Section 9 of the federal ESA, which forbids any person to take an endangered or threatened species. *Take* is defined in Section 3 of the act as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The U.S. Supreme Court ruled in 1995 that the term *harm* includes destruction or modification of habitat. Sections 7 and 10 of the act may authorize *incidental take* for an otherwise lawful activity (a development project, for example) if it is determined that the activity would not jeopardize survival or recovery of the species. Section 7 applies to projects where a federally listed species is present and there is a federal nexus, such as a federal CWA Section 404 permit (e.g., impacts on WoUS) that is required. Section 10 applies when a federally listed species is present but no federal nexus is present. No federally listed species have been detected on the project site.

Magnuson-Stevens Fishery Management Conservation Act of 1976, as amended 1996 (Public Law 104-267)

Federal agencies must consult with NMFS on actions that may adversely affect EFH, which is defined as those "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." NMFS encourages streamlining the consultation process using review procedures under the National Environmental Policy Act, Fish and Wildlife Coordination Act, the CWA, and/or the federal ESA provided that documents meet requirements for EFH assessments under Section 600.920(g). EFH assessments must include (1) a description of the proposed action, (2) an analysis of effects, including cumulative effects, (3) the federal agency's views regarding the effects of the action on EFH, and (4) proposed mitigation, if applicable.

Marine Mammal Protection Act of 1972

The MMPA prohibits, with certain exceptions, the take of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products

into the United States. Congress passed the MMPA based on the following findings and policies: (1) some marine mammal species or stocks may be in danger of extinction or depletion as a result of human activities, (2) these species of stocks must not be permitted to fall below their optimum sustainable population level (depleted), (3) measures should be taken to replenish these species or stocks, (4) there is inadequate knowledge of the ecology and population dynamics, and (5) marine mammals have proven to be resources of great international significance.

The MMPA was amended substantially in 1994 to provide for: (1) certain exceptions to the take prohibitions, such as for Alaska Native subsistence, and for permits and authorizations for scientific research; (2) a program to authorize and control the taking of marine mammals incidental to commercial fishing operations; (3) preparation of stock assessments for all marine mammal stocks in waters under U.S. jurisdiction; and (4) studies of pinniped-fishery interactions. NMFS and USFWS administer the MMPA. The proposed project must be analyzed to ensure that marine mammals protected under the MMPA would not be harassed or injured as a result of project activities in or adjacent to San Diego Bay. Any project activities that may result in Level A or B harassment, injury, or mortality would require consultation with NMFS and USFWS under the MMPA.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) was enacted in 1918 to prohibit the killing or transport of native migratory birds, or any part, nest, or egg of any such bird, unless allowed by another regulation adopted in accordance with the MBTA. A list of migratory bird species that are protected by the MBTA is maintained by USFWS, which regulates most aspects of the taking, possession, transportation, sale, purchase, barter, exportation, and importation of migratory birds. Under the MBTA, *take* means to kill, directly harm, or destroy individuals, eggs, or nests or to otherwise cause failure of an ongoing nesting effort. Permits are available under the MBTA through USFWS, and authorization for potential take under the MBTA is addressed as part of the ESA Section 7 consultation process. The proposed project must be analyzed to ensure consistency with the MBTA, including avoidance of take of nesting birds, their eggs, or activities that may cause nest failure. This applies for both terrestrial and marine migratory species protected under the MBTA that may be directly or indirectly affected by the proposed project. Any potential take must be either permitted through consultation with USFWS or avoided and minimized through mitigation measures.

Clean Water Act

The Federal Water Pollution Control Act Amendments of 1972, commonly known as the CWA (33 United States Code 1251–1376), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The purpose of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Discharges into WoUS are regulated under CWA Section 404. WoUS include: (1) all navigable waters (including all waters subject to the ebb and flow of the tide); (2) all interstate waters and wetlands; (3) all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, or natural ponds; (4) all impoundments of waters mentioned above; (5) all tributaries to waters mentioned above; (6) the territorial seas; and (7) all wetlands adjacent to waters mentioned above. Important applicable sections of the CWA are discussed below.

- **Section 303** requires states to develop water quality standards for inland surface and ocean waters and submit them to the U.S. Environmental Protection Agency for approval. Under

Section 303(d), the states are required to list waters that do not meet water quality standards and to develop action plans, called total maximum daily loads, to improve water quality.

- **Section 304** provides for water quality standards, criteria, and guidelines.
- **Section 401** requires an applicant for any federal permit that proposes an activity that may result in a discharge to WoUS to obtain certification from the state that the discharge will comply with other provisions of the CWA. Certification is provided by the respective Regional Water Quality Control Board (RWQCB). A Section 401 certification from the San Diego RWQCB would be required for the proposed project if a Section 404 permit and Rivers and Harbor Act (Section 10) permit are required.
- **Section 402** establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredge or fill material) into WoUS. The NPDES program is administered by the RWQCB. Conformance with Section 402 is typically addressed in conjunction with water quality certification under Section 401. All construction activities must be consistent with Section 402 of the CWA and avoid significant water quality-related impacts. See Section 4.5, *Hydrology and Water Quality*, for an analysis related to the proposed project's impacts on water quality.
- **Section 404** provides for issuance of dredge/fill permits by USACE. Permits typically include conditions to minimize impacts on water quality. Common conditions include: (1) USACE review and approval of sediment quality analysis before dredging, (2) a detailed pre- and post-construction monitoring plan that includes disposal site monitoring, and (3) requiring compensation for loss of WoUS.

NMFS California Eelgrass Mitigation Policy

The NMFS is an office of the National Oceanic Atmospheric Administration and is responsible for the stewardship of the nation's ocean resources and their habitat. NMFS developed the California Eelgrass Mitigation Policy (CEMP) in order to establish and support a goal of protecting eelgrass and its habitat functions (NMFS 2014). The CEMP includes guidance on defining eelgrass habitat, surveying, mapping, assessing impacts, avoiding and minimizing impacts on eelgrass, and mitigation options. Avoidance and minimization measures included within the CEMP relate to turbidity, shading, circulation, and nutrient and sediment loading impacts. Mitigation options include comprehensive management plans, in-kind mitigation, mitigation banks and in-lieu-fee programs, and out-of-kind mitigation.

NMFS has provided this policy to other state and federal agencies, including the California Department of Fish and Wildlife (CDFW), as guidance for handling project-related impacts on eelgrass habitat.

4.2.3.2 State

California Coastal Act of 1976

The California Coastal Act of 1976 recognizes California ports, harbors, and coastline beaches as primary economic and coastal resources and as essential elements of the national maritime industry. Decisions to undertake specific development projects, where feasible, are to be based on consideration of alternative locations and designs in order to minimize any adverse environmental

impacts. The California Coastal Act is implemented by the Coastal Commission. The proposed project would require a non-appealable coastal development permit (which would be issued by the District) for activities within the coastal zone that occur within the immediate shoreline (i.e., tidelands, submerged lands, and public trust lands). The Coastal Commission would be required to approve components of the project outside of the District's PMP jurisdiction.

California Endangered Species Act

The CESA establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that state agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For projects that affect both a state- and federally listed species, compliance with the federal ESA will satisfy the CESA if CDFW determines that the federal incidental take authorization is consistent with the CESA under California Fish and Game Code Section 2080.1. For projects that would result in a take of a state-only listed species, the project proponent must apply for a take permit under Section 2081(b). No state-only listed species have been detected on the project site.

California Fish and Game Code

The Fish and Game Code establishes the Fish and Game Commission, as authorized by Article IV, Section 20, of the Constitution of the State of California. The Fish and Game Commission is responsible, under the provisions of Sections 200–221, for regulating the take of fish and game, not including the taking, processing, or use of fish, mollusks, crustaceans, kelp, or other aquatic plants for commercial purposes. However, the Fish and Game Commission does regulate aspects of commercial fishing, including fish reduction; shellfish cultivation; take of herring, lobster, sea urchins, and abalone; kelp leases; leases of state water bottoms for oyster allotments; aquaculture operations; and other activities. These resource protection responsibilities involve the setting of seasons, bag and size limits, and methods and areas of take, as well as prescribe the terms and conditions under which permits or licenses may be issued or revoked by CDFW. The Fish and Game Commission also oversees the establishment of wildlife areas and ecological reserves and regulates their use, as well as setting policy for CDFW.

Sections 3503, 3503.5, 3505, 3800, and 3801.6 of the Fish and Game Code protect all native birds, birds of prey, and all nongame birds, including their eggs and nests, that are not already listed as fully protected and that occur naturally within the state. Section 3503 specifically states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, and Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (e.g., hawks, owls, eagles, falcons), including their nests or eggs.

CDFW is a lead state agency that manages native fish, wildlife, plant species, and natural communities for their ecological value and their benefits to people. CDFW oversees the management of marine species through several programs, some in coordination with NMFS and other agencies.

As discussed in Section 4.2.3.1, *Federal*, the CEMP is administered by NMFS and CDFW. The effects of the proposed project on any surrounding eelgrass beds and any compensatory mitigation would be addressed under the CEMP.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act is the California equivalent of the federal CWA. It provides for statewide coordination of water quality regulations through the establishment of the State Water Resources Control Board and nine separate RWQCBs that oversee water quality on a day-to-day basis at the regional/local level. The RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, within any region that could affect the water of the state" (Water Code Section 13260(a)), pursuant to provisions of the Porter-Cologne Act. Waters of the state (WoS) are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code Section 13050 (e)).

The RWQCB also regulates WoS under Section 401 of the CWA. A Water Quality Certification or a waiver must be obtained from the RWQCB if an action would potentially result in any impacts on jurisdictional WoS.

The proposed project must be analyzed to determine if it will result in any impacts on WoS, and any potential impacts would require an application for an RWQCB Water Quality Certification (or waiver), consultation with the RWQCB, and compensatory mitigation.

California Marine Invasive Species Act

The California Marine Invasive Species Act of 2003 renewed and expanded on the Ballast Water Management for Control of Nonindigenous Species Act of 1999 to address the threats posed by the introduction of nonindigenous species. The law charged the California State Lands Commission with oversight and administration of the state's program to prevent or minimize the release of nonindigenous species from vessels that are 300 gross registered tons and above. To advance this goal, the commission's Marine Invasive Species Program uses an inclusive, multi-faceted approach to develop sound, science-based policies in consultation with technical experts and stakeholders; track and analyze ballast water and vessel biofouling management practices of the California commercial fleet; enforce laws and regulations to prevent introductions; and facilitate outreach to promote information exchange among scientists, legislators, regulators, and other stakeholders.

Both the U.S. Coast Guard (Ballast Water Management) and U.S. Environmental Protection Agency (Vessel General Permit) regulate ballast water discharges, and both agencies currently require ballast water exchange for most vessels operating in U.S. waters. In addition, California requires ballast water exchange on coastwise voyages (e.g., between Los Angeles and Oakland). However, at present, the discharge standards in California are more stringent than federal regulations. In accordance with governing statutes and regulations, vessels have four options to comply with California's performance standards: (1) retention of all ballast water on board, (2) use of potable water as an alternative ballast water management method, (3) discharge to a shore-based ballast water reception and treatment facility, and (4) treatment of all ballast prior to discharge by a shipboard ballast water treatment system. Performance standards for ballast water discharge are: (1) no detectable living organisms greater than 50 microns in minimum dimension; (2) fewer than 0.01 living organism per milliliter of organisms 10–50 microns in minimum dimension; and (3) multiple standards for bacteria and viruses. The performance standards for vessels with ballast water capacities of 1,500–5,000 metric tons were applied in 2016, while standards for vessels with capacities of fewer than 1,500 metric tons and greater than 5,000 metric tons will apply in 2018. The State Legislature delayed implementation of the performance standards in 2013 because the state lacks the scientific protocols and capacity to measure compliance (Scianni et al. 2013), and no

shipboard ballast water treatment systems are currently available to meet all of California's performance standards for the discharge of ballast water (SLC 2013).

4.2.3.3 Local

San Diego Unified Port District Port Master Plan

Through implementation of the Port Master Plan (PMP), the District maintains authority over tidelands and submerged lands conveyed in trust to the District by the California legislature. Any amendments to the PMP are first reviewed and adopted by the Board of Port Commissioners and then certified by the California Coastal Commission, thereby allowing the District to issue coastal development permits for projects within its jurisdiction. The PMP provides for protection of biological resources and states that the District will remain sensitive to the needs of, and will cooperate with, other communities and other agencies in Bay and tideland development.

San Diego Bay Integrated Natural Resources Management Plan

The District and the U.S. Navy jointly implement the Integrated Natural Resources Management Plan. This long-term strategy document provides direction and planning guidance for good stewardship of the natural resources within the Bay. The Integrated Natural Resources Management Plan includes objectives and policy recommendations to guide planning, management, conservation, restoration, and enhancement of the Bay ecosystem.

San Diego Unified Port District Code, Article 10

District Code, Article 10, the District Stormwater Management and Discharge Control Ordinance, prohibits the deposit or discharge of any chemicals or waste to the tidelands or San Diego Bay and makes it unlawful to discharge pollutants directly into non-stormwater or indirectly into the stormwater conveyance system. Article 10 also requires the implementation of best management practices (BMPs), stormwater plans, and other measures, as appropriate to control the discharge of pollution to tideland or receiving waters. Where enforcement is required to maintain compliance, the District will use its enforcement authority established by Article 10. The article enables the District, including District inspectors, to prohibit discharges and require BMPs so that discharges on tidelands do not cause or contribute to water quality problems. Article 10 establishes enforcement procedures to ensure that responsible dischargers are held accountable for their contributions and/or flows.

4.2.4 Project Impact Analysis

4.2.4.1 Methodology

A search of CDFW's CNDDB, CNPS, and USFWS IPAC was conducted on October 10, 2018, to determine the potential for sensitive plant and wildlife species to occur within the vicinity of the project site, including terrestrial species. The search included the project site and a 1-mile buffer (CDFW 2018), the U.S. Geological Survey's Point Loma, California 7.5-minute quadrangle map (CNPS), and a polygon for the project site created using the USFWS IPAC web application tool.

A total of 32 sensitive plant species and 13 sensitive wildlife species were reviewed for their potential to occur within the project site.

On October 19 and 30, 2018, Merkel & Associates, Inc. (Merkel & Associates) conducted physical and biological surveys; Merkel & Associates also conducted extensive site investigations during preceding years associated with other projects at the BAE Systems Ship Repair Yard. Marine biological surveys were performed in a two-step process. Initially, biologists from Merkel & Associates performed a side-scan survey to identify and map all subtidal habitat types within the project area. Backscatter data collected through surveys was interpreted to assess the distribution of eelgrass beds. Following the side-scan survey, a scuba survey was performed throughout the project area to verify existing habitat, document species observed, and assess the potential for sensitive marine species to occur on site. Eelgrass beds were observed and documented as the predominant plant species occurring within the vegetated soft bottom habitat type. Subsequent plant and algae species observed while surveying all habitat types were identified to the highest level possible in the field. A full explanation of survey methods and results are provided in Appendix D-1.

The hydroacoustic impact analysis for fish and marine mammals was carried out as part of the *Biological Technical Study and EFHA* (Merkel & Associates 2019) conducted for the project. A full explanation of the hydroacoustic analysis methods and results is provided in the technical study, which is included as Appendix D-1 of this EIR.

The in-air acoustic impact analysis for marine mammals was provided in the technical memorandum *BAE Systems Construction – Airborne Noise Levels for Potential Impacts on Marine Mammals* (ICF 2019). A full explanation of the in-air analysis methods and results is provided in the technical memorandum, which is included as Appendix D-2 of this EIR.

4.2.4.2 Thresholds of Significance

The following significance criteria are based on Appendix G of the State CEQA Guidelines and provide the basis for determining the significance of biological resources impacts resulting from implementation of the proposed project. The determination of whether a biological resource impact would be significant is based on the professional judgment of the District as Lead Agency, all of which is based on the evidence in the administrative record.

Impacts are considered significant if the proposed project would result in any of the following.

1. 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 CDFW and USFWS.
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW, NMFS, or USFWS.
3. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
4. Result in substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedance of the use of native wildlife nursery sites.

5. Conflict with any applicable local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance or with the provisions of an applicable adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

As discussed in the Initial Study/Environmental Checklist Section IV (Appendix A), Threshold 3 is not included in the analysis below, as it was determined that the proposed project would result in no impact on state or federally protected wetlands because the project site consists of developed land as well as open water and does not contain federally protected wetlands as defined under Sections 401 and 404 of the CWA or state wetlands protected under the California Coastal Act. Those conclusions and the rationale that supports them are summarized in Chapter 6, *Additional Consequences of Project Implementation*. Therefore, only Thresholds 1, 2, 4, and 5 are discussed in the impact analysis that follows.

Supplemental Noise-Related Thresholds for Fish and Marine Mammals

A source of potential impacts on fish and marine mammals is hydroacoustic (underwater noise) effects during high-intensity in-water construction activities such as pile driving. In addition, some marine mammals may be affected by in-air (airborne) noise from the same construction activities while hauled-out. Various federal and state agencies have issued guidelines for assessing these potential impacts. Impacts are assessed using a variety of metrics including the peak pressure level (L_{peak}), the accumulated sound exposure level (Accumulated SEL [SEL_{cum}]), the root mean squared (rms) sound pressure level for hydroacoustic effects, and the rms sound pressure level for airborne noise. All cumulative noise levels refer to a 24-hour period. All of the noise level metrics are quantified using decibels (dB). However, the decibel scale used for underwater noise is not the same as that used for airborne noise. Underwater noise is quantified relative to a reference pressure of 1 micro Pascal (µPa), while airborne noise uses a reference pressure of 20 µPa. Additional explanation, definitions of technical terminology, and other supporting information are provided in Appendix D-1 and Appendix D-2, and can also be found in the following technical references:

- *Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish* (California Department of Transportation [Caltrans] 2015).
- *2018 Revision to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0), Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts* (NMFS 2018)

The following sections discuss the applicable criteria and guidelines from various agencies. The impact thresholds used in this EIR are summarized in Table 4.2-3.

Impact Criteria for Fish – Fisheries Hydroacoustic Working Group

The Fisheries Hydroacoustic Working Group (FHWG) is composed of representatives from the Federal Highway Administration (FHWA), National Oceanic and Atmospheric Administration (NOAA) Fisheries West Coast Region, USFWS, CDFW, Caltrans, Oregon Departments of Transportation, and Washington State Department of Transportation. In June 2008 FHWG reached an Agreement in Principal on interim criteria for injury to fish. The agreed upon criteria identify sound pressure levels of 206 dB-peak (peak pressure [L_{peak}]), 187 dB SEL_{cum} for fish larger than 2 grams, and 183 dB SEL_{cum} for fish less than 2 grams (FHWG 2008).

Underwater Thresholds for Marine Mammals – NMFS

The MMPA regulates the *take* of marine mammals, including take through exposure to sound. For the purposes of the project analysis, there are two levels of take that are relevant. Take with the potential for injury is considered Level A take. Exposure to high intensity sound or prolonged sound at lower intensity may result in auditory threshold shifts (TS) wherein animals suffer from noise-induced loss of hearing over a portion or all of the animal's auditory range. The effects may be temporary threshold shifts (TTS) or permanent threshold shifts (PTS). Level B take may result in behavioral disruption but not injury. NMFS has developed technical guidance on sound characteristics that are likely to cause injury in marine mammals. Multiple criteria have been used to assess auditory injury (Level A take) within the NMFS *Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing* (NMFS 2018). For impulsive noise sources (such as impact pile driving) there are dual thresholds to address both peak (L_{peak}) and cumulative (SEL_{cum}) noise levels. For non-impulsive noise sources (such as vibratory pile driving), the thresholds consider only the cumulative (SEL_{cum}) noise level. Under the technical guidance, differences in auditory frequency ranges and hearing sensitivity between marine mammals have been used to define five different hearing groups: (1) low-frequency cetaceans (baleen whales), (2) mid-frequency cetaceans (toothed whales and dolphins), (3) high-frequency cetaceans (true porpoises, river dolphins, other), (4) phocid pinnipeds (true seals), and (5) otariid pinnipeds (sea lions and fur seals).

For the present project, four of the hearing group thresholds are relevant. The gray whale, which is expected to be very rare within the Bay, is considered a low-frequency cetacean, with PTS onset thresholds of 219 dB L_{peak} or 183 dB SEL_{cum} for impulsive noise and 199 dB SEL_{cum} for non-impulsive noise. The bottlenose dolphin, a mid-frequency cetacean, has PTS onset thresholds of 230 dB L_{peak} or 185 dB SEL_{cum} for impulsive noise and 198 dB SEL_{cum} for non-impulsive noise. Phocid pinnipeds, including harbor seal, have PTS onset thresholds of 218 dB L_{peak} or 185 SEL_{cum} for impulsive noise and 201 dB SEL_{cum} for non-impulsive noise. Otariid pinnipeds, including the California sea lion, have PTS onset thresholds of 232 dB L_{peak} or 203 dB SEL_{cum} for impulsive noise and 219 dB SEL_{cum} for non-impulsive noise (Table 4.2-3). Additional discussion of thresholds and calculations for the zones of influence within which thresholds are exceeded during construction is provided in Appendix D-1.

Underwater Thresholds for Green Sea Turtles – U.S. Navy and NOAA

Green sea turtles would not commonly occur near the project area; however, should they be present at any time, they would potentially be exposed to construction related hydroacoustic impact. NMFS has not established specific in-water acoustic thresholds for green sea turtles; however, the U.S. Department of the Navy, in coordination with NOAA, developed standards for assessment of sound impacts to turtles for purposes of the Hawaii-Southern California Training and Testing Final EIS/OEIS (U.S. Navy 2013). For sea turtles, the Navy established a threshold for injury from vibratory pile driving and impact driving at 190 dB_{rms}. In the Navy's review of the literature, the lowest sound level stimulus that resulted in a behavioral response was 166 dB_{rms}. However, the literature also indicated that turtles become habituated to repeated exposures to sound. Under such circumstances, noises even as high as 179 dB_{rms} were tolerated by turtles without behavioral response when exposure became regular. To provide a conservative assessment, a potential harassment take for green sea turtles is assumed to occur at a noise level of 166 dB_{rms}. For expedience during monitoring for the presence of turtles, an adaptive action trigger of 160 dB_{rms} is also applied to turtles to match the Level B take threshold considered for marine mammals.

Additional discussion of thresholds and calculations for the zones of influence within which thresholds are exceeded during construction is provided in Appendix D-1.

In-Air Acoustic Thresholds for Marine Mammals – NMFS

As described above for underwater thresholds, there are two levels of potential take for marine mammals: Level A take (injury) and Level B take (behavioral disruption). In-air acoustic impacts are only considered for marine mammals that would haul out of the water. Therefore, pinnipeds (seals and sea lions) are considered but cetaceans (whales, dolphins, and porpoises) are not. Current in-air acoustic thresholds provided by NMFS for marine mammals are 90 dB_{rms} for Level B take of harbor seals and 100 dB_{rms} for Level B take of non-harbor seal pinnipeds. It is noted that thresholds are currently only provided for Level B take (behavioral disruption) and that no threshold is currently established for Level A take (injury). Because injury is a more severe effect than behavioral disruption it follows that Level A take would occur at higher noise levels than those associated with Level B take. Therefore, although no specific threshold has been established for Level A take (injury) it can be concluded that avoidance of Level B take would also avoid Level A take. Additional discussion of thresholds and calculations for the zones of influence within which thresholds are exceeded during construction is provided in Appendix D-1.

Table 4.2-3. Hydroacoustics and In-Air Noise Thresholds for Marine Mammals, Fish, and Green Sea Turtles

Resource	Level of Effect	Impulsive Threshold Level	Non-Impulsive Threshold Level
Hydroacoustics Thresholds[1]			
Marine Mammal	Gray whale – low-frequency cetacean (Level A – potential for injury) exposure	219 dB L_{peak} 183 dB SEL_{cum}	199 dB SEL_{cum}
	Bottlenose dolphin – mid-frequency cetacean (Level A – potential for injury) exposure	230 dB L_{peak} 185 dB SEL_{cum}	198 dB SEL_{cum}
	Harbor seal – phocid pinniped (Level A – potential for injury) exposure	218 dB L_{peak} 185 dB SEL_{cum}	201 dB SEL_{cum}
	California sea lion – otariid pinniped (Level A – potential for injury) exposure	232 dB L_{peak} 203 dB SEL_{cum}	219 dB SEL_{cum}
	All Marine Mammals (Level B – behavioral disruption) exposure	160 dB_{rms}	120[2] dB_{rms}
Green Sea Turtle	Adaptive action trigger for impulsive noise exposure	160 dB_{rms}	N/A
	Potential harassment take from exposure	166 dB_{rms}	N/A
	Injury from sound exposures	190 dB_{rms}	190 dB_{rms}
Fish	All fish – peak sound pressure level	206 dB L_{peak}	N/A
	Fish ≥ 2 grams – daily accumulated sound exposure	187 dB SEL_{cum}	N/A
	Fish < 2 grams – daily accumulated sound exposure	183 dB SEL_{cum}	N/A

In-Air Noise Thresholds[3]		
Marine Mammal	Harbor seals (Level B – behavioral disruption) exposure	90 dB_{rms}
	Non-harbor seal pinnipeds (Level B – behavioral disruption) exposure	100 dB_{rms}

Source: Appendix D-2

[1] Decibels referenced to 1 micro Pascal (re: 1 µPa)

[2] The 120 dB threshold may be adjusted if background noise levels are at or above this level.

[3] Decibels referenced to 20 micro Pascals (re: 20 µPa)

For dual thresholds (L_{peak} and SEL_{cum}) for marine mammal impulsive noise, the threshold resulting in the largest potential impact distance is used.

N/A = Not Applicable

4.2.4.3 Project Impacts and Mitigation Measures

Threshold 1: Implementation of the proposed project would 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 CDFW and USFWS.

Impact Discussion

Construction of the landside portion of the proposed project would require demolition for site preparation, construction cranes, and the use of standard construction equipment, such as earth-moving equipment, concrete trucks, forklifts, and pile drivers. Construction would temporarily disrupt the area due to an increase in noise levels, truck traffic, and ground-disturbing activities.

Construction of the waterside portion of the proposed project would include in-water operations such as pile driving, equipment storage, and barge operations. These activities would generate increased noise and ground-disturbing activities within the marine community. Temporary noise disturbances have the potential to affect marine mammals, green sea turtles, and foraging for California least tern and California brown pelican. In addition to noise impacts, the overwater coverage from equipment during construction would temporarily affect California least tern and California brown pelican by limiting available open water area for foraging. Completion of the waterside portion of the proposed project would result in additional overwater coverage, which would diminish potential open water foraging habitat for California least tern and California brown pelican. The increased overwater coverage would also create a shading impact on the local ecology by reducing available sunlight for primary production from phytoplankton and other nearby algal species; however, the shade generated from additional overwater coverage would not affect any sensitive wildlife or plant species.

California least tern and California brown pelican are both discussed under the terrestrial wildlife section below, and both species occupy a similar feeding guild and rely on the marine environment for foraging. Both species are also considered sensitive; however, California least tern is both federally and state-listed as endangered.

Construction

Terrestrial

Plant Species

As discussed in Section 4.2.2, *Existing Conditions*, the landside portion of the project site is completely developed, with existing vegetation limited to ornamental landscaping. Desktop analysis of CNDDB, CNPS, and USFWS species lists indicate that there is potential for 32 sensitive plant species to occur within or adjacent to the project site. Upon review of these resources, it was determined that because the site is urban/developed and lacks any natural terrestrial habitat, no sensitive plant species are likely to occur at the project site. Therefore, construction of the proposed project would not affect any terrestrial candidate, sensitive, or special-status plant species, and no impact would occur.

Wildlife Species

As discussed in Section 4.2.2.3, *Candidate, Sensitive, and Special-Status Species*, and identified in Table 4.2-2, three sensitive terrestrial wildlife species have the potential to occur within or adjacent to the project site based on potential foraging opportunities: California least tern, California brown pelican, and American peregrine falcon. California least tern is both a federal- and state-listed endangered species under the ESA and CESA, respectively; California brown pelican is a state fully protected species under the CESA. Both have the potential to utilize open water habitat within and adjacent to the project site for foraging opportunities. American peregrine falcon is also a state fully protected species under the California Fish and Game Code and has the potential to use the urban areas surrounding the project site to hunt prey species. In addition to being protected species under the ESA and/or California statutes, all three species are also protected under the MBTA.

There is no nesting potential for sensitive avian wildlife species at the project site. California least terns nest in colonies on sandy substrate relatively free of vegetation such as beaches and dunes (USFWS 2006). These habitats do no occur at the project site. California brown pelican in southern California nest on offshore islands (Channel Islands and Coronado) (USFWS 1983). Peregrine falcon do not build physical nests and generally nest on cliff edges; however, they are known to also nest on building ledges in urban environments (Kaufman 2001). Given that peregrine falcon do not build nests, not all building ledges provide suitable nesting space. The project site does not provide cliff-like nesting areas associated with buildings, and therefore does not provide suitable nesting habitat for peregrine falcon. The only birds anticipated to nest at the project site include nonnative, human-introduced bird species such as house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), rock pigeon (*Columba livia*), and Eurasian collared dove (*Streptopelia decaocto*), any nesting bird found on site would be protected under the MBTA and California Fish and Game Code.

Water Quality and Foraging Habitat. Stormwater runoff from land-based construction could indirectly affect foraging opportunities for California least tern and California brown pelican in the open water marine habitat on site and adjacent to the project site by increasing turbidity. Additionally, water quality impairment associated with in-water construction activities could also indirectly affect foraging opportunities for California least tern and California brown pelican within and adjacent to the project site. Activities such as dredging, pile driving, equipment replacement/installation, and tug boat maneuvering can create sediment-disturbing activities, which would in turn create elevated turbidity levels. Moreover, equipment required to perform these activities has potential to discharge pollutants while work is being performed, which can also

impair water quality. The impairment of water quality and its effects on foraging opportunities for California least tern and California brown pelican would be considered a potentially significant impact (**Impact-BIO-1**).

As discussed in Section 4.5, *Hydrology and Water Quality*, construction of the proposed project would be required to comply with the Municipal Stormwater Permit and the District's Jurisdictional Runoff Management Plan (JRMP), which identifies construction BMPs that would be implemented in order to prevent stormwater runoff, as well as implementation of appropriate regulatory permits, including the CWA Section 401 Water Quality Certification and CWA Section 404 and Rivers and Harbors Act Section 10 permits from the USACE. The District's JRMP requires preparation of a Construction BMP Plan. Construction BMPs, identified in the Construction BMP Plan, would be required to be implemented throughout the various construction phases in order to protect water quality. The Construction BMP Plan also specifies construction BMPs to ensure that water quality standards or waste discharge requirements are not violated. As it relates to turbidity, the Construction BMP Plan specifies BMPs to control erosion and sedimentation in disturbed areas at the project site, and BMPs selected to control non-stormwater pollution on the construction site. The District's JRMP also includes minimum BMPs for construction sites, many of which are intended to control erosion and sedimentation. A full list of the minimum required BMPs for construction sites is found in Table 4.5-5 in Section 4.5. The CWA Section 401 Water Quality Certification would require implementation of in-water construction BMPs, such as silt curtains, turbidity barriers, and trash booms that would deflect and contain sediment and floatable pollutants within a limited area.

In addition, mitigation measure **MM-BIO-1** requires the implementation of construction measures in accordance with regulations, including CWA Sections 401 and 404, Rivers and Harbors Act Section 10, the NPDES permit, and Stormwater Management and Discharge Control Ordinance, to eliminate water quality impairments that could affect California least tern and California brown pelican foraging opportunities. With implementation of **MM-BIO-1** and compliance with the aforementioned water quality regulations, potential impacts would be less than significant because in-water construction activities that could impair the water quality and thus affect foraging opportunities for California least tern and California brown pelican within and adjacent to the project site would be closely controlled, and BMPs implemented, that would ensure water quality is not reduced beyond applicable standards.

Construction Noise and Building Demolition. Although the project site does not contain any suitable nesting habitat for the American peregrine falcon, there is potential for this species to utilize the project site as foraging habitat. The American peregrine falcon and some of the prey species it typically pursues are well adapted to urban environments. Peregrine falcon and other avian predator specialists show a positive response to urban environments compared to other raptors due to the fact that their prey are relatively available in urban environments (Kettel et al. 2018). Given the peregrine falcon's foraging success in urban environments, combined with their predation on common urban avian species, it is anticipated that the falcon would only utilize the project site for foraging in the event that prey species are present. Given they are not anticipated to nest on site, any foraging in the area would be opportunistic and based on prey availability. If prey are not available at the project site, peregrine falcon could forage in other surrounding areas. Therefore, construction impacts on American peregrine falcon would be less than significant because construction and noise disturbances are very common in urban settings, peregrine are adaptable to follow their prey, nearby areas have foraging opportunities, and construction would be short-term and temporary.

A number of avian species such as the black-crowned night heron, snowy egret, osprey (*Pandion haliaetus*), and house finch, which are protected under the MBTA and California Fish and Game Code, have the potential to nest in the existing canary island palm trees or on the existing human-made structures found within the project site. The MBTA prohibits take of nearly all native birds. Under the MBTA, *take* means to kill, directly harm, or destroy individuals, eggs, or nests; or to otherwise cause failure of an ongoing nesting effort. Similar provisions within the Fish and Game Code protect all nesting native birds (Sections 3503 and 3503.5) and all non-game birds that occur naturally in the state (Section 3800). Because the MBTA regulates the destruction of an occupied nest, any disturbance or destruction of active nests occupied by avian species covered under the MBTA would be considered a significant impact and a violation of the MBTA and Sections 3503 or 3503.5 of the California Fish and Game Code. Proposed demolition of existing structures could result in significant direct impacts on active nests or indirect impacts could occur through construction noise, dust, or nighttime lighting. Therefore, a significant impact would potentially occur and mitigation is required (**Impact-BIO-2**). To address potential impacts on nesting birds, mitigation measure **MM-BIO-2** requires all construction activities to occur outside of the nesting season, if possible. However, if construction activities occur during the nesting season, **MM-BIO-2** requires implementation of measures such as pre-construction nesting bird surveys and the establishment of no-disturbance buffers should active nests be detected. Implementation of **MM-BIO-2** would reduce potential impacts on nesting birds from construction activities to less than significant.

Marine

Plant Species

Eelgrass, which is categorized as EFH and is further designated as a Habitat of Particular Concern, was identified within the waterside portion of the project site; however, impacts related to eelgrass are discussed in Threshold 2 below because it is considered a sensitive natural community. There were no other marine-based candidate, sensitive, or special-status plant species present within or adjacent to the project site during the marine biological surveys that could be impacted by the proposed project (Appendix D-1). Therefore, no impact on marine-based candidate, sensitive, or special-status plant species (i.e., non-eelgrass plant species) would occur.

Wildlife Species

Though the project site does not contain favorable habitat for protected marine wildlife species, the green sea turtle and California sea lion have potential to occur within the waterside portion of the project site on a transient basis. In addition, harbor seal, common dolphin and coastal bottlenose dolphin are found in San Diego Bay; however, as stated in Section 4.2.2.3, *Candidate, Sensitive, and Special-Status Species*, these species have a low potential to occur within the project area. Finally, California gray whale could occur in the project area, but that potential is very low. In the unlikely event these species are present during construction, pile installation activities (e.g., pile driving) could generate enough underwater noise to injure (Level A Harassment) or alter behavior (Level B Harassment) for marine mammals, and could also result in harassment take for green sea turtle.

In-water construction is proposed for the project and includes impact pile driving, vibratory pile driving, and vibratory extraction of existing piles. In addition, other potential methods of pile installation include jetting and/or spudding. This activity has the potential to cause hydroacoustic impacts on fish, green sea turtles, and marine mammals as well as airborne noise impacts on marine mammal species (pinnipeds) that may haul out in the vicinity of project construction. The specific

impact thresholds are summarized in Table 4.2-3. The technical analyses and noise level calculations for these potential impacts where conducted as part of the *Biological Technical Study and EFHA* (Merkel & Associates 2019) and the technical memorandum *BAE Systems Construction – Airborne Noise Levels for Potential Impacts on Marine Mammals* (ICF 2019) prepared for the proposed project. These documents are provided as Appendix D-1 and Appendix D-2, respectively. Based on the applicable thresholds and the calculated noise levels, Table 4.2-4 displays the distances from sound sources at which the impact threshold would be exceeded for different receptors. These are identified as Zones of Influence (ZOI), which vary by resource (species and/or category), pile type, and driving methods. Where noise levels at the sources are expected to be lower than the impact threshold, no impact is expected and the table reflects a value of lower ("LWR"). Where the nature of sound generated is not applicable to the threshold metric or no applicable threshold is established, the table reflects a value of NA.

Table 4.2-4. Noise Threshold Zones of Influence for Different Receptors

		Zones of Influence (ZOI), Distance in Feet									
		Potential Hydroacoustic (In-Water) Impacts								Potential In-Air Acoustic Impacts	
Pile Type	Nature of Impact (Behavioral or Injurious)[1]	Gray Whale	Dolphin	Harbor Seal	California Sea Lion	Green Sea Turtle Harassment Take	Adaptive Action Trigger (sea turtles)[2]	Fish (≥2 grams)	Fish (<2 grams)	Harbor Seals	Non-Harbor Seal Pinnipeds
Impact Pile Driving											
18-inch Square Concrete Piles	Behavioral Disruption	83	83	83	83	33	83	NA	NA	355	112
	Potential Injury	113	4	61	5	LWR	LWR	LWR	LWR	NA	NA
24-inch Octagonal Concrete Piles	Behavioral Disruption	329	329	329	329	132	329	NA	NA	355	112
	Potential Injury	608	22	326	24	LWR	LWR	329	604	NA	NA
14-inch H-Piling Steel Fender	Behavioral Disruption	519	519	519	519	207	519	NA	NA	355	112
	Potential Injury	709	26	380	28	LWR	LWR	384	604	NA	NA
Vibratory Pile Driving											
AZ-26 700 Steel Sheet Piling	Behavioral Disruption	2,071	2,071	2,071	2,071	LWR	NA	NA	NA	529	168
	Potential Injury	69	6	42	3	LWR	NA	NA	NA	NA	NA
14-inch H-Piling Steel Fender	Behavioral Disruption	283	283	283	283	LWR	NA	NA	NA	529	168
	Potential Injury	10	1	6	1	LWR	NA	NA	NA	NA	NA

		Zones of Influence (ZOI), Distance in Feet									
		Potential Hydroacoustic (In-Water) Impacts								Potential In-Air Acoustic Impacts	
Pile Type	Nature of Impact (Behavioral or Injurious)[1]	Gray Whale	Dolphin	Harbor Seal	California Sea Lion	Green Sea Turtle Harassment Take	Adaptive Action Trigger (sea turtles)[2]	Fish (≥2 grams)	Fish (<2 grams)	Harbor Seals	Non-Harbor Seal Pinnipeds
Vibratory Pile Extraction											
18-inch Square Concrete Piles	Behavioral Disruption	83	83	83	83	33	83	NA	NA	529	168
	Potential Injury	113	4	61	5	LWR	LWR	LWR	LWR	NA	NA
24-inch Octagonal Concrete Piles	Behavioral Disruption	329	329	329	329	132	329	NA	NA	529	168
	Potential Injury	608	22	326	24	LWR	LWR	329	604	NA	NA
14-inch H-Piling Steel Fender	Behavioral Disruption	283	283	283	283	LWR	NA	NA	NA	529	168
	Potential Injury	10	1	6	1	LWR	NA	NA	NA	NA	NA

Source: Appendix D-1 and Appendix D-2

[1] For marine mammals, behavioral disruption is defined as a Level B take and potential injury is defined as a Level A take.

[2] Adaptive action trigger refers to behavioral response of green sea turtles as described in Appendix D-1.

Note: All Zone of Influence distances are stated in feet from the noise source.

LWR = lower threshold; NA = no applicable threshold.

The results indicate that pile driving activities have the potential for Level A (injury) and Level B (behavioral disruptions) impacts on marine mammals, potential for harassment take of green sea turtle, and potential cumulative injury of fish, including managed species, if such species were to occur within the applicable ZOI. A full discussion of potential hydroacoustic impacts on marine resources associated with pile driving is included in Appendix D-1.

Potential impacts in the form of Level A and Level B take of marine mammals (both hydroacoustic and in-air acoustic) and harassment take of green sea turtles are considered significant biological resources impacts. As such, pile driving activities associated with the proposed project would generate a potentially significant noise impact on these marine species (**Impact-BIO-3**). Therefore, mitigation is required. To address potential impacts on these species, mitigation measure **MM-BIO-3** requires implementation of a marine mammal and green sea turtle monitoring program during in-water pile installation activities. Implementation of **MM-BIO-3** would reduce potential impacts on marine mammals and green sea turtles from pile installation activities to less than significant.

Impacts on fish are not considered significant because daily accumulated sound exposure levels would be expected to be behaviorally mitigated by fish moving away from sound sources or into acoustic shadows. This would allow fish to escape potential injury from sustained presence within impulsive noise environments. No singular peak acoustic event is expected to generate potential for

injury to fish and thus behavioral adaptation is possible under all circumstances. As a result, there would be no significant impact on fish, and no mitigation is required. In addition, mitigation measure **MM-BIO-3**, which is required to reduce potential impacts on marine mammals and green sea turtles (see **Impact-BIO-3** above), includes measures such as soft starts for in-water pile driving activities. The use of soft starts during pile driving activities would further reduce the potential for impacts on fish to occur.

Operation

Terrestrial

Plant Species

As mentioned under *Construction*, no sensitive plant species occur on the landside portion of the project site. Therefore, operation of the proposed project would not affect any terrestrial candidate, sensitive, or special-status plant species, and no impact would occur.

Wildlife Species

California least tern, California brown pelican, and American peregrine falcon potentially present within the project site are well adapted to life in an urban environment. Operation of shipyard repair facilities would not deter prey species from utilizing the project site because the area is currently urbanized. Potential impacts resulting from operation of the proposed project could include increasing the potential for (1) impairing water quality in the Bay, and (2) reducing the amount of open water, each of which is discussed in more detail below.

Water Quality and Open Water Habitat. Stormwater discharges associated with the operation of the proposed project have potential to impair open water habitat in San Diego Bay, which could affect foraging habitat for the terrestrial species that may currently utilize the project site. Over the operational life of the proposed project, stormwater runoff would be treated by permanent post-construction BMPs (discussed further in Section 4.5, *Hydrology and Water Quality*) required pursuant to District Code, Article 10 (Stormwater Management and Discharge Control Ordinance), the District's JRMP, and the Municipal Stormwater Permit. These post-construction BMPs include structural and nonstructural controls that detain, retain, or filter to prevent the release of pollutants to surface waters during the functional life of the proposed project, and also include pollution prevention training and education programs. District Code, Article 10 also specifically requires pollutant control BMPs for all priority development projects (PDPs), which includes the proposed project. As a PDP, the proposed project would be required to implement pollutant control BMPs, following the hierarchy described in the District's *BMP Design Manual* (retention, partial retention with biofiltration, biofiltration, or flow-through with participation in an Alternative Compliance Program). Additionally, a post-construction Stormwater Quality Management Plan must be prepared for all PDPs to identify the project-specific design BMPs and source control and pollutant control BMPs. These requirements are discussed further in Section 4.5. Consequently, stormwater runoff from the site would be controlled and treated prior to being discharged from the project site and entering the storm drain system. With the implementation of the required BMPs, open water habitat would not be impaired by operational stormwater discharges; thus, operation would not affect foraging habitat for these species.

Foraging and Open Water Habitat. Overwater structures have the potential to affect nearshore habitat through a number of mechanisms that result from altered light availability, increased human

interaction with the marine environment, and tidal current patterns. The potential impacts include reduced primary production, altered wave and tidal energy, increased substrate disturbances, and increased nutrient loading (Nightingale and Simenstad 2001). California least tern and other plunge diving fish predatory birds such as California brown pelican have the potential to utilize open water habitat within and adjacent to the project site for foraging opportunities. Project Element 1 (Pride of San Diego Drydock Dredging and Moorage), Project Element 2 (Pride of San Diego Drydock Wharf Replacement and Realignment), Project Element 6 (Pier 3 North Lunchroom Wharf Replacement and Realignment), and Project Element 9 (Small Boat Mooring Float Replacement) each include the construction of new overwater structures that would replace existing overwater structures at the project site. The implementation of these project elements would permanently increase overwater coverage within the waterside portion of the project site during operations as some of the new replacement structures are larger than existing structure. The changes in overwater coverage associated with the proposed project are shown in Table 4.2-5.

Table 4.2-5. Overwater Coverage by Project Element

Project Element	Area of Structures Removed (square feet)	Area of New Structures (square feet)	Net Change (square feet)
1	-900	+900	0
2	-5,540	+12,500	+6,960
6	-2,915	+8,800	+5,885
9	-320	+400	+80
Total			**+12,925**

Source: Appendix D-1.
Note: Table only includes project elements that would result in changes in overwater coverage.

As shown in Table 4.2-5, the total net increase in overwater coverage resulting from Project Elements 2, 6, and 9 is approximately 12,925 square feet. The net increase in overwater coverage resulting from the proposed project would reduce the available open water habitat that is used for foraging by fish-eating avian species, resulting in a significant impact (**Impact-BIO-4**). To reduce potential impacts from overwater coverage, mitigation measure **MM-BIO-4** requires implementation of any combination of the following mitigation options at a 1:1 ratio for no net increase in overwater coverage per the CWA: removing overwater coverage in the San Diego Bay, restoring or creating eelgrass habitat at a suitable mitigation site of equivalent size and value within San Diego Bay, purchasing credits for a suitable in lieu fee program or mitigation bank, and/or purchasing credits from the District's shading credit program. Implementation of **MM-BIO-4** would reduce **Impact-BIO-4** to less-than-significant levels.

Although the proposed project includes the net increase of 242 piles, the installation of pilings to support docks and piers is not typically considered to be bay fill by the USACE (Appendix D-1). The project site is in central San Diego Bay in an area of low water velocity. Areas with low water velocities are less impacted by impediments placed in the field of flow. As a result, it is not anticipated that installation of additional piles would meaningfully alter water velocities, sedimentation rates, or circulation patterns in the Bay that could create turbidity and affect foraging opportunities. Additionally, after construction, the new piles would develop fouling communities that provide trophic support to fish species. Areas adjacent to the shipyard would still be accessible to birds foraging from the water surface. Reduction in open water habitat impacts associated with piles would be less than significant.

Marine

Plant Species

As mentioned under *Construction*, impacts related to eelgrass are discussed in Threshold 2 below because it is considered a sensitive natural community. There were no other marine-based candidate, sensitive, or special-status plant species present within or adjacent to the project site during the marine biological surveys that could be impacted by operation of the proposed project (Appendix D-1). Therefore, no operational impact on marine-based candidate, sensitive, or special-status plant species (i.e., non-eelgrass plant species) would occur.

Wildlife Species

The waterside operations of the proposed project would not result in impacts on sensitive marine wildlife species. While they would generate additional shade, thus leading to localized reduction in primary production from phytoplankton and algal species, there would be no direct impact on sensitive marine species from this component. The project site currently serves as a ship repair yard for naval and commercial vessels. The shipyard improvements would expand the types of vessels to be serviced in the area; however, the project would not change the current water use within the Bay, nor would it prevent or impede the species from entering the area. There would be no increase in vessel operations with the project. Therefore, operational impacts on marine wildlife species would be less than significant.

Level of Significance Prior to Mitigation

Implementation of the proposed project would have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW and USFWS. Potentially significant impact(s) include the following:

Impact-BIO-1: Water Quality Impairment Impacts on California Least Tern and California Brown Pelican Foraging. Construction of the proposed project could lead to water quality impairment in San Diego Bay, which would inhibit foraging of both California least tern and California brown pelican by increasing turbidity and making it more difficult to identify prey species within the waterside portion of the project site. This impact would be potentially significant.

Impact-BIO-2: Potential Disturbance or Destruction of Nests Protected by the Migratory Bird Treaty Act and California Fish and Game Code. Demolition of structures and noise from construction activity could impede the use of bird nesting sites during the nesting season (February 15 through August 31). The destruction of an occupied nest or disturbance to nesting activity would be considered a significant impact in violation of the MBTA or California Fish and Game Code. Therefore, this impact would be potentially significant.

Impact-BIO-3: Potential Disruption of or Injury to Green Sea Turtles and Marine Mammals During Pile Driving Activities. Pile driving could generate underwater noise that has the potential to injure (Level A Harassment) or alter behavior (Level B Harassment) for marine mammals, as well as result in harassment take for green sea turtle. This impact would be potentially significant.

Impact-BIO-4: Loss of Open Water Habitat from Shipyard Operations. California least tern and other plunge diving fish predatory birds (e.g., pelicans) have the potential to utilize open water habitat within and adjacent to the project site for foraging opportunities. The increase in overwater coverage resulting from the shipyard improvements is approximately 12,925 square feet, and would reduce the available open water habitat that is used for foraging by fish-eating avian species. This coverage also results in reduced primary productivity in the water column and the seafloor. This impact would be potentially significant.

Mitigation Measures

For **Impact-BIO-1**:

MM-BIO-1: Implement Construction Measures to Eliminate Water Quality Impairment Impacts on California Least Tern and California Brown Pelican Foraging. Nesting birds are less stressed where foraging opportunities are available adjacent to nest locations. The following measures will enhance the birds' available forage and increase the likelihood of successfully fledging chicks. The project proponent shall implement the following construction measures in accordance with regulations, including CWA Sections 401 and 404, Rivers and Harbors Act Section 10, the NPDES permit, and Stormwater Management and Discharge Control Ordinance:

- The contractor shall deploy a turbidity curtain around the pile driving areas to restrict the visible surface turbidity plume to the area of construction and pile driving. It shall consist of a hanging ballast-weighted curtain with a surface float line and shall extend from the surface into the water column without disturbing the bottom based on the lowest tide. The turbidity curtain shall meet the specifications for design, installation, use, performance, and/or modification outlined in the District's *Best Management Practices and Environmental Standards for Overwater Structural Repair and Maintenance Activities for Existing Port Facilities Conducted by the San Diego Unified Port District* (District 2019). The goal of this measure is to minimize the area in which visibility of prey by terns and pelicans is obstructed.
- The contractor shall follow all regulatory requirements to minimize reduction in water quality in San Diego Bay. Construction of the proposed project would include preparation and implementation of a Construction BMP Plan in accordance with the District's JRMP, and compliance with appropriate regulatory permits, including the CWA Section 401 Water Quality Certification, CWA Section 404 permit, and Rivers and Harbors Act Section 10 permit. A full explanation of these requirements can be found in Section 4.5, *Hydrology and Water Quality*.

For **Impact-BIO-2**:

MM-BIO-2: Avoid Nesting Season for Birds or Conduct Preconstruction Nesting Surveys. To ensure compliance with the MBTA and similar provisions under Sections 3503 and 3503.5 of the California Fish and Game Code, the project proponent shall conduct all construction activities between September 1 and February 14 (i.e., outside the nesting season) to the extent feasible. If construction activities are scheduled between February 15 and August 31, the project proponent shall implement the following during construction:

- The project proponent shall retain a qualified biologist (with knowledge of the species to be surveyed) who shall conduct a focused nesting bird survey within potential nesting habitat

prior to the start of any construction activities. The survey shall be submitted to the District for review and approval of the survey and the buffer area, defined below, if any, prior to the commencement of construction on the project site.

- The nesting bird survey area shall include the entire limits of disturbance plus a 500-foot buffer, to ensure indirect impacts would be avoided. The nesting surveys shall be conducted within 1 week prior to initiation of construction activities and shall consist of a thorough inspection of the project area by a qualified ornithologist(s). The survey shall occur between sunrise and 12:00 p.m., when birds are most active. If no active nests are detected during these surveys, only a brief letter report documenting the results shall be prepared and provided to the District. If there is a delay of more than 7 days between when the nesting bird survey is performed and construction activities begin, the qualified biologist shall resurvey to confirm that no new nests have been established.
- If the survey confirms nesting within 500 feet of construction activities, a no-disturbance buffer shall be established around each nest site to avoid disturbance or destruction of the nest until after the nesting season or a qualified ornithologist determines that the nest is no longer active. The size and constraints of the no-disturbance buffer shall be determined by the qualified biologist at the time of discovery, but shall not be greater than 500 feet.

For **Impact-BIO-3:**

MM-BIO-3: Implement a Marine Mammal and Green Sea Turtle Monitoring Program During Pile Installation Activities. Prior to construction activities involving in-water pile installation or vibratory pile removal, the project proponent shall prepare a marine mammal and green sea turtle monitoring program for implementation. This monitoring program shall be submitted to the District for approval 60 days prior to commencing construction involving in-water pile installation or vibratory pile removal and shall include the following requirements:

- For a period of 15 minutes prior to the start of in-water construction, a qualified biologist, retained by the project proponent and approved by the District, shall monitor an impact radius around the active pile installation areas to ensure that special-status species are not present. The qualified biologist must meet the minimum requirements as defined by the NOAA's *Guidance for Developing a Marine Mammal Monitoring Plan* (2017). The impact radius shall be established by determining the largest ZOI associated with in-water construction activities occurring that work day, as shown in Table 4.2-4.
- The construction contractor shall not start work if any observations of special-status species are made prior to starting pile installation.
- In-water pile driving within the shipyard shall begin with soft starts in accordance with Section 4.5 of the District's *Best Management Practices and Environmental Standards for Overwater Structural Repair and Maintenance Activities for Existing Port Facilities Conducted by the San Diego Unified Port District* (District 2019), gradually increasing the force of the pile driving.
- Monitoring by a qualified biologist for marine mammals and green sea turtles within appropriate ZOIs shall be implemented during all pile installation activities by identifying when any special-status species are approaching or within the appropriate ZOI, and by coordinating with construction crews to halt pile driving until the species have left this area.

For **Impact-BIO-4**:

MM-BIO-4: Implement Overwater Coverage Mitigation in Coordination with the Appropriate Resource Agencies and the District to Compensate for Loss of Open Water Habitat. The project proponent shall implement the following:

1. As required by applicable law or regulation, the project proponent shall consult with the appropriate resource agencies regarding mitigation of impacts associated with loss of beneficial uses from overwater coverage and loss of open water habitat function.

2. Prior to the commencement of construction activities for Project Elements 2, 6, and/or 9, the project proponent shall implement one of the following mitigation options, or a combination thereof, that are listed below in order of preference of the District; however, selection of 2.A, 2.B, 2.C, and 2.D, or an equivalent combination thereof, as may be required through consultation with applicable resource agencies during permitting processes, would successfully reduce **Impact-BIO-4** to a level below significance. The below options provide the minimum mitigation for overwater coverage impacts. One or more of the appropriate resource agencies may require additional or greater mitigation than specified in this mitigation measure. This in no way supersedes mitigation measures that may be required by state and federal agencies.

    A. Remove the equivalent amount of existing overwater coverage corresponding to the net increase in overwater coverage for Project Element 2 (6,960 square feet), Project Element 6 (5,885 square feet), and Project Element 9 (80 square feet) within San Diego Bay, which would replace the area affected by the proposed project at a 1:1 mitigation ratio, subject to the District's review and approval. Should Project Elements 2, 6, and 9 all be implemented, a total of 12,925 square feet of existing overwater coverage shall be removed. If evidence is presented to the District that demonstrates that all or a portion of the required removal of overwater coverage is infeasible, the project proponent shall implement 2.B.

    B. Restore or create the equivalent amount of eelgrass habitat corresponding to the net increase in overwater coverage for Project Element 2 (6,960 square feet), Project Element 6 (5,885 square feet), and Project Element 9 (80 square feet) at a suitable location within San Diego Bay at a 1:1 ratio, which would offset the net increase in overwater coverage for these project elements, subject to the District's review and approval. Should Project Elements 2, 6, and 9 all be implemented, a total of 12,925 square feet of eelgrass habitat shall be restored or created to offset the total net increase in overwater coverage. Prior to the commencement of construction activities for Project Elements 2, 6, and/or 9, the project proponent shall submit a mitigation plan for review and approval by the District. The mitigation plan at a minimum shall include a description of the transplant site, eelgrass mitigation requirements, eelgrass planting plan (e.g., transplant sites, donor sites, reference site), restoration methods (e.g., plant collection, transplant units, planning eelgrass units), timing of the restoration work, and a monitoring program (e.g., establishment of monitoring and mitigation success criteria). The project proponent shall secure all applicable permits and all applicable Real Estate agreements for the mitigation site prior to commencement of waterside construction. Additionally, the project proponent shall ensure that all fill materials proposed for discharge into San Diego Bay for the development of the mitigation site

shall meet the requirements of the U.S. Army Corps of Engineers' *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual* (*Inland Testing Manual*). If evidence is presented to the District that demonstrates that restoration or creation of all or a portion of the required amount of eelgrass habitat specified above is infeasible, the project proponent shall implement 2.C.

C. If a suitable in lieu fee program or mitigation bank within the Coastal Zone that is not yet available becomes available in the future, prior to construction of the proposed project, the project proponent shall purchase saltmarsh wetland or overwater coverage credits to offset the net increase in overwater coverage for Project Element 2 (6,960 square feet), Project Element 6 (5,885 square feet), and Project Element 9 (80 square feet), or 12,925 total square feet of overwater coverage should all of these project elements be implemented. If evidence is presented to the District that demonstrates that purchase of credits toward an in lieu fee program or mitigation bank is infeasible, the project proponent shall implement 2.D.

D. Subject to the Board of Port Commissioners' approval and findings, the project proponent may purchase credits from the District's shading credit program established pursuant to Board Policy 735 at a fair market value equivalent to that of the proposed project's final shading total (i.e., less any reductions achieved by design modifications to the satisfaction of the appropriate resource agencies).

3. The project proponent shall secure all applicable permits for the mitigation of overwater coverage prior to commencement of waterside construction. One or more of the appropriate resource agencies may require additional or greater mitigation than specified under options 2.A, 2.B, 2.C, and 2.D of this mitigation measure. This in no way supersedes mitigation measures that may be required by state and federal agencies.

Level of Significance After Mitigation

Implementation of **MM-BIO-1** would reduce impacts associated with **Impact-BIO-1** to less than significant levels by requiring implementation of construction measures, such as silt curtains, which will facilitate continued underwater foraging, in accordance with regulations. **MM-BIO-2** would reduce **Impact-BIO-2** during construction activities to less-than-significant levels by avoiding the bird nesting season or through preconstruction surveys and the establishment of no-disturbance buffers should active nests be detected. Implementation of **MM-BIO-3** would reduce **Impact-BIO-3** to less-than-significant levels by identifying when the species are approaching or within the designated isopleth for Level B harassment, and halting in-water pile driving activities until the species has left the construction area.

Implementation of **MM-BIO-4** would reduce **Impact-BIO-4** to less-than-significant levels by requiring implementation of any combination of the following mitigation options at a 1:1 ratio for no net increase in overwater coverage per the CWA: removing overwater coverage in the San Diego Bay; restoring or creating eelgrass habitat at a suitable mitigation site of equivalent size and value within San Diego Bay; purchasing credits for a suitable in lieu fee program or mitigation bank; and/or purchasing credits from the District's shading credit program. Although **MM-BIO-4** would reduce **Impact-BIO-4** to less-than-significant levels, implementation of this mitigation measure would have the potential to result in secondary effects. The removal of overwater coverage could involve demolition of existing piers or other structures within San Diego Bay, which would potentially result in short-term water quality impacts if water quality protection measures were not

implemented. However, adherence to regulatory permit requirements associated with Rivers and Harbors Act Section 10 and CWA Sections 401 and 404 would ensure that implementation of this mitigation measure would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade existing water quality. Additionally, it is anticipated that criteria pollutant and greenhouse gas emissions generated by **MM-BIO-4** would be minimal and temporary, and would primarily be associated with construction activities, if any such activities are associated with the mitigation option implemented. Consequently, the overall secondary effects of implementing **MM-BIO-4** would be less than significant.

Threshold 2: Implementation of the proposed project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW, NMFS, or USFWS.

Impact Discussion

Construction of the waterside components of the proposed project would include in-water activities such as pile driving, dredging, equipment storage, and barge operations, which would generate increased noise and water quality impacts within the marine community. The waterside operation would consist of a larger wharf and a larger small boat mooring float to service vessels, creating a potentially significant permanent overwater coverage impact as a result of the project. This impact on open water habitat availability was discussed under Threshold 1.

Waterside construction would create temporary overwater shading in the project site from construction equipment and some project elements have the potential to impair water quality through increased turbidity. Potential impacts from waterside project construction could include impacts on eelgrass due to dredging, elevated turbidity, and incidental disturbances from propeller wash and bottom contact. However, within the project boundaries, these impacts on eelgrass have already been identified and mitigated for through prior mitigation; outside the project boundaries, however, there is a potential for project construction to result in direct and indirect impacts on adjacent eelgrass beds outside of the project site. Detailed analysis related to project construction and operations is provided below.

Construction

Terrestrial

There are no sensitive terrestrial vegetation communities or riparian habitat within the landside component of the project site. Therefore, no construction-related impacts on sensitive terrestrial habitats would occur.

Marine

As discussed in Section 4.2.2, *Existing Conditions*, eelgrass habitat is present along the base of the riprap revetment and bulkhead wall to approximately -12 feet mean lower low water (MLLW). The proposed project would directly impact (via dredging) approximately 2,004 square feet of eelgrass habitat (Appendix D-1). However, this eelgrass located within the project site is regrowth following implementation of the recent San Diego Shipyard Sediment Remediation Project (SCH #2009111098), which resulted in impacts on this eelgrass within the project site from remediation

activities, including dredging and placement of sand or gravelly sand cover. The eelgrass removed as a result of the Shipyard Sediment Remediation Project, and thus the impact created by removal of eelgrass growth at that location, has already been identified and mitigated for through the establishment of an eelgrass mitigation site at the South Bay Eelgrass Mitigation Site (Appendix D-1). Because eelgrass impacts associated with removal of this eelgrass have already been mitigated through the establishment of eelgrass growth at the South Bay Eelgrass Mitigation Site, no new mitigation beyond that already provided at the South Bay Eelgrass Mitigation Site is required for this specific impact (loss of eelgrass), which has already been mitigated. Consequently, impacts on existing eelgrass within the project site as a result of dredging would be considered less than significant, and no mitigation would be required. For these same reasons, any indirect impacts on existing eelgrass within the project site from in-water construction activities, such as shading from construction equipment and increased turbidity, would be less than significant and therefore would not require mitigation.

Although direct and indirect impacts on existing eelgrass within the project site are considered less than significant, there are potential impacts on the eelgrass beds that are present outside of the project site to the south of the proposed Quay Wall Modifications (Project Element 7). The removal of riprap, dredging, and installation of sheet piles can have impacts on the eelgrass beds adjacent to the project's southern shoreline in three ways: direct physical disturbance from anchoring and staging of equipment, indirect impacts associated with shading from construction-related equipment, and indirect impacts associated with elevated turbidity levels from construction-related activities such as dredging, which impair water quality through increased turbidity from suspension of sediment (**Impact-BIO-5**). To reduce potential direct and indirect impacts on eelgrass adjacent to the project site, mitigation measure **MM-BIO-5** requires implementation of eelgrass protection measures during waterside construction activities, such as pre- and post-construction surveys in accordance with the CEMP and installation of turbidity curtains. Implementation of **MM-BIO-5** would reduce potential impacts on eelgrass outside of the project site to less than significant. As noted above, eelgrass within the project site does not require mitigation because it has been previously mitigated for through establishment of the South Bay Eelgrass Mitigation Site. Therefore, **MM-BIO-5** would not be required for any eelgrass that would be impacted within the project site.

The proposed project requires a CWA Section 401 Water Quality Certification and Section 404 permit to ensure that water quality objectives, including minimizing turbidity during construction, are met for San Diego Bay. A full discussion of the permit requirements and water quality objectives for the project is found in Section 4.5, *Hydrology and Water Quality*. Although temporary water quality impacts from suspended solids in the water column would be expected, impacts related to resuspension of sediments would be reduced to a less-than-significant level with compliance with the CWA Section 401 Water Quality Certification and Section 404 permit.

Operation

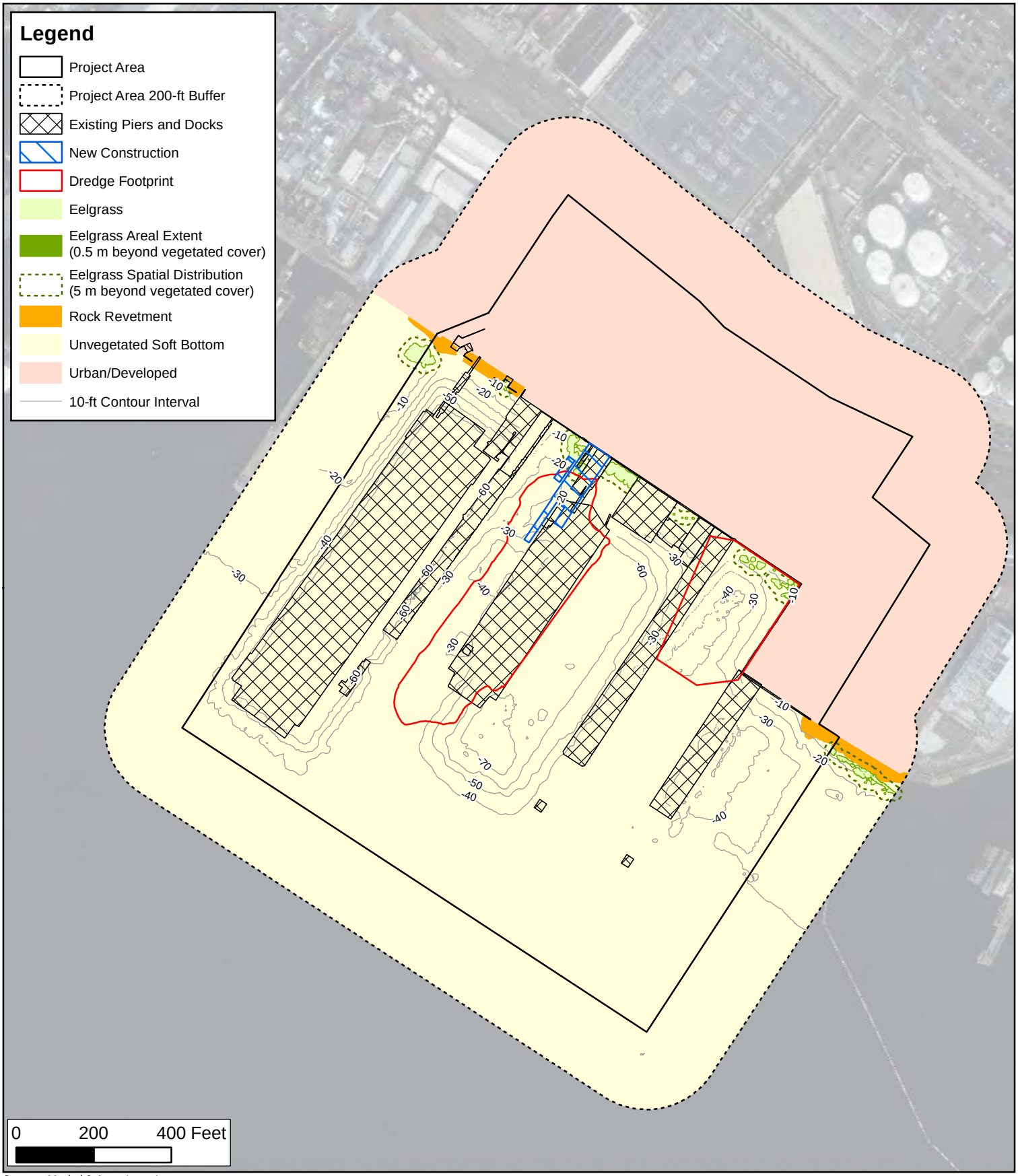
Terrestrial

There are no sensitive terrestrial vegetation communities or riparian habitat within the landside component of the project site. Therefore, no operation-related impacts on sensitive terrestrial habitats would occur.

Marine

Implementation of Project Elements 2, 6, and 9 would result in a net loss of open water habitat, through wharf expansions and a small boat mooring float. A net increase of 242 piles would also result from the proposed project. Net gain in vertical structural habitat type is a valuable replacement for the loss of unvegetated soft bottom habitat; however, as discussed in Threshold 1, a loss of open water habitat would affect foraging opportunities for California least tern and California brown pelican, and reduce primary productivity associated with phytoplankton and algae associated with the water column and seafloor (**Impact-BIO-4**). However, to reduce potential impacts on foraging opportunities from overwater coverage, mitigation measure **MM-BIO-4** requires implementation of any combination of the following mitigation options at a 1:1 ratio for no net increase in overwater coverage per the CWA: removing overwater coverage in the San Diego Bay, restoring or creating eelgrass habitat at a suitable mitigation site of equivalent size and value within San Diego Bay, purchasing credits for a suitable in lieu fee program or mitigation bank, and/or purchasing credits from the District's shading credit program. Implementation of **MM-BIO-4** would reduce **Impact-BIO-4** to less-than-significant levels.

The new piles associated with Project Elements 2, 6, and 9 would affect benthic infaunal invertebrates that live within the soft sediments. The invertebrates living within the sediments where piles are placed would be displaced as the soft bottom habitat itself would be displaced by the piles. The loss of unvegetated soft bottom habitat would be limited to the footprint of each pile; moreover, the piles would replace the benthic habitat with hard substrate and vertical structure for other organisms. These hard structures would be colonized by sessile invertebrates and algae. They would also attract fish and mobile invertebrates. Given that hard bottom structures are habitat for different organisms relative to soft bottom habitats, the structures would increase biological diversity overall at the piles and within the immediate area surrounding the piles (Merkel & Associates 2013). Thus, although there would be a loss of unvegetated soft bottom habitat, there would be a net gain in overall habitat and higher value habitat through the physical structure of the piles. Therefore, the overall loss of a small number of invertebrates is considered less than significant, particularly when considered with the anticipated increase in biodiversity.



Source: Merkel & Associates, Inc.

Figure 4.2-2
Habitat Impact
BAE Systems Waterfront Improvement Project

Level of Significance Prior to Mitigation

Implementation of the proposed project would have a substantial adverse effect, either directly or through habitat modifications, on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW, NMFS, or USFWS. Potentially significant impacts include the following.

Impact-BIO-4, as discussed under Threshold 1 above.

Impact-BIO-5: Potential Water Quality Impairment or Construction-Related Impacts on Eelgrass. Impacts on eelgrass within the project boundaries were previously mitigated offsite, and so project-related impacts on eelgrass within the project boundaries are less than significant. However, there are eelgrass beds immediately adjacent to the proposed Quay Wall Modifications (Project Element 7) at the south end of the property. Eelgrass beyond the BAE Systems leasehold was not part of the prior mitigation and could be impacted through increases in turbidity associated with bottom disturbance during dredging of riprap and sediment or during driving of sheet pile. Suspended sediments cause turbidity that reduces light penetration through the water. When suspended sediment resettle, they can settle directly on eelgrass. Both of these mechanisms reduce the plant's ability to photosynthesize and therefore can lead to reductions in bed density and cover. Moreover, if contractors anchor, spud, or stage vessels over the eelgrass beds adjacent to the project boundaries, impacts can occur through direct contact or shading.

Mitigation Measures

For **Impact-BIO-4**:

Implement **MM-BIO-4**, as discussed under Threshold 1 above.

For **Impact-BIO-5**:

MM-BIO-5: Implement Eelgrass Protection Measures. Prior to commencing construction activities for Project Element 7 (Quay Wall Modifications), the project proponent shall implement the following measures to ensure protection of eelgrass beds located immediately south of the proposed Quay Wall Modifications.

- Perform a preconstruction eelgrass survey in accordance with the California Eelgrass Mitigation Policy.
- Temporarily install a silt curtain to contain turbidity during dredging of rock, dredging of sediment, and installation of sheet pile during quay wall modifications.
- Provide results of the preconstruction eelgrass survey during a contractor education meeting and instruct the contractor not to contact the bottom or stage vessels over eelgrass vegetated areas and instruct that the use of a silt curtain is necessary during quay wall modifications.
- Perform a post-construction eelgrass survey in accordance with the California Eelgrass Mitigation Policy to validate protection of adjacent eelgrass beds following construction. In the event that unforeseen impacts to eelgrass occur, those impacts would be mitigated by increasing the amount of restoration or withdrawal of eelgrass mitigation bank credits as specified under **MM-BIO-4**, subsection 2.B.

Level of Significance after Mitigation

Implementation of **MM-BIO-4** would reduce impacts on foraging opportunities for sensitive avian species and nearshore marine habitat (**Impact-BIO-4**) to less-than-significant levels by requiring implementation of any combination of the following mitigation options: removing overwater coverage in the San Diego Bay; creating or restoring eelgrass habitat at a suitable mitigation site of equivalent size and value within San Diego Bay; purchasing credits for a suitable in lieu fee program or mitigation bank; and/or purchasing credits from the District's shading credit program. Implementation of **MM-BIO-5** would reduce **Impact-BIO-5** to less than significant by requiring pre- and post-construction eelgrass surveys in accordance with the CEMP, silt curtains to contain any construction-generated turbidity, educating contractors on the presence of nearby eelgrass so that direct contact can be avoided, performing monitoring to ensure that adjacent eelgrass is not impacted, and, in the event eelgrass is impacted, requiring restoration, creation, or purchase of eelgrass mitigation bank credits in accordance with **MM-BIO-4**.

Threshold 4: Implementation of the proposed project would not result in substantial interference with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impedance of the use of native wildlife nursery sites.

Impact Discussion

Native wildlife movement corridors have not been identified within the project site, and no substantial impediment to nursery sites or wildlife movement would occur with project construction and operation. Marine habitats used by wildlife have the potential to be affected, as discussed below.

Construction and Operation

Terrestrial

The landside portion of the project site is urban/developed and does not contain any natural wildlife habitat or vegetation communities. Onsite vegetation consists of landscaped ornamental species, which, while not protected, may host bird nests protected by the MBTA and California Fish and Game Code. No wildlife corridors have been identified on site. As such, construction and operation of the proposed project would not occur within an area that is critical to wildlife movement, nor would it impede wildlife access to areas adjacent to the project site. Impacts would be less than significant.

Marine

The waterside portion of the project site contains eelgrass as well as the potential for occurrence of protected marine wildlife species such as green sea turtles and several marine mammals. Eelgrass is also a nursery area for many commercially and recreationally important finfish and shellfish (Heck et al. 2003). While the proposed project has the potential to affect eelgrass, open water habitat, and special-status wildlife species (see Thresholds 1 and 2 above), the project site contains uses typical for San Diego Bay inner harbors, and the habitat types and species are all common throughout the Bay. As discussed in Threshold 2, impacts on open water habitat and adjacent eelgrass outside of the project site (**Impact-BIO-4** and **Impact-BIO-5**, respectively) would be mitigated to less than significant with implementation of **MM-BIO-4** and **MM-BIO-5**. Eelgrass within the project site does

not require mitigation because it has been previously mitigated for through establishment of the South Bay Eelgrass Mitigation Site, as noted under Threshold 2 (Appendix D-1).

The waterside area of the project site is currently used by naval and commercial vessels under maintenance or construction. As discussed in Threshold 2, Project Elements 2, 6, and 9 would provide additional hard substrate for organisms. These hard structures would be colonized by sessile invertebrates and algae. They would also attract fish and mobile invertebrates. Given that piles are habitat for different organisms relative to soft bottom habitats, the structures would increase biological diversity overall within the immediate area surrounding the piles. Therefore, construction and operation would not substantially interfere with the movement of any native resident or migratory fish or wildlife species. The project also would not interfere with established native resident or migratory wildlife corridors because none have been identified on site.

Level of Significance Prior to Mitigation

Implementation of the proposed project would not substantially interfere with the movement of fish or other wildlife species. Moreover, it would not substantially impede the use of native wildlife nursery habitat. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance after Mitigation

Impacts would be less than significant.

Threshold 5: Implementation of the proposed project would not conflict with any applicable local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance or with the provisions of an applicable adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

Impact Discussion

The applicable local land use plans, policies, ordinances, or regulations of the District, adopted for the purpose of protecting biological resources, are the Port Master Plan, San Diego Unified Port District Code, and the District's Integrated Natural Resources Management Plan (INRMP). As discussed in Section 4.6, *Land Use and Planning*, the proposed project is consistent with both the Port Master Plan and the San Diego Unified Port District Code.

The District and the U.S. Navy Southwest Division maintain and implement the INRMP, which catalogues the plant and animal species around the Bay and identifies habitat types with the purpose of ensuring the long-term health, recovery, and protection of San Diego Bay's ecosystem in concert with economic, naval, recreational, navigational, and fisheries needs. The goal of the INRMP "is to provide direction for the good stewardship that natural resources require, while supporting the ability of the Navy and District to achieve their missions and continue functioning within San Diego Bay" (District 2013). Through the implementation of mitigation measures outlined in Thresholds 1 and 2, the landside and waterside components of the proposed project would not

conflict with the INRMP. Rather, the proposed project would avoid significant impacts on sensitive species, and protect and enhance sensitive habitats, such as eelgrass, which adheres to the objectives outlined in the INRMP.

There are no other local policies or ordinances protecting biological resources that apply to the proposed project. Therefore, the proposed project would not conflict with local policies or ordinances protecting biological resources, and no impact would occur.

Level of Significance Prior to Mitigation

Implementation of the proposed project would not conflict with any applicable local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance or with the provisions of an applicable adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance after Mitigation

Impacts would be less than significant.

Section 4.3
Greenhouse Gas Emissions and Energy

4.3.1 Overview

This section describes existing conditions and applicable laws and regulations pertaining to greenhouse gas (GHG) emissions and analyzes the proposed project's consistency with the District's Climate Action Plan (CAP) reduction targets as well as the regulatory programs outlined in the scoping plan and adopted by the California Air Resources Board (CARB) or other California agencies to reduce GHG emissions through the life of the project. It also considers whether the project would result in any wasteful, inefficient, or unnecessary consumption of energy or conflict with or obstruct a state or local plan for renewable energy or energy efficiency. A discussion of whether the project would exacerbate any existing and/or projected damage to the environment, including existing structures and sensitive resources, due to predicted climate change effects, particularly sea-level rise, is provided in Section 4.8, *Sea-Level Rise*. This section relies on the emission modeling descriptions provided in the Air Quality and Greenhouse Gas Technical Memorandum (Appendix C).

Table 4.3-1 summarizes the significant impacts and mitigation measures discussed in this section.

Table 4.3-1. Summary of Significant Impacts and Mitigation Measures

Potentially Significant Impact(s)	Summary of Mitigation Measure(s)	Level of Significance After Mitigation	Rationale for Finding After Mitigation
Impact GHG-1: Inconsistency with District Climate Action Plan and Partial Consistency with Applicable GHG Reduction Plans, Policies, and Regulatory Programs	**MM-GHG-1:** Implement Diesel-Reduction Measures During Project Construction **MM-GHG-2:** Comply with San Diego Unified Port District Climate Action Plan Measures **MM-GHG-3:** Utilize Modern Vessels and Dredgers	Less than Significant	Mitigation would ensure consistency with the District's Climate Action Plan as well as plans, policies, and regulatory programs outlined in the scoping plan and adopted by CARB.

4.3.2 Existing Conditions

This section provides a discussion of the existing understanding of global climate change and its related effects, the relationship between GHG emissions and current conditions, and the existing energy resources associated with the project area.

4.3.2.1 Greenhouse Gases

Global Climate Change

The phenomenon known as the *greenhouse effect* keeps the atmosphere near the Earth's surface warm enough for successful habitation by humans and other life forms. GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), perfluorinated carbons (PFCs), sulfur hexafluoride (SF_6), and hydrofluorocarbons (HFCs), in addition to water vapor. These six gases are also identified as GHGs in Section 15364.5 of the State CEQA Guidelines. Within this chapter, GHG emissions may be referred to as simply *emissions* or *pollutants of concern*.

Sunlight in the form of infrared, visible, and ultraviolet light passes through the atmosphere. Some of the sunlight striking the Earth is absorbed and converted to heat, which warms the surface. The surface emits infrared radiation to the atmosphere where some of it is absorbed by GHGs and re-emitted toward the surface. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thereby enhancing the greenhouse effect and amplifying the warming of the Earth (National Park Service 2019).

Increases in fossil fuel combustion and deforestation have exponentially increased concentrations of GHGs in the atmosphere since the Industrial Revolution. Rising atmospheric concentrations of GHGs in excess of natural levels enhance the greenhouse effect, which contributes to global warming of the Earth's lower atmosphere. This warming induces large-scale changes in ocean circulation patterns, precipitation patterns, global ice cover, biological distributions, and other changes to the Earth's systems. This is collectively referred to as *climate change*.

GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants (TACs). Criteria air pollutants and TACs occur locally or regionally. Local concentrations respond to locally implemented control measures. However, the long atmospheric lifetimes of GHGs allow them to be transported great distances from sources and become well mixed, unlike criteria air pollutants, which typically exhibit strong concentration gradients away from point sources. GHGs and global climate change represent cumulative impacts; that is, GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change.

Principal Greenhouse Gases

The GHGs listed by the Intergovernmental Panel on Climate Change (IPCC) (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) (2014) are discussed in this section in order of abundance in the atmosphere. The principal characteristics of these pollutants are discussed below. California law and the State CEQA Guidelines contain similar definitions of GHGs (Health and Safety Code Section 38505(g); 14 California Code of Regulations [CCR] Section 15364.5). Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (human-made) sources. Consequently, the primary GHGs of concern associated with the project are CO_2, CH_4, and N_2O. Note that PFCs are not discussed because those gases are generated primarily by manufacturing processes, which are not anticipated as part of the project.

- **CO_2** enters the atmosphere through the burning of fossil fuels (e.g., oil, natural gas, coal), solid waste, trees, and wood products; respiration; and chemical reactions (e.g., from the manufacture of cement). CO_2 is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

- **CH_4** is emitted during the production and transport of coal, natural gas, and oil. CH_4 is also emitted from livestock and agricultural operations as well as the decay of organic waste in municipal solid waste landfills.
- **N_2O** is emitted during agricultural and industrial activities as well as the combustion of fossil fuels and solid waste.

Methods have been set forth to describe emissions of GHGs in terms of a single gas to simplify reporting and analysis. The most commonly accepted method for comparing GHG emissions is the global warming potential (GWP) methodology defined in the IPCC reference documents. IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of carbon dioxide equivalent (CO_2e), which compares the gas in question to that of the same mass of CO_2 (which has a GWP of 1 by definition). The GWP values used in this report are based on the IPCC Fourth Assessment Report (AR4) and the reporting guidelines, as defined in Table 4.3-2, from the United Nations Framework Convention on Climate Change (Myhre et al. 2013). The AR4 GWP values are consistent with those used in CARB's 2018 California GHG inventory, CARB's 2017 scoping plan, and the District's 2016 Maritime Air Emissions Inventory and CAP progress report (CARB 2018; CARB 2017; District 2018).

Table 4.3-2. Lifetimes, GWPs, and Abundances of Significant GHGs

Gas	GWP (100 years)	Lifetime (years)[1]	Atmospheric Abundance
CO_2	1	50–200	400 ppm
CH_4	25	9–15	1,834 ppb
N_2O	298	121	328 ppb

Sources: Myhre et al. 2013, Blasing 2016, IPCC 2007.
[1] Defined as the half-life of the gas.
ppm = parts per million; ppb = parts per billion.

Greenhouse Gas Inventories

A GHG inventory is a quantification of all GHG emissions and sinks[1] within a selected physical and/or economic boundary. GHG inventories can be performed on a large scale (e.g., for global and national entities) or on a small scale (e.g., for a particular building or person). Although many processes are difficult to evaluate, several agencies have developed tools to quantify emissions from certain sources.

Table 4.3-3 outlines the most recent global, national, statewide, and local GHG inventories to help contextualize the magnitude of potential project-related emissions.

[1]A GHG sink is a process, activity, or mechanism that removes a GHG from the atmosphere.

Table 4.3-3. Global, National, State, and Local GHG Emissions Inventories

GHG Emissions Inventory	CO_2e (metric tons)
2010 IPCC Global	52,000,000,000
2018 EPA National	6,677,800,000
2017 CARB State	424,100,000
2014 Unincorporated County of San Diego	3,211,505
2018 City of San Diego	9,800,000
2016 Port of San Diego	507,823

Sources: IPCC 2014, EPA 2020, CARB 2019, County of San Diego 2018, City of San Diego 2019, District 2018.

A portion of the GHG emissions generated at the project site are included in the 2016 Port of San Diego GHG emissions inventory, shown in Table 4.3-3. Both landside and waterside activities generate GHG emissions. Landside sources include vehicle trips; building electricity, natural gas, and water consumption; and waste generation. Waterside sources include commercial and military vessel activity, along with the support provided by tugboats.

4.3.2.2 State and Regional Energy Resources and Use

California has a diverse portfolio of resources that produced 2,535.8 trillion British thermal units[2] (BTUs) of energy in 2017 (U.S. Energy Information Administration 2019).[3] Excluding offshore areas, the state ranked third in the nation in crude oil production in 2016, producing the equivalent of 1,064.7 trillion BTUs of energy. The state also ranked first in the nation for energy production from renewable resources. Other energy sources in the state include natural gas (234.7 trillion BTUs), nuclear (197.8 trillion BTUs), and biofuels (30 trillion BTUs) (U.S. Energy Information Administration 2016).[4]

According to the U.S. Energy Information Administration, California consumed approximately 7,881 trillion BTUs of energy in 2017. Per capita energy consumption (i.e., total energy consumption divided by population) in California is among the lowest in the country, approximately 200 million BTUs in 2017, ranking California 48th among all states. Natural gas accounted for the majority of energy consumption (28 percent), followed by motor gasoline (22 percent), distillate and jet fuel (16 percent), interstate electricity (8 percent), and nuclear and hydroelectric power (7 percent), with the remaining 19 percent coming from a variety of other sources (U.S. Energy Information Administration 2019). The transportation sector consumed the highest quantity of energy in 2017 (40.3 percent), followed by the industrial and commercial sectors.

Per capita energy consumption, in general, is declining because of improvements in energy efficiency. However, despite this reduction in per capita energy use, California's total overall energy consumption (i.e., non-per capita energy consumption) is expected to increase over the next several decades because of population growth, growth in the number of jobs, and growth in vehicle miles

[2] One BTU is the amount of energy required to heat 1 pound of water by 1°F at sea level. BTU is a standard unit of energy that is used in the United States and is on the English system of units (foot-pound-second system).

[3] Note that 2017 data are the most recent available.

[4] No coal production occurs in California; however, imported coal made up approximately 6% of California's energy mix as of 2015. SDG&E, the energy provider for the San Diego region, does not have any coal in its energy mix as of 2015 (California Energy Commission 2016).

traveled (VMT). For example, electricity usage is anticipated to grow by 11 to 18 percent over the next decade (2020–2030) (California Energy Commission [CEC] 2018).

San Diego County is served by San Diego Gas and Electric (SDG&E), which provides energy services to more than 3.4 million customers (i.e., 1.4 million accounts) in the county and portions of southern Orange County. The utility has a diverse power production portfolio, composed of a variety of renewable and non-renewable sources. Energy production typically varies by season and by year. Regional electricity loads tend to be higher in the summer because the higher summer temperatures drive increased demand for air-conditioning. In contrast, natural gas loads are higher in the winter because the colder temperatures drive increased demand for natural gas heating.

In 2017 (most recent year for which California Renewables Portfolio Standard [RPS] data are available) more than 44 percent of the electricity SDG&E supplied was from renewable sources, compared to less than 1 percent in 2002 (CEC 2018a). Over the last 3 years, SDG&E customers have reduced their electricity use by more than 911 million kilowatt hours (kWh) and their gas usage by more than 1.8 million therms (Sempra Energy Company 2018).

4.3.3 Applicable Laws and Regulations

This section summarizes the federal, state, and local regulations related to GHG emissions, climate change, and energy resources that are applicable to the proposed project.

4.3.3.1 Federal

There is currently no overarching federal law related specifically to reductions in GHG emissions. Under the Obama administration, the U.S. Environmental Protection Agency (EPA) developed regulations under the Clean Air Act (CAA), pursuant to EPA's authority under the CAA.[5] In addition, there were settlement agreements among EPA, several states, and nongovernmental organizations to address issues related to GHG emissions from electric generating units and refineries. EPA also issued an "endangerment finding" and a "cause or contribute finding" and adopted a mandatory reporting rule and the Clean Power Plan. Under the Clean Power Plan, EPA issued regulations to control CO_2 emissions from new and existing coal-fired power plants. However, on February 9, 2016, the Supreme Court issued a stay regarding these regulations, pending litigation. EPA Administrator Scott Pruitt signed a measure to repeal the Clean Power Plan in October 2017. Therefore, no federal regulations related specifically to GHG emissions have been factored into the proposed project's impact analysis.

The National Highway Traffic Safety Administration (NHTSA) sets the Corporate Average Fuel Economy (CAFE) standards to improve the average fuel economy and reduce GHG emissions generated by cars and light duty trucks. NHTSA and EPA have proposed to amend the current fuel efficiency standards for passenger cars and light trucks and establish new standards covering model years 2021 through 2026 by maintaining the current model year 2020 standards through 2026 (Safer Affordable Fuel-Efficient [SAFE] Vehicles Rule). California, 22 other states, the District of Columbia, and two cities filed suit against the proposed action on September 20, 2019 (*California et al. v. United States Department of Transportation et al.*, 1:19-cv-02826, U.S. District Court for the

[5] In *Coalition for Responsible Regulation, Inc., et al. v. EPA*, the U.S. Court of Appeals upheld EPA's authority to regulate GHG emissions under the CAA.

District of Columbia). The lawsuit requests a "permanent injunction prohibiting Defendants from implementing or relying on the Preemption Regulation," but does not stay its implementation during legal deliberations. Part 1 of the SAFE Vehicles Rule went into effect on November 26, 2019. Part 2 of the Rule was finalized on March 31, 2020.

4.3.3.2 State

California has adopted statewide legislation to address various aspects of climate change, provide GHG mitigation, and improve energy efficiency. Much of this establishes a broad framework for the state's long-term GHG and energy reduction goals as well as the climate change adaptation program. Governors of California have also issued EOs related to the state's evolving climate change policy. Summaries of the key policies, EOs, regulations, and state legislation relevant to the project are provided below in chronological order.

Executive Order S-03-05 (2005)

EO S-03-05 was designed to reduce California's GHG emissions to (1) 2000 levels by 2010, (2) 1990 levels by 2020, and (3) 80 percent below 1990 levels by 2050.

Assembly Bill 32—California Global Warming Solutions Act (2006)

AB 32 codified the state's GHG emissions target by requiring California's global warming emissions to be reduced to 1990 levels by 2020. Since being adopted, the CARB, CEC, CPUC, and California Building Standards Commission have been developing regulations that will help the state meet the goals of AB 32 and EO S-03-05. The scoping plan for AB 32 identifies specific measures for reducing GHG emissions to 1990 levels by 2020 and requires CARB and other state agencies to develop and enforce regulations and other initiatives to reduce GHG emissions. The AB 32 scoping plan, first adopted in 2008, is the state's roadmap for meeting AB 32's reduction target. Specifically, the scoping plan articulates a key role for local governments by recommending that they establish GHG emissions reduction goals for both municipal operations and the community that are consistent with those of the state (i.e., approximately 15 percent below current levels) (CARB 2008).

California Energy Efficiency Standards for Non-Residential Buildings—Green Building Standards Code and Updates

California has adopted the Green Building Standards Code (CALGreen), which outlines aggressive energy efficiency standards for new residential and non-residential buildings that are updated every 3 years. The first standards were adopted in 1978. The most recent update was the 2019 Building Energy Efficiency Standards, which were adopted in May 2018 and took effect on January 1, 2020. Non-residential buildings will be 30 percent more energy efficient due to the update in HVAC, ventilation, and lighting standards. Future standards are expected to result in zero net energy for newly constructed commercial buildings (CEC 2018b).

Senate Bill 350 (2015)

SB 350 (De Leon, also known as the Clean Energy and Pollution Reduction Act of 2015) was approved by the California legislature in September 2015 and signed by Governor Brown in October 2015. Its key provisions call for the following by 2030: (1) achieving an RPS of 50 percent and (2) doubling the efficiency of existing buildings.

Senate Bill 32, California Global Warming Solutions Act of 2006: Emissions Limit, and Assembly Bill 197, State Air Resources Board, Greenhouse Gases, Regulations (2016)

SB 32 (Pavley) requires CARB to ensure that statewide GHG emissions will be reduced to at least 40 percent below the 1990 level by 2030, consistent with the target set forth in EO B-30-15. The bill specified that SB 32 shall become operative only if AB 197 (Garcia) is enacted and effective on or before January 1, 2017. AB 197 requires formation of the Joint Legislative Committee on Climate Change Policies; requires CARB to prioritize direct emissions reductions from stationary sources, mobile sources, and other sources and consider social costs when adopting regulations to reduce GHG emissions beyond the 2020 statewide limit; requires CARB to prepare reports on sources of GHGs, criteria air pollutants, and toxic air contaminants; establishes 6-year terms for voting members of CARB; and adds two legislators as non-voting members of CARB. Both bills were signed by Governor Brown in September 2016.

CARB approved the 2017 Climate Change Scoping Plan Update in December 2017 to build on the programs set in place as part of the previous scoping plan, which was drafted to meet the 2020 reduction targets of AB 32. The 2017 scoping plan proposes meeting the 2030 goal by accelerating the focus on zero and near-zero technologies for moving freight; continuing investment in renewables; relying on greater use of low-carbon fuels, including hydrogen; implementing stronger efforts to reduce emissions of short-lived climate pollutants (e.g., CH_4, black carbon, fluorinated gases); overseeing further efforts to create walkable communities with expanded mass transit and other alternatives to traveling by car; continuing the cap-and-trade program; and ensuring that natural lands become carbon sinks to provide additional emissions reductions and flexibility in meeting the target. The 2017 scoping plan also recommends that local governments achieve community-wide efficiency through the use of targets that call for 6 metric tons of carbon dioxide equivalent ($MTCO_2e$) per capita by 2030 and 2 $MTCO_2e$ per capita by 2050, targets that can be used in local climate action planning. These efficiency targets would replace the "15 percent below 2008 levels by 2020" approach recommended in the initial scoping plan.

Senate Bill 100 (2018)

SB 100 (De León, also known as the California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases) was approved by the California legislature and signed by Governor Brown in September 2018. The bill increases the RPS in 2030 from 50 to 60 percent and establishes an RPS goal of 100 percent by 2045.

Executive Order B-55-18 (2018)

EO B-55-18 was approved by the California legislature and signed by Governor Brown in September 2018. The order establishes a statewide goal that calls for achieving carbon neutrality by no later than 2045 as well as achieving and maintaining net negative emissions thereafter. Although this EO has not been codified in law, it directs CARB to ensure that future climate change scoping plans identify and recommend measures for achieving the carbon neutrality goal.

State CEQA Guidelines, Appendix F

Appendix F of the State CEQA Guidelines contains energy conservation measures that promote efficient use of energy for projects. To ensure that energy impacts are considered in project

decisions, CEQA requires EIRs to include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing any inefficient, wasteful, and unnecessary consumption of energy.

The goal outlined in Appendix F of the State CEQA Guidelines is to conserve energy through wise and efficient use. The means for achieving this goal include the following:

- Decreasing overall per capita energy consumption,
- Decreasing reliance on natural gas and oil, and
- Increasing reliance on renewable energy sources.

4.3.3.3 Regional

The AB 32 scoping plan does not provide an explicit role for local air districts with respect to implementing AB 32, but it does state that CARB will work actively with air districts in coordinating emissions reporting, encouraging and coordinating GHG reductions, and providing technical assistance in quantifying reductions. The ability of air districts to control emissions (both criteria pollutants and GHGs) is provided primarily through permitting but also their role as CEQA lead or commenting agencies, the establishment of CEQA thresholds, and the development of analytical requirements for CEQA documents. To date, the San Diego Air Pollution Control District has not developed specific thresholds of significance with regard to addressing issues related to GHG emissions in CEQA documents.

4.3.3.4 Local

San Diego Unified Port District Plans and Programs

The District developed the Green Port Program to support the goals of the Green Port Policy, which was adopted in 2008. The Green Port Program was designed to achieve environmental sustainability goals at the Port, including those related to water, energy, air, waste management, sustainable development, and sustainable business practices. The District and SDG&E have also established a partnership to increase energy efficiency and reduce overall energy consumption. SDG&E currently allocates a portion of funds collected from utility customers to energy efficiency programs with local governments. The District uses some of those funds to develop energy efficiency education programs, track energy consumption, perform energy audits, and implement energy retrofits. The District's energy efficiency programs benefit employees, tenants, and the general public.

Climate Action Plan

As noted above in Section 4.3.3.2, CARB encourages local governments to adopt a reduction goal for emissions from municipal operations and move toward establishing similar goals for community emissions that parallel the state's commitment to reducing GHG emissions (CARB 2008). The District adopted a CAP in December 2013 that includes an inventory of existing (2006) and projected emissions in 2020, 2035, and 2050 and identifies the District's GHG reduction goals as well as measures to be implemented to support meeting the statewide reduction goals set forth in AB 32 (i.e., 1990 levels by 2020). Port-wide 1990 emissions were not quantified because of gaps in activity data; instead, a base year of 2006 was used to calculate the reductions needed at the Port

and reach 1990 levels by 2020. Consistent with AB 32 targets, a 10 percent reduction target (471.3 million $MTCO_2e$ in 2006 and estimated 426.6 million $MTCO_2e$ in 1990 statewide) was used as the Port-wide reduction target for 2020.[6]

Sources throughout the planning area that generate GHG emissions include tenant facilities (e.g., hotels, marinas, boatyards), maritime activities (e.g., the movement of goods and people associated with marine terminal operations), and Port operations (e.g., District-owned building energy consumption and fleet activity). The CAP's 2020 projections and reduction targets (1990 levels) for each activity are based on growth projections specific to each tenant and activity type. For example, the CAP assumes a 5 percent annual growth in lodging-related uses between 2006 and 2020. Therefore, the CAP and its reduction targets are specific to the District's geography, type, intensity of uses, and future projected conditions. Table 4.3-4 provides the CAP's 2006 baseline, projected future (2020) GHG emissions, projected future (2020) GHG emissions with implementation of state measures, and future GHG emissions targets (i.e., 1990 levels) for the Port as a whole. To achieve the requisite reductions, the CAP includes various reduction measures related to transportation and land use, alternative energy generation, energy conservation, waste reduction and recycling, and water conservation and recycling.

A critical aspect of having a CAP that fits the criteria within State CEQA Guidelines Section 15183.5 is having reduction targets that align with statewide goals. The CAP's reduction targets parallel the state's commitment to reducing GHG emissions in AB 32 but go even farther by identifying targets for a specific location, based on projected emissions specific to the Port's geographic location as well as specific activity types and their associated sources. Therefore, because the CAP targets align with statewide goals, the CAP is consistent with AB 32.

Table 4.3-4. GHG Emissions by Emission Sector Shown in the CAP ($MTCO_2e$ per year)

Sector	2006 Existing	2020 Business as Usual	2020 with State Measures
Electricity	173,192	208,231	147,133
Natural Gas	135,516	152,803	152,534
On-Road Transportation	314,870	410,069	317,708
Off-Road Transportation	172,929	233,528	207,268
Water Use	13,166	14,630	10,406
Waste	16,757	20,439	20,439
Total Emissions	**826,429**	**1,039,700**	**855,489**
2020 Target	**—**	**745,695**	

Source: District 2013 (page 12).

Since the adoption of the CAP, more refined data and updated methodologies have become available to estimate GHG emissions. CARB guidance states that it is good practice to recalculate historic emissions when methods are changed or refined.[7] Given this, a recalibration of the 2006 baseline

[6] The CAP also includes projected emissions and some reduction policies to achieve the reduction target of 25 percent less than 2006 baseline levels by 2035 but does not yet quantify those reductions.

[7] California Air Resources Board. 2019. *Current California Emission Inventory Data*. Available: https://www.arb.ca.gov/cc/inventory/data/ data.htm.

was deemed vital to tracking progress toward 2020 goals. This 2006 recalibration was included in the Port's 2016 updated inventory, which was based on more locally specific and comprehensive datasets.

The 2016 inventory update provides emissions from the same sectors included in the CAP (i.e., electricity, natural gas, on- and off-road transportation, water use, waste). Table 4.3-5 provides a comparison of the recalibrated 2006 baseline and emissions generated during 2016. Total GHG emissions produced by all tenant, maritime, and Port activities in 2016 were estimated to be 507,823 $MTCO_2e$, which is 13 percent below the revised 2006 baseline (or 73,856 $MTCO_2e$). This decrease in emissions is due to several factors, including fewer calls from ocean-going vessels, reduced berthing durations, increased fuel economy for on-road vehicles, decreases in natural gas consumption, and a decrease in the SDG&E electricity emission factor. The 2016 inventory is approximately 1.5 percent of total countywide GHG emissions (relative to the most recent inventory [2012]).[8]

Table 4.3-5. Comparison of Recalibrated 2006 Baseline and Calendar Year 2016 Emissions ($MTCO_2e$ per year)

Sector	Revised 2006	2016 Inventory
Electricity	117,526	101,381
Natural Gas	162,556	137,183
On-Road Transportation	136,619	124,957
Off-Road Transportation	132,571	113,812
Water Use	13,169	9,144
Waste	19,239	21,346
Total Emissions	**581,680**	**507,823**
2020 Target	**523,512**	
Change from CAP 2006 Due to Recalibration	*(244,749)*	N/A

Source: District 2018.

4.3.4 Project Impact Analysis

4.3.4.1 Methodology

GHG impacts associated with construction and operation of the proposed project were assessed and quantified, to the extent feasible, using industry standards and accepted software tools, techniques, and emissions factors. A summary regarding the methodology is provided below. A full list of assumptions and emissions calculations can be found in Appendix C. The methodology used to estimate GHG emissions is the same methodology that was used to estimate air pollutant emissions, as described in Section 4.1, *Air Quality and Health Risk*. In addition to the emissions sources discussed in Section 4.1, GHG emissions would also result from electricity, natural gas, water consumption, and waste generation.

[8] San Diego County GHG emissions in 2012 were 34.67 million $MTCO_2e$ (Energy Policy Initiatives Center 2015).

Construction

GHG Emissions

Construction of the proposed project would generate CO_2, CH_4, and N_2O, all of which are GHGs that that could contribute to climate change. Emissions would originate from construction of landside and waterside components. Sources of emissions associated with landside activities include exhaust from off-road equipment as well as exhaust from employees' vehicles and haul trucks (i.e., on-road vehicles). Landside construction emissions were estimated using a combination of emissions factors and methodologies from the California Emissions Estimator Model (CalEEMod), version 2016.3.2; CARB's EMFAC2017 model; and published methodologies from CARB and EPA. Emissions estimates were based on project-specific construction data (e.g. schedule, equipment types and numbers, and truck volumes) provided by the project proponent.

Construction of the waterside components would generate emissions from dredging, hauling materials to and from the project site, and operating scows, tugboats, and survey vessels. Emissions from dredging equipment and haul trucks were estimated using CalEEMod and EMFAC, respectively. Emissions from marine vessels were estimated using emissions factors and assumptions from CARB's *Harborcraft Emission Inventory Methodology* (2010) and other sources, as described in Appendix C.

Dredging would occur for three project elements: Project Element 1 (Pride of San Diego Drydock Dredging and Moorage), Project Element 4 (Pier 3 Near Shore Dredging), and Project Element 6 (Pier 3 North Lunchroom Wharf Replacement and Realignment).

There are two options for disposing of dredged materials associated with the proposed project. Materials that are contaminated would be disposed of at a landfill that is approved to handle contaminated sediment. These materials are stockpiled at the project site, loaded directly onto trucks from the dredge barge, and disposed of at the approved landfill. Materials that are not contaminated would be disposed of at the Ocean Dredge Material Disposal Site (i.e., EPA ocean disposal site LA-5).

For Project Element 1, the total quantity of dredged materials is assumed to be approximately 98,800 cubic yards (cy). As discussed in Chapter 3, *Project Description*, it is anticipated that between 11 (10,900 cy) and 20 percent (19,800 cy) of the dredge material would be contaminated and would be transported via truck to an approved (upland) disposal facility capable of accepting contaminated sediment. It is anticipated that the remaining materials – between 80 percent (79,000 cy) and 89 percent (87,900 cy) – would meet U.S. Army Corps of Engineers (USACE) and EPA disposal criteria and would be disposed of at the EPA's LA-5 ocean disposal site via tug and scow. To ensure a conservative analysis, both the high end of trucks (assumed to be 1,350 total trucks based on a 15 cy truck capacity and 19,800 cy of material) and the high end of tug and scow trips (assumed to be 36 total scows based on a 2,500 cy scow capacity and 87,900 cy of material) were analyzed.

For Project Element 4, the quantity of dredged materials that is suitable for ocean disposal is currently unknown. As discussed in Chapter 3, there are two disposal scenarios for Project Element 4 construction which are included in this impact analysis:

1. The "50/50 Scenario" assumes half of all dredged material would be disposed at the LA-5 ocean disposal site using scows, and the remaining half would be disposed of at an approved landfill using haul trucks.

2. The "All Truck Scenario" assumes all dredged material would be disposed at an approved landfill using haul trucks.

For Project Element 6, all dredged material is assumed to be contaminated; thus, all materials would be disposed of at an approved upland location.

The amount of emissions generated on an annual basis from landside and waterside construction would vary, depending on the intensity and types of activities occurring simultaneously, as well as the phasing and schedule. For purposes of analysis, landside construction is expected to occur 5 days per week and would last approximately 5 years. In-water construction activities required for the waterside components are expected to occur 5 days per week for all waterside components except for dredging operations, which would occur 7 days per week for the duration of those dredging phases. Refer to Appendix C for detailed information on the construction schedule, phasing, equipment and vehicles inventories, and modeling method.

Note that the anticipated construction schedule analyzed herein is approximate and is provided for analysis purposes, and the actual start and end dates may vary. While overall construction timing may vary and may occur later than assumed here, is it assumed the sequence of phases relative to other phases and activities would not change. If the schedule is delayed, then concurrent elements would still occur concurrently (i.e., phase overlaps would be the same, albeit at a later date).

Consistent with established protocols and published guidance from other lead agencies and air districts, construction emissions are amortized over the expected operational life of the project and added to annual operational emissions. In this case, the operational life of the project is the duration of the BAE Systems' lease, which is scheduled to expire in 2034 (14-year duration).

Energy Use

Implementation of the proposed project would result in energy use from construction of the landside and waterside components. Energy use associated with landside activities includes the operation of off-road equipment as well as employees' vehicles and haul trucks. To haul materials and move equipment around the project site, construction of the waterside components would require energy for operation of the dredgers, scows, tugboats, and survey vessels.

Energy use during construction was estimated using a combination of emission methods and emissions factors from published best available documentation. Energy usage associated with fuel consumption was calculated by converting the GHG emissions estimated for the GHG analysis, using the rate of CO_2 emissions per gallon of combusted gasoline (8.78 kilograms/gallon) and diesel (10.21 kilograms/gallon) (Climate Registry 2018). The estimated fuel consumption was converted to BTUs, assuming an energy intensity of 113,927 BTUs per gallon of gasoline and 129,488 per gallon of diesel (Argonne National Laboratory 2015). A full list of assumptions and emissions and energy calculations for project construction can be found in Appendix C.

Operations

GHG Emissions

As discussed in Section 3.5.6, *Project Operation,* several of the project elements are infrastructure maintenance and modernization improvements and would not change the nature of existing operations at the project site. The proposed project would not expand operations or result in

additional employment or vehicle trips compared to existing conditions. However, the dredging and mooring improvements under Project Element 1 (Pride of San Diego Drydock Dredging and Moorage Replacement), Project Element 4 (Pier 3 South Nearshore Dredging), and Project Element 5 (Pier 3 Mooring Dolphin) would allow BAE Systems to service newer and larger classes of vessels compared to existing conditions, which could result in some changes to activities associated with berthing and servicing vessels. The operational efficiencies of the proposed project would result in the following changes, which are analyzed herein.

1. The proposed project would reduce the potential berthing capacity of the site by two vessels and reduce the number of vessels that could be serviced at berth annually by three vessels (see Table 3-6). Because tugs are required to transition a ship to or from a BAE Systems pier, or in or out of dry dock, the reduction in annual vessel calls would decrease tugboat activity, thereby reducing emissions. Under existing conditions, there are two general tug scenarios, which vary depending on the size of vessel, weather, and availability of tugs for use.
2. The proposed improvements – specifically, the improvements associated with Project Element 1 – would lead to more efficient vessel movements. This would result in the dry dock no longer needing to be moved in order to submerge and dock or undock a vessel. These improvements would ensure safe navigation even in extreme weather events. More tug power is currently required to transition vessels during these extreme weather events, which would be reduced with the proposed improvements, thereby reducing emissions.
3. When vessels berth or dock, their engines are off. Portable diesel engines and portable fire pumps (for power needs and fire protection) are placed on board the ships to supplement the vessel's power needs and ensure safe movement within the berthing area. The reduction in annual vessel calls would decrease portable diesel engine and fire pump activity, thereby reducing emissions.
4. Emissions from other indirect sources related to the reduction in vessel calls, including energy and water consumption, motor vehicles trips, and wastewater and waste generation, are also likely to decrease. However, given that the specific amount these sources would decrease was not known at the time of analysis, these sources were analyzed qualitatively, based on the anticipated change in the number of crew and labor at the site under proposed project conditions.

Table 4.1-7 of Section 4.1, *Air Quality and Health Risk*, summarizes the change in total tugboat power required on a per call and annual basis. Existing conditions include two separate tug scenarios to represent the range in tug power needed to handle typical and extreme weather events under the current layout. Under proposed project conditions, there is only one tug scenario, as proposed improvements would eliminate the need for additional tug power during extreme weather events.

As also shown in Table 4.1-7, the range in tug activity on a per-call basis is expected to increase from 12,000–13,500 horsepower per call (depending on the tug mix) to 14,500 horsepower per call after implementation of the proposed project because of the increased tug size required to berth larger vessels. However, given the reduction in calls, total tug horsepower is expected to decrease from 96,000–108,000 horsepower to 72,500 horsepower annually. This will decrease emissions on an annual basis through the life of the project.

Similarly, as shown in Table 4.1-8, portable equipment activity on a per call basis is not expected to change, but given the reduction in calls, total equipment horsepower is expected to decrease on an annual basis. This will decrease emissions on an annual basis through the life of the project.

Annual emissions from tugs and equipment were estimated using a combination of emission methods and emission factors from published best available documentation. Emissions from portable diesel equipment (generators and fire pumps) activities are based on activity data from the project proponent that assumes Tier 4 generators and Tier 3 fire pumps, which are in use under both existing and proposed project conditions. Emissions from tugboat activities were estimated based on methodologies and guidance published by CARB for estimating emissions from commercial watercraft and activity information provided by the project proponent. A full list of assumptions and emission calculations for project operations can be found in Appendix C.

Energy Use

Operation of the proposed project would require energy for both landside and waterside elements. Changes in energy use at the project site would result from the larger naval vessels, as well as commercial vessels, mooring at the Pier 3 South berth; changes in vessel size and the vessel mix at the site; ship maintenance and repair schedules; the total number of employees on-site; and portable generator and fire pump activity.

Operational energy use was estimated using the same emissions methods and emissions factors described for energy use during short-term construction. Fuel consumption during operation was calculated by converting the GHG emissions estimated for the GHG analysis, using the rate of CO_2 emissions per gallon of combusted gasoline and diesel. Fuel consumption was then converted to energy using industry-standard emissions factors for BTUs per gallon of gasoline and diesel. Energy use associated with area sources, such as natural gas consumption (for space and water heating), water consumption, wastewater and solid waste removal, and operational mobile sources, including vehicles belonging to employees who commute, were qualitatively considered using information about the overall change in personnel, as provided by the project proponent. A full list of assumptions and emissions and energy calculations for project operations can be found in Appendix C.

4.3.4.2 Thresholds of Significance

Greenhouse Gases

Based on guidance provided in Appendix G of the State CEQA Guidelines, the proposed project would result in a significant impact if it were to:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The State CEQA Guidelines do not indicate what level of GHG emissions would constitute a significant impact on the environment. Instead, they authorize the lead agency to consider thresholds of significance that were previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds was supported by substantial evidence (State CEQA Guidelines Sections 15064.4[a] and 15064.7[c]).

Several agencies in the state, including multiple air districts, have drafted and/or adopted various threshold approaches and guidelines for analyzing GHG emissions and climate change in CEQA

documents. However, none of these are binding and are only recommendations for consideration by CEQA lead agencies. A detailed summary of CEQA requirements, as well as the applicability of all available thresholds, is provided in Appendix C.

Threshold Approach

There are multiple potential thresholds and methodologies for evaluating project-level GHG emissions consistent with CEQA, depending on the circumstances of a given project. Although efforts at framing GHG significance issues have not yet coalesced into any widely accepted set of numerical significance thresholds across the state and within the region, a range of alternative approaches does exist. Common threshold approaches include (1) compliance with a qualified GHG reduction strategy, (2) performance-based reductions, (3) numeric "bright-line" criteria, (4) efficiency-based thresholds, and (5) compliance with regulatory programs. These thresholds and methodologies are discussed in detail in Appendix C.

The project, as a whole, includes two key components: construction would occur between the 2021 and 2025 timeframe, and operational changes would take effect after construction. Therefore, the entire analysis period is within the post-2020 timeframe. Based on the available threshold concepts recommended by air districts or other lead agencies and recent case law, the thresholds of significance that would be applied to the proposed project's GHG emissions include the two following steps:

- **Comparison to a Relevant Bright-Line Criterion.** A numerical bright-line value, based solely on District-wide projects, does not yet exist. Moreover, no bright-line criterion has been formally adopted by an air district or other lead agencies for use in the San Diego region. Various bright-line numerical criteria have been drafted, proposed, or adopted throughout the state, and these vary by agency and purpose. Presently, the 900 $MTCO_2e$ screening criteria presented in a California Air Pollution Control Officers Association (CAPCOA) white paper from 2008 is the lowest numerical criteria drafted, recommended, or adopted in the state and serves as a conservative screening criterion for determining which projects require further analysis and identification of project design features or potential mitigation measures with regard to GHG emissions (CAPCOA 2008).
- **Consistency with Statewide Regulatory Programs**. At the state level, CARB's 2017 scoping plan outlines the framework and strategies the state will take to achieve its emissions reduction targets. The 2017 scoping plan update proposes meeting the 2030 goal by accelerating the focus on zero and near-zero technologies for moving freight; continuing investment in renewables; relying on greater use of low-carbon fuels, including hydrogen; implementing stronger efforts to reduce emissions of short-lived climate pollutants; overseeing further efforts to create walkable communities with expanded mass transit and other alternatives to traveling by car; continuing the cap-and-trade program; and ensuring that natural lands become carbon sinks to provide additional emissions reductions and flexibility in meeting the target (CARB 2017). In addition to CARB's 2017 scoping plan, several CARB and statewide regulations address GHG emissions from other sources that are not fully covered by the scoping plan, such as off-road equipment. These regulations are addressed in detail in Section 4.3.3.2, *State*. For construction activities that occur after December 31, 2020, and operational activities that are anticipated to begin in 2025, GHG emission impacts will be evaluated through compliance with the regulatory programs outlined in the 2017 scoping plan and those adopted by CARB or other California agencies for the purpose of reducing GHG emissions.

Energy Consumption

The following significance criteria, which are based on the questions in Appendix G of the State CEQA Guidelines, provide the basis for determining the significance of energy impacts associated with the proposed project. The determination of whether an energy impact would be significant is based on the thresholds described below and the professional judgment of the District as lead agency and the recommendations of qualified personnel at ICF, all of which is based on the evidence in the administrative record.

Impacts would be considered significant if the proposed project were to result in any of the following.

1. Result in a potentially significant environmental impact due to the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation; or
2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

For this analysis, these two questions from Appendix G are combined under Threshold 3 in Section 4.3.4.3, below.

According to Section 15126.2(b) of the State CEQA Guidelines, if analysis of a project's energy use reveals that the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary consumption use of energy, or wasteful use of energy resources, the EIR must mitigate that energy use. Guidance is presented in State CEQA Guidelines Appendix F.

According to Appendix F of the State CEQA Guidelines, the goal of conserving energy implies the wise and efficient use of energy. The means for achieving this goal include:

1. Decreasing overall per capita energy consumption;
2. Decreasing reliance on fossil fuels such as coal, natural gas, and oil; and
3. Increasing reliance on renewable energy sources.

4.3.4.3 Project Impacts and Mitigation Measures

Threshold 1: Implementation of the proposed project <u>would not</u> generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Impact Discussion

As noted in Section 4.3.4.1, *Methodology,* GHG emissions would result from construction and operation of the proposed project, and thus there is the potential for significant impacts. GHG emissions associated with construction and operation are quantified (to the extent feasible) and presented herein.

Construction Emissions

Construction is broken up between emissions sources that operate on land, both within the project boundary and on public roadways, and emissions sources that operate completely within the water, both within and outside of the construction area. Landside GHG emissions during construction

would result from the use of off-road equipment as well as vehicles belonging to employees who commute and trucks that import and haul construction materials. Waterside GHG emissions during construction would result from the use of dredging equipment as well as tugboats, scows, and survey vessels.

Construction of the proposed project is expected to begin in 2021 and be completed by 2025. Table 4.3-6 summarizes the annual estimated GHG emissions from construction of the proposed project, amortized over the term of the lease, which is scheduled to expire in 2034 (14-year duration). As shown in Table 4.3-6, the year with the highest GHG emissions from project construction is expected to be year one of construction, when various elements and phases would occur concurrently during that year. Amortized emissions are added to operational emissions and compared to the 900 $MTCO_2e$ bright-line criteria in Table 4.3-7.

Table 4.3-6. Estimate of Construction GHG Emissions by Year ($MTCO_2e$)

Year	All Project Elements
2021	681
2022	224
2023	392
2024	309
2025	299
Total Emissions	1,905
Amortized Construction Emissions	136

Source: Appendix C.

Note: Totals may not add up exactly because of rounding.

Operational Emissions

As discussed in Section 4.3.4.1, the proposed project would result in operational efficiencies that would change the vessel fleet that could be serviced at the site. This change could result in larger but fewer ships serviced on a daily and annual basis. These larger ships require more tugboat power to berth safely, but because there would be fewer calls, annual activity and emissions would likely decrease.

Direct changes resulting from the larger ships include potential changes to tugboat and equipment activity. An estimate of existing and future emissions on an annual time scale associated with portable equipment and tugboat activity is presented in Table 4.3-7. As shown, proposed project operation would result in a decrease in GHG emissions on an annual basis compared to existing conditions. When combined with amortized construction emissions, however, there would be a slight overall increase in GHG emissions annually. This slight increase would still be significantly below the screening criterion of 900 $MTCO_2e$.

As discussed in Chapter 3, vessels carry a crew, and the size of the crew varies by vessel size and type (e.g., commercial or naval). The project would not add any new permanent employees and would reduce the amount of labor at the site depending on the type of vessel being serviced, but may increase the crew size due to the larger vessels. However, there would be an overall net reduction of personnel (both labor and crew) compared to existing conditions. Because labor and crew directly and indirectly produce emissions associated with vehicle commuting as well as utility consumption and generation (energy, water, waste), reducing activity at the project site is likely to reduce

emissions overall. However, to be conservative, the reduction in emissions from fewer vehicle trips and utility consumption is not assumed in Table 4.3-7.

Moreover, as discussed in Appendix C, the project would decrease occupancy at Pier 3 South when larger ships are at berth, resulting in fewer days per year that vessels are berthed. While the GHG emissions changes associated with fewer occupancy days were not quantified, it is reasonable to assume that this would reduce emissions on an annual basis given that activity at the BAE Systems facility is related to the presence of vessels.

Overall, the project would result in newer and larger ships that demand more power to berth, but once berthed, overall activity is expected to decrease. While combined construction and operation of the proposed project would result in a slight increase in annual GHG emissions, the project's contribution to existing GHG emissions levels over the life of the existing lease (2020–2034) would be relatively small. The increase in GHG emissions with implementation of the proposed project would be well below the screening level criteria. Over the long term, the state and District will move toward zero and near-zero technologies such as biodiesel, hybrid-electric, and liquefied natural gas technologies, as emission reduction plans (e.g., Scoping Plan, District CAP) are implemented, which would reduce emissions from project-related marine and off-road equipment uses. Each of these technologies would reduce GHG emissions but, in the case of biodiesel, might increase nitrogen oxides (NO_X). Therefore, as zero and near-zero technologies reduce emissions, project-related GHG emissions are expected to decline through the life of the project, and this impact would be considered less than significant. No mitigation is required.

Table 4.3-7. Estimate of Operational GHG Emissions

Condition	Source	Total HP	$MTCO_2e$ per year
Existing (Scenario 1)[1]	Generators and Fire Pumps	58,000	25
	Tug Activity	96,000	24
	Total	**--**	**49**
Existing (Scenario 2)[1]	Generators and Fire Pumps	58,000	25
	Tug Activity	108,000	28
	Total	**--**	**52**
Project	Generators and Fire Pumps	36,250	15
	Tug Activity	72,500	19
	Operations Only	**--**	**34**
	Amortized Construction Emissions		*136*
	Total	**--**	**170**
Net Operational Change with Project			
Scenario 1		--	-15
Scenario 2		--	-18
Net Overall Project Change			
Scenario 1		--	+121
Scenario 2		--	+118
Screening Level			900
Exceed Screening Level?			*No*

Source: Appendix C.

[1] Scenario 1 is two larger tugs and Scenario 2 is three smaller tugs and one pusher tug (see Table 4.1-7).

Note: Totals may not add up exactly because of rounding. HP = horsepower; $MTCO_2e$ = metric tons of carbon dioxide equivalent.

Level of Significance Prior to Mitigation

The proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Impacts would be less than significant.

Threshold 2: Implementation of the proposed project would conflict with an applicable plan, policy or regulation, including the District CAP and regulatory programs outlined in the Scoping Plan and adopted by CARB or other California agencies for the purpose of reducing the emissions of greenhouse gases.

Impact Discussion

The determination of significance herein is based on consistency with both the District's CAP and the relevant statewide regulatory programs. A measure or program was determined to be relevant and applicable if it contained elements that, based on the proposed project details, were a reasonably foreseeable part of the proposed project. If the project is found to be consistent with these programs and measures, then the project is not expected to impede state and local efforts established for the purpose of reducing GHG emissions.

Consistency with District CAP

As discussed in Section 4.3.3.4, the District's CAP fits the criteria within State CEQA Guidelines Section 15183.5 because it contains GHG reduction targets, and measures and goals to reach those targets, that align with statewide (AB 32) goals for 2020. If project construction is consistent with the CAP, it would be consistent with statewide GHG reduction goals for 2020. While the District's 2013 CAP would not be appropriate for analysis of the project's operational GHG impacts because it would expire before operations begin in 2025, post-2020 construction and operations associated with the proposed project are also included in the CAP consistency analysis for the purposes of disclosure.

The District's CAP includes numerous measures to reduce GHG emissions from District operations, including both maritime and landside sources. Before mitigation, the proposed project, as described, would be inconsistent with the District's CAP because it would not implement all relevant measures from the CAP, which would be a significant impact (**Impact-GHG-1**). The proposed project would be required to include various diesel reduction measures (**MM-GHG-1**) and reduction strategies from the CAP as mitigation (**MM-GHG-2**) to ensure consistency with both the CAP and statewide emission reduction efforts. Therefore, after mitigation, proposed project GHG emissions would not alter the

current District trajectory toward meeting its GHG reduction targets outlined in the CAP and beginning the downward trajectory toward post-2020 targets.

As mentioned above, the District's current CAP implementation does not extend beyond 2021, which is before the proposed project is anticipated to complete construction and become fully operational (2025). The District intends to update the CAP with GHG emission reduction measures and methodologies that will comply with regulatory state programs designed to address state GHG emission reductions post-2020. Many of the measures in the existing CAP will continue to be implemented and result in emission benefits well beyond the 2020 timeframe. At the time of this analysis, however, there is no schedule to complete the update of the District's CAP.

Table 4.3-8 outlines project consistency with the applicable District CAP measures. With mitigation measures **MM-GHG-1** through **MM-GHG-3**,the project would implement strategies addressing resource consumption from construction, reduce emissions from construction-related mobile sources, encourage energy-efficient design measures for new buildings, reduce waste and increase recycling, and be consistent with the applicable District CAP measures.

Table 4.3-8. Consistency with Applicable District CAP Measures for 2020

No.	CAP Measure Description	Project Consistency Analysis
Transportation and Land Use		
TA2	Support and promote non-Port-owned vehicles and vessels to achieve the lowest emissions possible, using a mix of alternative fueled, electric, or hybrid technology.	**Consistent (After Mitigation)**. The largest emission source from the proposed project would be the vessels and dredgers used during construction. **MM-GHG-3** requires the project proponent to use modern tugs, survey vessels, and dredgers available in the region.
TA6	Develop and encourage use of shore power for tugs.	**Consistent (After Mitigation)**. **MM-GHG-3** requires the project proponent to prioritize the use of tugboats and other vessels that meet Tier 3 emission standards, and that is maintained and properly tuned in accordance with manufacturers' specifications.
TE1	Use technology and other strategies to reduce fuel consumption.	**Consistent (After Mitigation)**. **MM-GHG-1** requires all commercial vehicles used during project construction, including delivery and haul trucks, to limit idling time to 3 minutes. Use of the best available tugs and dredgers during construction, per **MM-GHG-3**, will also reduce fuel consumption through use of modern, fuel-efficient equipment.
TE4	Promote best vehicle maintenance and operational best practices for harbor craft, including routine engine monitoring.	**Consistent (After Mitigation)**. Implementation of **MM-GHG-3** will ensure that tugboats used during construction will be obtained from contractors that promote best vehicle maintenance and operational best practices.

No.	CAP Measure Description	Project Consistency Analysis
TR1	Implement traffic and roadway management strategies to improve mobility and efficiency and reduce associated emissions on general roadways within Port tidelands.	**Consistent**. According to Section 4.9, *Transportation, Circulation, and Parking*, of this EIR, construction and operation of the proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system. Additionally, **MM-GHG-2** requires implementation of a Transportation Demand Management (TDM) Plan to minimize impacts on traffic operations during construction.
TR2	Implement traffic and roadway management strategies to improve mobility and efficiency and reduce associated emissions at maritime facilities.	**Consistent**. According to Section 4.9, *Transportation, Circulation, and Parking*, of this EIR, construction and operation of the proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system.
TR3	Vehicle Idling: Enforce state idling laws for commercial vehicles, including delivery and construction vehicles.	**Consistent (After Mitigation)**. **MM-GHG-1** requires all commercial vehicles, including delivery trucks, to limit idling time to 3 minutes, which is beyond that required by state law.
TP1	Adopt a comprehensive parking policy to unbundle the true cost of providing parking.	**Consistent (After Mitigation)**. In accordance with **MM-GHG-2**, the project proponent will implement a TDM Plan that promotes ride-sharing, restricts PM peak-hour trips, and provides subsidized transit passes to construction workers to reduce the number of worker trips and parking demand.
TV1	Implement trip reduction programs, such as ride sharing, telecommuting and alternative work schedules, commute trip reduction marketing, and employer-sponsored vanpool/shuttle.	**Consistent (After Mitigation)**. In accordance with **MM-GHG-2**, the project proponent will implement a TDM Plan that promotes ride-sharing, restricts PM peak-hour trips, and provides subsidized transit pass to construction workers to reduce the number of worker trips and parking demand.
Energy Conservation and Efficiency		
EB1	Establish green building standards and/or policy for new construction.	**Consistent (After Mitigation)**. In accordance with **MM-GHG-2**, construction of new buildings will include energy-efficient design features such as cool roofs, high-efficiency heating and cooling systems, high-efficiency lighting, among others.
EB2	Establish green building standards and/or policy for existing buildings.	**Consistent (After Mitigation)**. Refer to Measure EB1. The proposed project involves construction of two new buildings with energy-efficient design features, per **MM-GHG-2**.

No.	CAP Measure Description	Project Consistency Analysis
EB3	Develop energy efficiency performance standards that achieve a greater reduction in energy use than otherwise required by state law.	**Consistent (After Mitigation)**. **MM-GHG-2** requires the project to incorporate energy efficiency design features that exceed 2019 Title 24 California Building Energy Efficiency Standards. Measures that may be implemented include high-performance glazing; increased insulation; a cool roof; high-efficiency heating, ventilating, and air-conditioning systems and controls; and others.
EB6	Replace light fixtures in non-Port facilities with lower-energy bulbs, such as fluorescents, LEDs, or CFLs.	**Consistent (After Mitigation)**. **MM-GHG-2** requires the project to install a high-efficiency lighting system that includes fluorescents, LEDs, and CFLs or the most energy-efficient lighting that is commercially available.
EH1	Adopt a Heat Island Reduction Plan that uses cool roofs, cool pavements, and strategically placed shade trees and actively inspect and enforce state requirements for cool roofs on non-residential re-roofing projects.	**Consistent (After Mitigation)**. In accordance with **MM-GHG-2**, the project will install high-performance glazing with a low solar heat gain coefficient value to reduce the amount of solar heat allowed into the building without compromising natural illumination. The proposed project will also include a "cool roof" with an R value of 30 or better; sun shading devices, as appropriate; light-colored paving at the rooftop public plaza and park area to minimize the heat island effect; and an integrated green roof.
EH2	Urban Forestry Management: Develop an Urban Forestry Program to consolidate policies and ordinances regarding tree planting, maintenance, and removal.	**Consistent**. According to Section 4.2, *Biological Resources*, the proposed project would not conflict with any policies or ordinances protecting biological resources, including tree preservation policies or ordinances.
EL1	Develop and implement performance standards for exterior lighting of commercial and industrial buildings and parking lots that include minimum and maximum lighting levels while providing a safe environment.	**Consistent (After Mitigation)**. **MM-GHG-2** requires the proposed project to install or replace, where necessary, lower-energy bulbs, which will reduce energy consumption at the project site.
EL3	Install occupancy sensors (Vending Misers) at soda machines.	**Consistent (After Mitigation)**. **MM-GHG-2** requires that occupancy sensors be installed for all vending machines in new buildings at the project site.
Water Conservation and Recycling		
WC1	Adopt a Water Conservation Strategy.	**Consistent (After Mitigation)**. **MM-GHG-2** requires the project to reduce indoor water consumption to a level 20% lower than baseline buildings. The measure also requires incorporation of indoor and outdoor water reduction measures into the design, including high-efficiency toilets, high-efficiency urinals, low-flow faucets, and low-flow showers (as applicable), and the use of recycled water for landscaping.

No.	CAP Measure Description	Project Consistency Analysis
Alternative Energy Generation		
EA1	Implement on-site renewable energy generation policy for 2020 (solar power, wind power, methane recovery, wave power, etc.)	**Consistent (After Mitigation)**. The District has not yet developed an on-site renewable energy generation policy for 2020. However, **MM-GHG-2** requires the project proponent to implement on-site renewable energy, unless the system cannot be built in light of structural and operational constraints.
EA4	Establish policies and programs that facilitate the siting of new renewable energy generation.	**Consistent (After Mitigation)**. **MM-GHG-2** requires the project proponent to implement on-site renewable energy, unless the system cannot be built in light of structural and operational constraints.
EA5	Remove Barriers: Identify and remove or reduce barriers to renewable energy production.	**Consistent (After Mitigation)**. **MM-GHG-2** requires the project proponent to implement on-site renewable energy, unless the system cannot be built in light of structural and operational constraints.
EA7	Promote co-generation (i.e., combined heat and power system).	**Consistent (After Mitigation**). Consistent with **MM-GHG-2**, new buildings at the project site will have co-generation systems.
EA11	Implement a program to install technologies for generating energy from renewable sources, such as solar power, wind power, and/or wave power, on Port tidelands. Establish progressively more ambitious production goals for the years 2020, 2035 and 2050.	**Consistent (After Mitigation)**. As discussed above, **MM-GHG-2** requires the project proponent to implement on-site renewable energy, unless the system cannot be built in light of structural and operational constraints.
Waste Reduction and Recycling		
SW1	Increase the diversion of solid waste from landfill disposal.	**Consistent (After Mitigation)**. **MM-GHG-2** requires the project proponent to use recycled, regional, and rapidly renewable materials where appropriate. In addition, the measure requires compliance with AB 341 and AB 939 (i.e., recycling 75% of solid waste and 65% of all construction and demolition debris).
SW2	Adopt a Construction and Demolition Recycling Ordinance.	**Consistent (After Mitigation)**. **MM-GHG-2** requires the project to divert construction and demolition debris from disposal in landfills and incineration facilities by 65%. Construction will use recycled, regional, and rapidly renewable materials where appropriate.
SW3	Develop policy to reduce the generation of solid waste.	**Consistent (After Mitigation)**. Consistent with **MM-GHG-2**, the project proponent will require compliance with AB 939, which requires recycling 50% of solid waste and diverting 65% of all construction and demolition debris.

No.	CAP Measure Description	Project Consistency Analysis
Miscellaneous		
MP4	Require Port and encourage Port tenants to purchase goods and services that embody or create fewer GHG emissions.	**Consistent (After Mitigation)**. Consistent with **MM-GHG-2**, during construction, the project proponent will use recycled, regional, and rapidly renewable materials where appropriate.

Source: District 2013.

Consistency with Applicable AB 32 Scoping Measures for 2020

In addition to the District CAP, several other statewide measures are designed to reduce GHGs from emissions-generating activities to reach the state's 2020 reduction goals. Table 4.3-9 outlines the proposed project's consistency with applicable AB 32 Scoping Plan measures, pursuant to California's 2020 GHG reduction goals. The proposed project would be consistent with all applicable AB 32 scoping measures, pursuant to 2020 GHG emission reduction goals prior to mitigation, except for Scoping Plan measure RW-3-5 (environmentally preferable purchasing). Implementation of mitigation measure **MM-GHG-2** would ensure the proposed project would be consistent with RW-3-5.

Table 4.3-9. Consistency with Applicable AB 32 Scoping Plan Measures for 2020

No.	Measure Description	Project Consistency Analysis
T-1	Advanced Clean Cars	**Consistent**. State program that requires no action at the local or project level. Benefits to existing and future employee vehicle travel would be realized.
T-2	Low-Carbon Fuel Standard	**Consistent**. State program that requires no action at the local or project level. Benefits would be realized.
T-3	Regional Transportation-Related Greenhouse Gas Targets	**Consistent**. State program that requires no action at the local or project level. Benefits would be realized.
T-4	Vehicle Efficiency Measures 1. Tire Pressure 2. Fuel Efficiency Tire Program 3. Low-Friction Oil 4. Solar-Reflective Automotive Paint and Window Glazing	**Consistent.** State program that requires no action at the local or project level. Benefits to existing and future car and truck travel during construction would be realized.
T-6	Goods Movement Efficiency Measures 1. Commercial Harbor Craft Maintenance and Design Efficiency 2. Clean Ships	**Consistent**. State program that requires no action at the local or project level. Benefits to existing and future harbor craft activity during construction and operations would be realized.
T-7	Heavy-Duty Vehicle GHG Emission Reduction 1. Tractor-Trailer GHG Regulation 2. Heavy-Duty Greenhouse Gas Standards for New Vehicles and Engines (Phase I)	**Consistent**. State and federal programs that require no action at the local or project level. Benefits to construction-related truck travel would be realized.
E-3	33% Renewable Portfolio Standard	**Consistent**. State program that requires no action at the local or project level. Benefits to existing and future electricity consumption would be realized.

No.	Measure Description	Project Consistency Analysis
W-1	Water Use Efficiency	**Consistent**. Water use during construction is expected to be minimal, related only to dust control. Once constructed, crew and labor water demands are likely to decrease. State program that requires no action at the local or project level. Benefits would be realized at the project level.
RW-3-5	Environmentally Preferable Purchasing	**Consistent (After Mitigation)**. Compliance with **MM-GHG-2** will ensure procurement of goods and services that have reduced impacts on human health and the environment compared to competing products serving the same purpose. **MM-GHG-2** also addresses development of a waste reduction and recycling program, to be implemented during project construction.
H-4	Limit High Global Warming Potential Use in Consumer Products	**Consistent**. State program that requires no action at the local or project level.
H-5	1. Low Global Warming Potential Refrigerants for New Motor Vehicle Air-Conditioning Systems 2. Air-Conditioner Refrigerant Leak Test during Vehicle Smog Check	**Consistent**. State programs that require no action at the local or project level. Benefits would be realized independently.

Source: CARB 2008; CARB 2014.

Notes: T = Transportation Measures; E = Electricity Measures; W = Water Measures; H = High GWP Measures

Consistency with State Regulatory Programs Post-2020

CARB's 2017 Scoping Plan (for the 2030 target) builds on the programs set in place as part of the previous AB 32 Scoping Plan that was drafted to meet the 2020 reduction targets per AB 32. The 2017 Scoping Plan proposes meeting the 2030 goal by both accelerating the focus on several existing programs and incorporating new strategies and programs that go beyond existing measures and strategies. The project's consistency with the policies of the 2017 Scoping Plan (post-2020 State Regulatory Programs) is provided in Table 4.3-10. As shown, the proposed project would be consistent with all applicable policies in the 2017 Scoping Plan prior to mitigation because the applicable state programs do not require action at the project level. For example, the 2017 Scoping Plan incorporates SB 350, which extends the Renewable Portfolio Standard to a 50 percent target by 2030 while doubling the energy efficiency savings expected statewide. In addition, CARB expanded the low-carbon fuel standard, aiming to achieve an 18 percent reduction in the carbon intensity of transportation fuels. Furthermore, the Mobile-Source Strategy aims to support the transition to 1.5 million zero-emission vehicles (e.g., plug-in hybrid electric, battery-electric, hydrogen fuel cell) by 2025 and 4.2 million by 2030 while also ramping up GHG stringency for all light-duty vehicles. Each of these measures will be implemented over time, and benefits to project-related emissions sources will also be realized over time.

Table 4.3-10. Proposed Project Consistency with Applicable Policies from the 2017 Scoping Plan

Policy	Project Consistency Analysis
RPS 50% and Doubling of Energy Efficiency Requirements per SB 350	**Consistent.** State program that requires no action at the local or project level. Benefits to project-related electricity and water consumption would be realized.
Low-Carbon Fuel Standard	**Consistent.** State program that requires no action at the local or project level. Benefits to project-related employee travel, haul-truck travel, and harbor craft would be realized independently.
Mobile-Source Strategy (Cleaner Technology and Fuels) Scenario	**Consistent.** State program that requires no action at the local or project level. Benefits to project-related employee travel and haul-truck travel would be realized independently.

Source: CARB 2017.

The proposed project's consistency with other applicable CARB and statewide measures is discussed in Table 4.3-11. As shown, the proposed project would be consistent with applicable statewide measures prior to mitigation. In each case, the state program requires no action at the project level, and benefits to project-related emission sources will be realized over time.

Table 4.3-11. Proposed Project Consistency with Other Applicable Statewide Measures

Policy	Project Consistency Analysis
Pavley (AB 1493)	**Consistent.** State program that requires no action at the local or project level. Benefits to construction-related car travel would be realized.
100% Renewables Portfolio Standard	**Consistent.** Because this is a state program, this regulation requires no action at the local or project-level. Project-level benefits related to electricity consumption would be realized increasingly as operations approach 2045.
On-road Medium- and Heavy-Duty (Tractor-Trailer) GHG Regulation	**Consistent.** State and federal programs that require no action at the local or project level. Benefits to construction-related truck travel would be realized.
Airborne Toxic Control Measures and Emissions Standards	**Consistent.** State program that requires no action at the local or project level. Benefits to project-related off-road equipment use would be realized with implementation of newer emission-controlled engines.
Heavy-Duty Diesel Vehicle Idling Emissions Reduction Regulation	**Consistent.** State program that requires no action at the local or project level. Benefits to project-related on-road vehicle travel would be realized.
Commercial Harbor Craft Regulation	**Consistent.** State program that requires no action at the local or project level. Benefits to project-related tugboat use would be realized.
Title 24 Green Building Standards Code	**Consistent.** State program that requires no action at the local or project level. Benefits to the project would include reduction of waste during construction and operation as well as more efficient buildings.
Appliance Energy Efficiency Standards (Title 20)	**Consistent.** State program that requires no action at the local or project level. Benefits to the project would include use of more energy-efficient appliances in buildings at the project site.

Level of Significance Prior to Mitigation

Prior to mitigation, the proposed project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Potentially significant impact(s) include:

Impact-GHG-1: Inconsistency with District Climate Action Plan and Partial Consistency with Applicable GHG Reduction Plans, Policies, and Regulatory Programs. Project construction and operations would partially comply with plans, policies, and regulatory programs outlined in applicable District CAP measures and applicable state reduction goals and plans, policies, or regulations (AB 32 Scoping Plan Measures for 2020, State Regulatory Programs Post-2020, Policies from the 2017 Scoping Plan and Other Applicable Statewide Measures)for the purpose of reducing the emissions of GHGs. Therefore, prior to mitigation, the impact related to consistency with relevant plans, policies, and programs would be potentially significant.

Mitigation Measures

MM-GHG-1: Implement Diesel Emissions Reduction Measures During Project Construction. The project proponent shall implement the following measures during project construction and, where specified below, submit reports to the District for its review and approval, evidencing compliance.

A. The project proponent shall limit all construction equipment and haul truck idling times by shutting down equipment when not in use and reducing the maximum idling time to less than 3 minutes. The project proponent shall install clear signage regarding the limitation on idling time at the delivery driveway and loading areas and submit quarterly reports of violators to the District. BAE System supervisors shall enforce this measure, and repeat violators shall be subject to penalties pursuant to the California Airborne Toxics Control Measure, 13 CCR 2485. The project proponent shall submit evidence of the use of diesel reduction measures to the District's Development Services Department through annual reporting, with the first report due 1 year from the date of project completion.

B. The project proponent shall verify that all construction equipment is maintained and properly tuned in accordance with manufacturers' specifications. Prior to the commencement of construction activities, with respect to using diesel-powered vehicles or equipment, the project proponent shall verify that all vehicles and equipment has been checked by a mechanic experienced with such equipment and determined to be running in proper condition prior to admittance into the delivery driveway and loading areas. The project proponent shall submit a report by the mechanic experienced with such equipment of the condition of the construction and operations vehicles and equipment to the District's Development Services Department prior to commencement of their use.

MM-GHG-2: Comply with San Diego Unified Port District Climate Action Plan Measures. As a condition of all discretionary actions and/or Coastal Development Permits, the project proponent shall be required to implement the following measures to be consistent with the Climate Action Plan:

A. Reduce indoor water consumption to 20 percent lower than baseline buildings (defined by Leadership in Energy and Environmental Design [LEED] as indoor water use after meeting Energy Policy Act of 1992 fixture performance requirements) through use of low-flow fixtures in all administrative and common-area bathrooms.

B. Comply with AB 939 and the City of San Diego Recycling Ordinance. This shall be mandatory and include recycling at least 50 percent of solid waste; compliance with the City of San Diego Construction and Demolition Debris Deposit Ordinance shall be mandatory and include recycling at least 65 percent of all construction and demolition debris. This measure shall be applied during construction and operation of the proposed project.

C. Use only fluorescent lights, light-emitting diodes (LEDs), compact fluorescent lights (CFLs), or the most energy-efficient lighting that meets required lighting standards and is commercially available. This measure also requires replacement of existing lighting on the project site if not already highly energy efficient.

D. Implement a Transportation Demand Management (TDM) Plan during construction that includes elements such as the promotion of ride sharing and carpooling, restricts PM peak-hour trips, and provides subsidized transit passes for construction workers to reduce worker trips and parking demand.

E. Use recycled, regional, and rapidly renewable materials where appropriate during project construction.

F. Install occupancy sensors for all vending machines in new buildings at the project site.

G. Implement onsite renewable energy at new buildings, unless the system cannot be built in light of structural and operational constraints.

H. Incorporate energy efficiency design features that exceed the most recent Title 24 California Building Energy Efficiency Standards. Measures that may be implemented include:

- High-performance glazing with a low solar heat gain coefficient value that reduces the amount of solar heat allowed into the building, without compromising natural illumination;
- Increased insulation;
- Cool roofs with an R value of 30 or better;
- Sun shading devices, as appropriate;
- High-efficiency heating, ventilating, and air-conditioning systems and controls;
- Programmable thermostats;
- Variable-frequency drives; and
- High-efficiency indoor and outdoor lighting and control systems. Ensure all outdoor lighting is equipped with LED fixtures.

MM-GHG-3: Use Modern Vessels and Dredgers. Prior to commencing dredging during waterside construction, the project proponent shall ensure that tugboats, survey vessels, and dredgers for use during the duration of all dredging activities meet Tier 3 or better (cleaner) emission standards. If Tier 3 or better (cleaner) tugboats, survey vessels, and dredgers are not available within 200 miles of the BAE Systems leasehold for the duration of all dredging activities, the project proponent shall prioritize use of equipment that is maintained and properly tuned in accordance with manufacturers' specifications. The project proponent shall document and submit evidence to the District's Development Services Department prior to commencement of waterside construction activities that tugboats, survey vessels, and dredgers meeting Tier 3 or better standards are not available for use during the duration of all dredging

activities. Regardless of the equipment used, the project proponent shall verify that all equipment has been checked by a mechanic experienced with such equipment and determined to be running in proper condition prior to admittance into the construction area. The project proponent shall submit a report prepared by the mechanic experienced with such equipment of the condition of the construction and operations vehicles and equipment to the District's Development Services Department prior to commencement of their use.

Level of Significance after Mitigation

Implementation of mitigation measures **MM-GHG-1** through **MM-GHG-3** would reduce **Impact-GHG-1** by ensuring that the proposed project would be consistent with the District's CAP and other applicable statewide measures, pursuant to California's 2020 GHG emission reduction goals. Moreover, for the post-2020 period, the proposed project would be consistent with the applicable measures presented in the 2017 Scoping Plan. Given the project's low level of emissions and consistency with the District CAP, the 2017 Scoping Plan, and other strategies implemented by CARB through the life of the proposed project, impacts related to consistency with the District CAP and consistency with applicable state reduction goals and plans, policies, or regulations are deemed less than significant after mitigation.

Threshold 3: Implementation of the proposed project (a) would not result in a potentially significant environmental impact due to the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation and (b) would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Impact Discussion

Wasteful, Inefficient, or Unnecessary Consumption of Energy

CEQA requires a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Both construction and operation are addressed below.

Construction

Project construction would require energy in the form of diesel for operation of heavy-duty construction equipment and marine vessels as well as vehicles for material deliveries and debris hauling; gasoline would be required in construction workers' personal vehicles. As indicated in Table 4.3-12, project construction is estimated to require 23,726 million BTUs of energy over the construction period. This represents a small demand on local and regional fuel supplies and would be accommodated. Moreover, this demand for fuel would have no noticeable effect on peak or baseline demands for energy. Therefore, construction of the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy that could result in potentially significant environmental effects. Construction-related energy impacts would be less than significant, and no mitigation is required.

Table 4.3-12. Estimated Construction Energy Consumption

Source	Million BTUs Total
Diesel	
Truck Travel	3,581
Equipment	14,317
Vessels	4,753
Total Diesel	*22,652*
Gasoline	
Worker Commute	1,074
Total	**23,726**

Source: Appendix C.

Notes: Energy is provided in million BTUs for comparison purposes. Totals are shown for the All Truck Scenario (Project Element 4).

Totals may not add because of rounding

BTUs can be converted to gallons of gasoline and diesel using the following formulas: 113,927 BTU/1 gallon of gasoline; 129,488 BTU/1 gallon of diesel.

Operations

Several of the proposed project elements are infrastructure maintenance and modernization improvements and would not change existing operations at the project site. However, some elements would allow BAE Systems to improve operational efficiency, which would allow for servicing of newer and different classes of vessels, which would represent a change from existing conditions.

Sources at the project site that would involve the use of energy resources include off-road equipment operations, tugboats, employee commuting, periodic equipment and material deliveries, and utility-related consumption (e.g., electricity and natural gas in buildings, water consumption, wastewater, and solid waste generation). As shown in Table 4.3-13, the reduction in the number of annual vessels serviced under proposed project conditions would result in a decrease of approximately 228 million BTUs of diesel consumption compared to existing conditions due to the decrease in tugboat and off-road equipment activity. Moreover, as discussed in Chapter 3, and Section 4.9, *Transportation, Circulation, and Parking*, the proposed project would not add new permanent employees, and is expected to result in fewer total personnel (labor and crew) at the project site during times when fewer vessels are berthed. It is anticipated that with the net decrease in the crew and labor force and associated activity, proportional decreases in emission sources—such as natural gas, electricity, and water consumption; wastewater and solid waste generation; as well as operational mobile activity from employee commuting—would also occur. Therefore, the proposed project would result in a reduction in sources that consume energy in the form of diesel fuel in portable equipment and marine vessels and utility consumption.

The decrease in energy usage described above would be further augmented by implementation of statewide measures to reduce the carbon intensity and associated energy consumption of transportation fuels (i.e., low-carbon fuel) and the state's goal of zero-carbon electricity by 2045 (i.e., SB 100). New buildings constructed under the proposed project would be required to be designed in compliance with the building energy efficiency standards of the Title 24 building codes, which would further reduce energy demand compared to existing conditions. Therefore, the proposed project would reduce resource consumption by reducing annual activity and constructing

newer, energy efficient buildings in compliance with existing building codes. Thus, operation of the proposed project would not result in the wasteful, inefficient, and unnecessary consumption of energy that could result in potentially significant environmental effects. Operational energy impacts would be less than significant, and no mitigation is required.

Table 4.3-13. Estimated Change in Operational Energy Consumption

Source	Million BTUs per Year
Existing	
Portable Equipment	309
Tugboats	346
Total Existing	*655*
Project	
Portable Equipment	193
Tugboats	234
Total Project	*427*
Net Change	**-228**

Source: Appendix C.

Notes: Energy is provided in million BTUs for comparison purposes.

Totals may not add because of rounding

BTUs can be converted to gallons of gasoline and diesel using the following formulas: 113,927 BTU/1 gallon of gasoline; 129,488 BTU/1 gallon of diesel.

Table 4.3-14 outlines the applicability and analysis of the potential energy impact considerations from Appendix F, *Energy Conservation,* of the State CEQA Guidelines.

Table 4.3-14. Proposed Project Comparison to State CEQA Guidelines Appendix F

Project Impact Considerations from Appendix F	Project Applicability and Analysis
Energy requirements and energy use efficiencies by amount and fuel type for each stage of the project	**Applies.** See Table 4.3-12, which breaks down energy use by the amount and fuel type associated with project construction. As indicated, construction of the proposed project would temporarily increase the use of fossil fuels, such as diesel fuel, compared to existing conditions, during the construction timeframe. However, fossil fuel consumption during project operations, particularly diesel, would decrease compared to existing conditions because of a reduction in the number of vessels that could be serviced on an annual basis.
Effects on local and regional energy supplies and the need for additional capacity	**Applies.** There would be no adverse effects on local or regional energy supplies. Nearly all project-related energy demands would be accommodated by existing infrastructure, without the need to expand capacity. Moreover, there would be a net reduction in labor and crew, which will reduce energy consumption, and new buildings will be built to existing building codes.

Project Impact Considerations from Appendix F	Project Applicability and Analysis
Effects of the project on peak- and base-period demands for electricity and other forms of energy	**Applies.** Energy load would vary over time, but the current supply and infrastructure would be able to accommodate the additional demand associated with project construction, without interruptions or issues for existing customers and without the need for new infrastructure. The project does not propose demand that would affect peak- and base-period demand.
Degree to which the project complies with existing energy standards	**Applies.** The proposed project would be fully compliant with all existing energy standards, including the Energy Policy Act and AB 2076. The project would include energy-efficient lighting within the project site and reduce the use of fossil fuels during operation by decreasing the number of vessels serviced on an annual basis.
Effects of the project on energy resources	**Applies.** The proposed project would not result in an adverse impact on energy resources. There are sufficient energy resources available to accommodate the additional energy demand during project construction. Once operational, it is anticipated that the project's energy demand would decrease compared to existing conditions.
Projected transportation energy use requirements and overall use of efficient transportation alternatives	**Applies.** Operation of the proposed project would not increase the need for fossil fuels or electricity compared to baseline conditions because the number of vessels that could be serviced would decrease, which would result in a corresponding decrease in crew size and labor at the site. As a result, fossil fuel consumption for tugboat activity and workers' commutes would also decrease. Therefore, the project would reduce the amount of fossil fuels needed compared to existing operations at the site.

In summary, the proposed project would assist with energy conservation goals because it would (1) decrease reliance on fossil fuels and (2) increase reliance on renewable energy sources from the electrical grid, which includes RPS targets of 50 percent renewable energy by 2030 and 100 percent carbon free by 2045. Overall, construction and operation of the proposed project would not result in the wasteful, inefficient, and unnecessary consumption of energy that could result in potentially significant environmental effects. Impacts would be less than significant, and no mitigation is required.

Conflict with or Obstruct Renewable Energy or Energy Efficiency Plans

State and local renewable energy and energy efficiency plans that are applicable to the proposed project are discussed above in Section 4.3.3, *Applicable Laws and Regulations.* State plans, California Title 24 energy efficiency standards, EO B-16-12, SB 350, and SB 100 contain required standards related to energy efficiency and renewable energy development. The proposed project is required to comply with the plans and regulations, all of which are aimed at increasing energy efficiency and renewable energy development. Building energy efficiency is expected to increase as a result of compliance with Title 24 building codes, which are expected to move toward zero net energy for newly constructed buildings, with 100 percent of retail electricity sales to California end users and state agencies to be provided by zero-carbon resources under SB 350 and SB 100 regulations. Applicable local plans that address energy efficiency include SANDAG's RES and the District's Green Port Program, Green Port Policy, and CAP.

SANDAG's RES established long-term goals related to energy efficiency, renewable energy, distributed generation, and transportation fuel, among others. The strategies and goals found in the RES were used as guidance for development of the energy components of the 2050 RTP/SCS. Because the proposed project would not result in any changes in land use or include any components that would result in population growth, unplanned or otherwise, the project would be consistent with the 2050 RTP/SCS and the technical strategies to address energy efficiency from SANDAG's RES.

The District has implemented various renewable energy and energy efficiency actions through its Green Port Program. Many of these actions are implemented through the District's CAP, which focuses heavily on energy efficiency and renewable energy generation as key strategies to reducing GHG emissions. As such, the CAP serves as the plan that implements the District's energy goals and is therefore considered an energy efficiency plan relevant to the proposed project (District 2020). The CAP measures that address energy efficiency include use of low-flow fixtures, low-water plantings, energy-efficient lighting, use of recycled materials, implementation of a traffic demand management plan, installation of onsite renewable energy and co-generation systems (i.e., combined heat and power systems) in new buildings, and incorporation of energy efficiency design features that exceed Title 24 California Building Energy Efficiency Standards. Moreover, the District is currently installing a solar-powered microgrid at the Tenth Avenue Marine Terminal, and the District currently operates solar energy systems at four sites: Port Administration Building, Port Pavilion on Broadway Pier, B St. Cruise Ship Terminal, and the District's General Services Building. The District continues to pursue renewable energy projects elsewhere on the tidelands.

Overall, implementation of the proposed project is not expected to conflict with or obstruct the District's energy efficiency goals as outlined in the plans discussed above. As discussed further under Threshold 2, the proposed project would be required to implement mitigation measures **MM-GHG-1** through **MM-GHG-3** to ensure consistency with the CAP. While no mitigation is required to address energy impacts specifically, **MM-GHG-1** through **MM-GHG-3** would further reduce the proposed project's energy demand and would ensure efficient use of energy during construction and operation. The proposed project would not conflict with or obstruct state and local renewable energy and energy efficiency plans, and impacts would be less than significant.

Level of Significance Prior to Mitigation

Implementation of the proposed project would not result in the wasteful, inefficient, and unnecessary consumption of energy that could result in potentially significant environmental effects, nor would it conflict with state and local renewable energy and energy efficiency plans. Impacts would be less than significant.

Mitigation Measures

No mitigation is required, although mitigation measures **MM-GHG-1** through **MM-GHG-3** would further reduce the project's energy demand and reduce fossil fuel use.

Level of Significance after Mitigation

Impacts would be less than significant.

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Section 4.4
Hazards and Hazardous Materials

4.4.1 Overview

This section describes the existing conditions within the project area and applicable laws and regulations for hazards and hazardous materials. This section also provides an analysis of the proposed project's potential to (1) 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, and (2) be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The analysis and conclusions regarding air pollutants and their associated health risk are discussed in Section 4.1, *Air Quality and Health Risk*, and water pollutants are discussed in Section 4.5, *Hydrology and Water Quality*, and not in this section. All other potential hazards and hazardous materials issues were analyzed in Section VIII of the Initial Study/Environmental Checklist (see Appendix A) and determined to have no impact or less-than-significant impacts. The analysis and conclusions regarding these issues are summarized in Chapter 6, Section 6.4, *Effects Not Found to Be Significant*.

Information on hazards and hazardous materials in this section is summarized from the following reports:

- *Hazardous Materials Technical Study; BAE Systems Waterfront Improvement Project; 2205 East Belt Street, San Diego, California* (Ninyo & Moore 2019) (Appendix E);
- *North Shipyard Remedial Action Plan Implementation Report, San Diego Shipyard Sediment Site – North Shipyard* (Cleanup and Abatement Order No. R9-2012-0024) (Anchor QEA 2016a); and
- *Final Cleanup and Abatement Completion Report, San Diego Shipyard Sediment Site* (Cleanup and Abatement Order No. R9-2012-0024) (Anchor QEA 2016b).

Table 4.4-1 summarizes the significant impacts and mitigation measures discussed in Section 4.4.4.3, *Project Impacts and Mitigation*.

Table 4.4-1. Summary of Significant Hazards and Hazardous Materials Impacts and Mitigation Measures

Summary of Potentially Significant Impact(s)	Summary of Mitigation Measure(s)	Level of Significance After Mitigation	Rationale for Finding After Mitigation
Impact-HAZ-1: Landside Potential to Encounter Hazardous Materials in Soil and/or Groundwater	**MM-HAZ-1:** Implement a (Landside) Soil and Groundwater Management Program	Less Than Significant	Implementation of a (Landside) Soil and Groundwater Management Program that includes: A. Contamination Characterization Report; B. Soil and Groundwater Testing and Profiling Plan; C. Soil and Groundwater Disposal Plan; D. Site Worker Health and Safety Plan; E. Site-Specific Community Health and

Summary of Potentially Significant Impact(s)	Summary of Mitigation Measure(s)	Level of Significance After Mitigation	Rationale for Finding After Mitigation
			Environmental Program; F. Monitoring and Reporting Program; and G. Project Closeout Report would reduce potential impacts associated with encountering hazardous materials in soil and/or groundwater to less than significant.
Impact-HAZ-2: Waterside Potential to Encounter Hazardous Materials in Sediment	**MM-HAZ-2:** Implement a Dredging Management Program **MM-HAZ-3:** Implement a (Waterside) Sediment Management Program **MM-HAZ-4:** Comply with Federal and State Permits **MM-HAZ-5:** Implement Post-Dredging and/or Post-Waterside Construction Remediation	Less than significant	A Dredging Management Program would be implemented prior to, during, and upon completion of dredging activities, and includes: A. Dredging Operations Plan; B. Contingency Plan; C. Health and Safety Plan for Dredging Activities; D. Communication Plan; and E. Sediment Sampling and Remediation. Implementation of the (Waterside) Sediment Management Program includes: A. Sampling Analysis Plan; B. Marine Sediment Contamination Characterization Report; C. Contaminated Sediment Management Plan; D. In-Water Activity Specific Procedures; and E. Post-Construction Sampling and Analysis. All federal and state permits required for in-water construction activities shall be obtained prior to in-water construction, and evidence of such permits shall be provided to the District. Implementation of the Post-Dredging and/or Post-Waterside Construction Remediation would ensure that if after in-water construction work concentrations of COCs exceed those set forth in CAO R9-2012-0024, the project proponent shall propose and conduct remediation subject to approval by the RWQCB and concurrence by the District. Implementation of these mitigation measures would reduce potential impacts associated with encountering hazardous materials in sediment to less than significant.

4.4.2 Existing Conditions

The following section presents the historical and current activities at the project site, and the known extent of onsite contamination both as determined through past investigations and through a review of available records. This section also discusses the project site's proximity to schools and airports as well as the applicable emergency response plan.

4.4.2.1 Historical Activities

The project site has been developed for more than a century as a shipyard conducting the same, or similar, services as it does today. Much of the project site was originally part of the San Diego Bay with a few piers extending into the Bay, until the 1940s when the shoreline was extended into the Bay with filled land. The landside portion of the project site was occupied with buildings, warehouses, and wharfs since this time (Ninyo & Moore 2019). BAE Systems has occupied the project site since 1979.

The BAE Systems shipyard facility has included several structures over the years including concrete platforms, three floating drydocks, five piers, and two marine railways that enable ships to be launched or repaired with the assistance of cranes. One drydock was present on the project site until 2010. The smaller of the two remaining drydocks, "Pride of San Diego", has been in operation since 1984, and the larger drydock, "Pride of California", began operation in 2017 upon completion of the BAE Systems Pier 1 North Drydock project.

4.4.2.2 Current Site Conditions

The landside facilities currently consist of administrative offices, production shops, training areas, and related utilities and infrastructure. The northwestern landside portion of the project site is currently used as a parking and staging area, and consists of several pre-fabricated metal storage buildings and parking spaces. This parcel was previously used by San Diego Gas & Electric (SDG&E) for the storage of plant waste from the Silver Gate Power Plant, located approximately 180 feet northeast of the northern landside portion of the project site. The parcel has been consistently occupied and used by BAE Systems through various sub-tenancy agreements with SDG&E since approximately 1979. The primary right to occupy the parcel was officially transferred to BAE Systems through a Tidelands Use and Occupancy Permit (TUOP), effective between the District and BAE Systems on November 1, 2014.[1] Two former underground water tunnels for non-contact cooling water traverse the site from the power plant to the Bay.

4.4.2.3 Surrounding Land Uses and Activities

The surrounding vicinity is highly industrialized, primarily consisting of marine-related services, such as R.E. Staite Engineering, Inc., a marine construction contractor, and CP Kelco, a hydrocolloid manufacturer, both of which are immediately adjacent to the north of the project site. In addition, the Tenth Avenue Marine Terminal (TAMT), which handles refrigerated containers, dry bulk, liquid, bulk, and other cargo, is approximately 0.5 mile north of the project site beyond the San Diego-Coronado Bay Bridge, while General Dynamics NASSCO, a shipbuilding and repair facility, is located immediately adjacent to the south of the project site. Several railways, including the Burlington-

[1] BAE Systems' existing TUOP expired on October 31, 2019, and BAE is currently on holdover.

Northern Santa Fe (BNSF) rail line and the Metropolitan Transit System (MTS) trolley tracks, traverse the project area.

4.4.2.4 Existing Onsite Storage and Use of Hazardous Materials

The project site is classified under the Resource Conservation and Recovery Act (RCRA) as a Large Quantity Generator (LQG), which is a facility that generates, transports, stores, treats, and/or disposes of hazardous waste, as defined by RCRA, in amounts over 1,000 kilograms (kg) for hazardous waste or 1 kg for acutely hazardous waste per month (EPA 2019a). The project site generates waste categorized as ignitable waste, methyl ethyl ketone, and spent nonhalogenated solvents. Based on a Biennial Report from 2007 (last available report on the EPA Envirofacts database), the site generated 6.7 tons of waste that was shipped off site (EPA 2019b). The site is listed under several different names and EPA ID numbers (see Appendix E for environmental database listings).

4.4.2.5 Hazardous Materials Database Results

A review of applicable regulatory agency lists of known and potential hazardous waste sites, properties or facilities currently under investigation for potential environmental violations, and sites storing or using hazardous materials within 0.125 mile of the project site was conducted on December 14, 2018.[2] The project site, which was captured in 150 cases, was listed under various names, including, but not limited to: BAE Shipyard, Frazier Boiler Service, NASSCO, Lockheed Martin Global Training & Logistics, California Marine Cleaning, Southwest Marine, Chevron USA Inc., Bumble Bee Seafoods, Austal USA, Shipyard Sediment Site – North Shipyard, Corrpro Companies Inc., and AMSEC LLC. Because of the large number of listings for the project site, the results were screened and additional information is provided for the listings that were considered a potential environmental concern. Figure 4.4-1 shows the location of known hazardous materials sites within the project site.[3] Tables 4.4-2 and 4.4-3 list the onsite and offsite contamination sites, respectively.

An initial screening of offsite hazardous material sites was conducted and only those that met the screening criteria are presented in the tables below. The full list of sites within 0.25 mile of the project site are identified in Appendix E.

[2] EDR searches over 1,600 environmental databases, including hundreds of state, city, and tribal sources, for historical and current environmental records, aerial photographs, and maps. Some of the sources include the National Priority List site list; Comprehensive Environmental Response; Compensation and Liability Information System database; Resource Conservation and Recovery Act lists; Spills, Leaks, Investigations, and Cleanup cases; underground storage tank lists; and the California Hazardous Material Incident Report System.

[3] The site locations identified on the map are approximate because the extent of contamination and/or the exact location of sites are not always available.

AERIAL SOURCE: ESRI basemaps
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83, U.S. Feet.

LEGEND:

Remediation Boundary

Source: Final Cleanup and Abatement Completion Report" 2016. Anchor QEA.

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Figure 4.4-1
CAO R9-2012-0024 Remediation Area
BAE Systems Waterfront Improvement Project

Onsite

As discussed above in Section 4.4.2.1, hazardous materials are currently stored and used on site during typical operational procedures. The Hazardous Materials Technical Study (HMTS) for the proposed project identified 150 listings, under several different names, that correspond to the location of the project site. Due to the large number of listings, Table 4.4-2 provides a description of the history and nature of the listings corresponding to the project site that are considered a potential environmental concern.

Offsite

Table 4.4-3 lists sites that are within 0.125 mile of the project site that were determined to represent a potential environmental concern to the project site based on the proximity and the nature of the database on which they are listed. The other sites that did not meet the screening criteria are included in Appendix E.

Table 4.4-2. Onsite Listings of Potential Concern

Number	Site Name	Address	Database Listings	Site Summary	Status
1.	BAE Systems	2205 East Belt Street	ERNS, CHMIRS	There were 55 listings on the ERNS database for this site, primarily for releases of fuels, oils, paints, bleach, and sand-blasting materials, or an unknown oily sheen, to the San Diego Bay. No listed releases to land. Three of the listings describe an oily sheen on the Bay from contaminated soil from construction projects on the landside. One of these listings specifically identified landside work on Pier 4 bulkhead. One of these listings identifies the oily sheen as from creosote piles. There were 42 listings on the CHMIRS database, most of which were duplicates from the ERNS listings. No landside releases were identified.	Various
2.	Southwest Marine Inc.	1427 W Sampson Street	San Diego Co. SAM	One listing associated with an unauthorized release case (H09689-003) was identified on the project site. An unauthorized release of petroleum was discovered in 2002 when installing an electric conduit along the bulkhead between Piers 3 and 4. Soil and groundwater investigations indicated an area of diesel-impacted soil, an area with gasoline-impacted soil, and a gasoline- and diesel-impacted groundwater plume on the project site.	Remedial investigation
3.	Southwest Marine Inc.	2205 E Belt Street and Foot of Sampson Street	LUST, CPS-SLIC	Two LUST listings were associated with one closed unauthorized release case (H09689-002) for the release of diesel fuel to soil. Reportedly, a former 10,000 gallon diesel UST was cleaned, filled, and closed in place, at which time contaminated soil was discovered at the location of a former fuel dispenser. It was estimated that less than 10 cubic yards of hydrocarbon impacted soil is present on site. Based on the industrial usage of the site it was determined the levels of contamination would not pose a threat to human health and the case was closed in 1998. The CPS-SLIC listing is associated with two cleanup program sites. The first is (H09689-001) under DEH jurisdiction, which is associated with dredged sediments along Pier 1 that were stockpiled, dewatered, and either disposed of or reused off site. The case was closed in 1993. The second listing is a	Case Closed

Number	Site Name	Address	Database Listings	Site Summary	Status
				duplicate listing of the San Diego Bay Shipyard Sediment Cleanup, described below.	
4.	BAE Systems San Diego Ship Repair	2205 East Belt Street	CPS-SLIC/FINDS, ENF	The CPS-SLIC and FINDS listings are associated with the San Diego Shipyard Sediment Cleanup for the NASSCO and BAE Leaseholds. The portion of the cleanup site that is located on the project site is referred to as the North Shipyard Cleanup. Sediments with elevated levels of metals and other pollutants were removed and disposed of off site. Sediments that were not feasible to remove were covered with a sand/gravel cap. Cleanup activities were completed in 2016. The one ENF listing includes numerous violations and enforcement actions related to their National Pollutant Discharge Elimination System (NPDES) Permit from 1989 to 2015. Potential impacts to Bay sediments from storm water discharges are addressed on the CPS-SLIC/FINDS listing.	Post-remedial monitoring and evaluation
5.	Lockheed Martin Missiles and Fire Control ISEAFS	2205 E Belt Street	ICIS, ECHO	The ICIS listing indicates the facility received 14 informal and formal enforcement actions associated with their NPDES permit. No more details were available. The ECHO listing was associated with reports of the facility in non-compliance with their NPDES Permit in 7 of the last 12 quarters. However, the listing indicates there were no quarters with a significant violation.	
6.	Pacific Ship (BAE Systems)	2205 East Belt Street	ICIS	The listing includes one formal enforcement action; however, additional details were not available.	

CHMIRS = California Hazardous Material Inventory Reporting System
CPS-SLIC = Cleanup Program Sites-Spills, Leaks, Investigation and Cleanup
ECHO = Enforcement & Compliance History Information
ENF = Enforcement Action Listing
ERNS = Emergency Response Notification System
FINDS = Facility Index System/Facility Registry System
ICIS = Integrated Compliance Information System
LDS = Land Disposal Sites
LUST = Leaking Underground Storage Tank
PAHs = polyaromatic hydrocarbons
PCBs = polychlorinated biphenyls
RWQCB = Regional Water Quality Control Board
San Diego Co. SAM = Site Assessment and Mitigation
TPH = total petroleum hydrocarbons
WDS = Waste Disposal Sites
Source: Appendix E

Table 4.4-3. Offsite Listings of Potential Concern

Number	Site	Address	Distance from the project	Database Listings	Site Summary	Status
1.	Harbor Boat and Tug/ISP Alginates/R.E. Staite Engineering/Kelco Division of Merck & Co., Inc./CP Kelco	2145 East Belt Street	Adjacently north-northwest	Envirostor, LUST, CPS-SLIC, AST, SWEEPS UST, HIST UST, SEMS Archive, RCRA – LQG, San Diego Co., SAM & HMMD, UST, NY Manifest, EMI, Hist Cortese	The facility is listed associated with 10 closed unauthorized release cases (H02377-001 through -010), most of which are associated with releases of fuels and/or oils to soil. The case closure summary for H02377-009 identified 30 areas of concern where contaminants had been detected. The DEH concluded no further action for 26 of the areas of concern, and deferred investigation for 4 of the areas of concern due to existing uses prevented access. Chlorinated solvents were detected in groundwater on the site; however, the highest concentrations were in the north portion (upgradient side), and the facility does not have a history of significant use of chlorinated solvents, so the DEH concluded the solvents were likely released from an upgradient property.	Case Closed
2.	Silver Gate Power Plant	1348 Sampson Street	Adjacently north	HIST UST, CIWQS, FINDS, RCRA-LQG, LUST, SWEEPS UST, HIST CORTESE, CPS-SLIC, San Diego Co. HMMD, SAM & LOP	These listings include one closed and one open unauthorized release case. The closed case was a fuel oil leak. A portion of the contaminated soil was removed and some was left in place. The case was closed in 1988. The open case was an unauthorized release case of gas and solvents to soil and surface water related to a UST that was closed in place in 2006. Contaminated soil identified during this closure was remediated during the closure of the power plant in 2007. 250 cubic yards of contaminated soil was left on site, and low levels of contaminants were detected in groundwater.	Open

Number	Site	Address	Distance from the project	Database Listings	Site Summary	Status
3.	RCO Terminal/Tesoro Logistics San Diego Terminal	2295 Harbor Drive	580 feet east-northeast	LUST, AST, UST, TRIS, RCRA-LQG, FINDS, ECHO, HIST AUTO, FUELS Program, SWEEPS UST, ICIS, US AIRS, FINDS, San Diego Co. SAM, HMMD, & LOP, CPS-SLIC, HIST UST, EMI, HAZNET, HIST CORTESE, NPDES, CIWQS	The site is associated with five unauthorized release cases that have been administratively combined into one. A letter from the RWQCB intends to close the open case with a status of no further action. Most recent reports available indicate groundwater monitoring well closest to the project site indicates low concentrations of benzene and methyl tertiary butyl ether (MTBE) were present and the flow direction of the groundwater plume is to the south.	Closure pending

AST = aboveground storage tank
CHMIRS = California Hazardous Material Inventory Reporting System
CIWQS = California Integrated Water Quality System
CPS-SLIC = Cleanup Program Sites – Spills, Leaks, Investigation and Cleanup
ECHO = Enforcement & Compliance History Information
EMI = Emissions Inventory Data
FINDS = EPA's Facility Identification Systems
FUELS Program = Listing of facilities registered under the Code of Federal Regulations Part 80.
HAZNET = California Hazardous Waste Information System
HIST = Hazardous Substance Storage Container
HIST AUTO = Historical Auto Stations
HIST CORTESE = Hazardous Waste & Substances Site List
HMMD = Hazardous Material Management Division
ICIS = Integrated Compliance Information System
LDS = Land Disposal Sites
LOP = Local Oversight Program
LUST = Leaking Underground Storage Tank
NPDES = National Pollutant Discharge System
NY Manifest = Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.
PAH = polynuclear aromatic hydrocarbon
PCBs = polychlorinated biphenyls
RCRA-SQG = Resource Conservation and Recovery Act – Small Quantity Generator
RCRA-LQG = Resource Conservation and Recovery Act – Large Quantity Generator
SAM = Site Assessment and Mitigation
SEMS Archive = Superfund Enterprise Management System Archive
SLIC = Spills, Leaks, Investigations, and Cleanups
SWEEPS UST = Statewide Environmental Evaluation and Planning System
TPH = total petroleum hydrocarbons
TRIS = Toxic Release Inventory System
US AIRS = Aerometric Information Retrieval System
UST = Underground Storage Tank
Source: Appendix E

4.4.2.6 Historical Contamination

Several past site subsurface investigations and soil characterizations have occurred at different areas throughout the project site. The following reports were summarized in the HMTS prepared for the proposed project (Appendix E).

Available on the County of San Diego's Department of Environmental Health's (DEH) online records database, the *Additional Soil and Groundwater Investigation Southwest Marine* (EnecoTech Southwest, Inc. 2002) summarizes site assessment activities performed in the southern landside portion of the site between Buildings 10 and 40, in the vicinity of the hazardous materials storage area in 2002. This location also seems to correspond to the location of steel oil aboveground storage tanks (ASTs) near the bulkhead between Pier 3 and Pier 4, noted on the Sanborn maps dated 1956 through 1971 that were reviewed as part of the proposed project's HMTS, BAE Systems Waterfront Improvement Project (Appendix E). Petroleum hydrocarbons in the diesel range were detected in groundwater, and petroleum hydrocarbons in the gasoline range were detected in soil and groundwater. DEH opened an unauthorized release case associated with the findings (H09689-003), which was then referred to the San Diego Regional Water Quality Control Board (RWQCB). However, records of the case were not located on the RWQCB's online record database. Because a resolution of this unauthorized release case is not clear, it is likely subsurface contamination exists at this site.

In addition, the document "Site Assessment Report, Landside Tidelands Lease Area, Silver Gate Power Plant" evaluated the former wastewater ponds from the Silver Gate Power Plant, located in the northern landside portion of the project site, which was formerly leased by SDG&E (ENV America Inc. 2004). Soil and groundwater samples were collected from two settling/evaporation ponds (Ponds A and B), and two oil/water separation ponds (Ponds C and D) were discovered after the field work had been completed. Petroleum hydrocarbons in gasoline, diesel, and heavy ranges were detected, as well as volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), chromium, and lead were detected in the soil. Petroleum hydrocarbons in the gasoline range and chlorinated hydrocarbons were detected in groundwater samples. Additional site assessment activities were performed at the historical wastewater ponds, as well as sediment from the cooling water tunnels located beneath the project site. Petroleum hydrocarbons, VOCs, polynuclear aromatic hydrocarbons (PAHs), PCBs, and metals were detected in soil samples. Petroleum hydrocarbon, VOCs, fluoranthene, and metals were detected in groundwater samples. Sediment samples contained petroleum hydrocarbons, benzene, PAHs, PCBs, and metals.

In 2012, a Cleanup and Abatement Order (CAO) R9-2012-0024*, San Diego Bay Shipyard Sediment Cleanup for the NASSCO and BAE Leaseholds* (San Diego Bay Shipyard Sediment Cleanup) was issued by the San Diego RWQCB for sediment contamination within the General Dynamics NASSCO and BAE Systems leaseholds. The contamination boundary of the CAO is collectively referred to as the Shipyard Sediment Site and is depicted on Figure 4.4-2. The Shipyard Sediment Site was divided into the North Shipyard (the property leased by BAE Systems) and the South Shipyard (the property leased by NASSCO). The CAO established cleanup levels for primary contaminants of concern (COCs) of copper (121 milligrams per kilogram [mg/kg]); mercury (0.57 mg/kg); high-molecular weight polycyclic aromatic hydrocarbons (HPAHs), which was defined as the sum of fluoranthene, perylene, benzo(a)anthracene, chrysene, benzo(a)pyrene, and dibenzo(a,h)anthracene (663 micrograms per kilogram [µg/kg]); PCBs (defined as 41 select congeners; 84 µg/kg); and tributyltin (TBT) (22 µg/kg). Cleanup levels for secondary COCs were established for arsenic (7.5 mg/kg), cadmium (0.33 mg/kg), lead (53 mg/kg), and zinc (192 mg/kg).

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Figure 4.4-2
Project Elements
BAE Systems Waterfront Improvement Project

The waterside portion of the project site lies within the North Shipyard boundary. The *North Shipyard Remedial Action Plan Implementation Report* (Anchor QEA 2016a) indicated that approximately 114,085 cubic yards (cy) of impacted sediments within the North Shipyard were removed and disposed off site. In total, approximately 142,745 cy of contaminated sediment were removed from both the North and South Shipyard cleanup boundaries. Impacted sediment that could not be removed due to risk of undermining slopes or existing structures was covered with a sand or gravelly sand cover. Remedial activities under the CAO were completed on April 15, 2016, and the site was moved into post-remedial monitoring to evaluate the effectiveness of the remedial action. Although the RWQCB concurred that the cleanup was performed to their satisfaction, it allowed for sediments with concentrations in excess of the cleanup levels to be left in-place and covered.

The CAO R9-2012-0024 stipulated post-remedial monitoring would be conducted 2 years (2018) and 5 years (2021) after the completion of the remediation to confirm remedial goals continue to be achieved. The Year 2 Post-Remedial Monitoring Progress Report was prepared in February 2019 (Anchor QEA 2019). The monitoring for the North Shipyard occurred from mid to late 2018. The remedial goals as stated in the 2012 CAO are:

1. Composite site-wide SWACs below the Trigger Concentrations identified for each COC in the CAO;
2. Sediment chemistry below SS-MEQ and 60 percent LAET thresholds;
3. Toxicity not significantly different from conditions at the reference stations described in Finding 17 and in the Technical Report for Cleanup and Abatement Order No. R9-2012-0024 for the Shipyard Sediment Site, San Diego Bay, San Diego, CA; and
4. The average of stations sampled shows bioaccumulation levels below the pre-remedial levels.

In 2017, the RWQCB issued Investigative Order No. R9-2017-0083 requesting further sediment chemistry investigation in the Bay to the north of BAE Systems leasehold (Geosyntec Consultants 2019). The investigation further delineated the extent and magnitude of pollutants discharged by SDG&E and BAE Systems (in the current leasehold of CP Kelco) to determine if additional cleanup and abatement activities are required to restore the Bay (RWQCB 2017). The northernmost end of the remedial dredging footprint for CAO R9-2012-0024 was limited to within the current BAE Systems leasehold, even though the sediment data upon which the CAO was based showed the impacted sediment extended beyond the leasehold boundary to the north. The full extent of the contamination was not fully delineated at the time of the North Shipyard remediation, which was completed in 2016. Surface and subsurface sediment samples were collected from the area of investigation in the offshore leasehold of CP Kelco, adjacent to the project site. Additionally, solid samples from catch basins were taken from within the BAE Systems leasehold as part of the Sampling and Analysis Report, which is part of the project site. The initial results of the sampling indicate elevated concentrations of PCBs, PAHs, and some metals are present in the Investigation Area.

4.4.2.7 Proximity to Schools

The project site is approximately 0.30 mile south of San Diego Continuing Education – Cesar E. Chavez Campus (1901 Main St, San Diego, CA 92113), and approximately 0.48 mile south of Perkins Elementary School (1770 Main Street, San Diego, CA 92113). Other schools nearby include Monarch School approximately 0.64 mile to the northwest, Marcy School approximately 0.50 mile to the

northeast, Burbank Elementary School 0.57 mile to the northeast, Memorial Preparatory For Scholars & Athletes approximately 0.63 mile northeast, King Chavez Academy of Excellence approximately 0.61 mile to the northeast, Logan K-8 School 0.78 mile to the northeast, Rodriguez Elementary School approximately 0.95 mile to the northeast, and Emerson-Bandini Elementary School approximately 1.37 miles to the east.

4.4.2.8 Proximity to Airports and Airstrips

The closest public airport is the San Diego International Airport (SDIA), which is approximately 3.00 miles northwest of the project site. Naval Air Station North Island is approximately 3.35 miles west of the project site, and Naval Outlying Field Imperial Beach is 8.44 miles to the south of the project site. The proposed project site is not within the SDIA Airport Safety Compatibility Zones; however, it is within the Airport Influence Area (AIA) Review Area 2 (San Diego County Regional Airport Authority 2014).

Airport Land Use Commission (ALUC) review is required for land use plans and regulations within Review Area 2 proposing increases in height limits and for land use projects that: (1) have received from the Federal Aviation Administration (FAA) a Notice of Presumed Hazard, a Determination of Hazard, or a Determination of No Hazard subject to conditions, limitations, or marking and lighting requirements; and/or (2) would create any of the following hazards (San Diego County Regional Airport Authority 2014).

- Glare
- Lighting
- Electromagnetic interference
- Dust, water vapor, and smoke
- Thermal plumes
- Bird attractants

The project site is also located within the FAA Code of Federal Regulations, Part 77 notification area for height criteria. Additionally, the FAA may also require notification for structures or objects that may cause signal reception interference with navigational aids (NAVAIDS). FAA regulations require notification of proposed construction or alteration of objects exceeding certain heights or that could potentially interfere with NAVAIDS by filing Form 7460-1 “Notice of Proposed Construction or Alteration” with the FAA. This requirement applies to all proposed objects including structures, antennas, trees, mobile objects, and temporary objects, such as construction cranes.

The San Diego County Regional Airport Authority, acting as the ALUC, is currently preparing the Airport Land Use Compatibility Plan (ALUCP) for Naval Air Station North Island; therefore, airport influence area and safety data are not currently available (San Diego County Regional Airport Authority 2019).

If required, local agencies must submit an application for consistency determination to the ALUC for its review prior to construction. The ALUC must respond to a local agency’s request for consistency determination within 60 calendar days after the application is deemed complete by ALUC staff.

4.4.2.9 Emergency Response Plan

In the 1960s, the Unified San Diego County Emergency Services Organization was formed under a Joint Powers Agreement. The Unified Disaster Council is the governing body which prepares plans and policies for the County. The San Diego County Operational Area (OA) was formed to assist all of the cities and communities in the County in developing and implementing emergency plans and facilitating mutual aid agreements. The OA consists of the County and all jurisdictions within the

County. The County of San Diego Operational Area Emergency Operations Plan (OA EOP) was approved by the San Diego Board of Supervisors in September 2018. Each city within the County is encouraged to adopt the OA EOP. The OA EOP outlines a comprehensive emergency management system which would provide response to disaster situations such as natural disasters, technological incidents, terrorism, and nuclear-related incidents. It also describes responsibilities of the jurisdictions and agencies within the OA (County of San Diego 2018).

The City of San Diego also participates in the County Multi-jurisdictional Hazard Mitigation Plan (MJHMP), which facilitates cross-jurisdictional coordination for minimizing hazard risk and response to emergency events (County of San Diego 2017). The MJHMP was developed with the intent of enhancing public awareness and understanding of potential natural and manmade hazards, providing policies and decision-making tools, and ensuring compliance with state and federal regulations. The City of San Diego Fire-Rescue Department, Police Department, and the Emergency Operations Center (EOC) are the primary departments responsible for emergency response.

4.4.3 Applicable Laws and Regulations

4.4.3.1 Federal

Federal Toxic Substances Control Act/Resource Conservation and Recovery Act/Hazardous and Solid Waste Act

The federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program, which is administered by the U.S. Environmental Protection Agency (EPA), to regulate the generation, transport, treatment, storage, and disposal of hazardous waste. Under RCRA regulations, hazardous wastes must be tracked from the time of generation to the point of disposal. The RCRA program also establishes standards for hazardous waste treatment, storage, and disposal units, which are intended to have hazardous wastes managed in a manner that minimizes present and future threats to the environment and human health. At a minimum, each generator of hazardous waste must register and obtain a hazardous waste activity identification number. If hazardous wastes are stored for more than 90 days or treated or disposed of at a facility, any treatment, storage, or disposal unit must be permitted under the RCRA. The RCRA was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the "cradle to grave" system of regulating hazardous materials.

Department of Transportation Hazardous Materials Regulations (49 CFR 100–185)

U.S. Department of Transportation (DOT) Hazardous Materials Regulations (Code of Federal Regulations [CFR] Title 49, Parts 100–185) cover all aspects of hazardous materials packaging, handling, and transportation. Parts 107 (Hazard Materials Program), 130 (Oil Spill Prevention and Response), 172 (Emergency Response), 173 (Packaging Requirements), 177 (Highway Transportation), 178 (Packaging Specifications), and 180 (Packaging Maintenance) would all apply to goods movement to and from the proposed project and/or surrounding uses.

Enforcement of these aforementioned DOT regulations is shared by each of the following administrations under delegations from the Secretary of the DOT.

- **Research and Special Programs Administration** is responsible for container manufacturers, reconditioners, and retesters and shares authority over shippers of hazardous materials.
- **Federal Highway Administration** enforces all regulations pertaining to motor carriers.
- **Federal Railroad Administration** enforces all regulations pertaining to rail carriers.
- **FAA** enforces all regulations pertaining to air carriers.
- **U.S. Coast Guard (USCG)** enforces all regulations pertaining to shipments by water.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted in 1980 to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established prohibitions and requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party could be identified. The corresponding regulation in 42 CFR 103 provides the general framework for response actions and managing hazardous waste.

Spill Prevention Control and Countermeasure Plans (40 CFR 112.7)

Spill Prevention Control and Countermeasure (SPCC) plans are required for facilities in which construction and removal operations involve oil in the vicinity of navigable waters or shorelines. SPCC plans ensure that facilities implement containment and other countermeasures that would prevent oil spills from reaching navigable waters. SPCC plans are regulations administered by EPA. Preparation of an SPCC Plan is required for projects that meet three criteria: (1) the facility must be non-transportation-related, or, for construction, the construction operations involve storing, using, transferring, or otherwise handling oil; (2) the project must have an aggregate aboveground storage capacity greater than 1,320 gallons or completely buried storage capacity greater than 42,000 gallons; and (3) there must be a reasonable expectation of a discharge into or upon navigable waters of the United States or adjoining shorelines. For construction projects, for criterion (1), 40 CFR 112 describes the requirements for implementing SPCC plans. The following three areas should clearly be addressed in a SPCC plan.

- Operating procedures that prevent oil spills;
- Control measures installed to prevent a spill from reaching navigable waters; and
- Countermeasures to contain, clean up, and mitigate the effects of an oil spill that reaches navigable waters.

United States Coast Guard 33 CFR and 46 CFR

USCG, through Title 33 (Navigation and Navigable Waters) and Title 46 (Shipping) of the CFR, is the federal agency responsible for vessel inspection, marine terminal operations safety, coordination of federal responses to marine emergencies, enforcement of marine pollution statutes, marine safety (such as navigation aids), and operation of the National Response Center for spill response, and is the lead agency for offshore spill response. USCG implemented a revised vessel-boarding program in 1994 designed to identify and eliminate substandard ships from U.S. waters. The program pursues this goal by systematically targeting the relative risk of vessels and increasing the boarding

frequency on high risk (potentially substandard) vessels. The relative risk of each vessel is determined through the use of a matrix that factors the flag of the vessel, owner, operator, classification society, vessel particulars, and violation history. Vessels are assigned a boarding priority from I to IV, with priority I vessels being the potentially highest risk and priority IV having relatively low risk.

Emergency Planning and Community Right-To-Know Act (42 U.S.C. 11001 et seq.)

The Emergency Planning and Community Right-to-Know Act was enacted by Congress as the national legislation on community safety in 1986, as Title III of the Superfund Amendments and Reauthorization Act. This law was designated to help local communities protect public health, safety, and the environment from chemical hazards. To implement this act, Congress required each state to appoint a State Emergency Response Commission. The State Emergency Response Commissions are required to divide their states into Emergency Planning Districts and to name a Local Emergency Planning Committee for each district. The act provides requirements for emergency release notification, chemical inventory reporting, and toxic release inventories for facilities that handle chemicals.

Occupational Safety and Health Act of 1970

The Occupational Safety and Health Act establishes the framework for safe and healthful working conditions for working men and women by authorizing enforcement of the standards developed under the act. The act also provides for training, outreach, education, and assistance related to establishing a safe working environment. Regulations defining safe standards have been developed for general industry, construction, maritime, recordkeeping, and agriculture. A major component of the act is the requirement that employers implement the Occupational Safety and Health Act Hazard Communication Standard to provide information to employees about the existence and potential risks of exposures to hazardous substances in the workplace. As part of the Hazard Communication Standard, employers must:

- Obtain material safety data sheets from chemical manufacturers that identify the types and handling requirements of hazardous materials used in given areas;
- Make the material safety data sheets available to their employees;
- Label chemical containers in the workplace;
- Develop and maintain a written hazard communication program; and
- Develop and implement programs to train employees about hazardous materials.

Occupational Safety and Health Administration standards specific to hazardous materials are listed in 29 CFR 1910 Subpart H. Safety and health regulations pertaining to construction are listed in 29 CFR 1926 Subpart H.

Code of Federal Regulations Title 14, Part 77

The Code of Federal Regulations (CFR) Title 14, Part 77, "Safe, Efficient Use and Preservation of the Navigable Airspace," establishes a notification requirement for objects affecting navigable airspace. CFR Title 14 Part 77 establishes standards for determining the potential hazardous effect of the proposed project on air navigation and operating procedures, identifying mitigating measures to

enhance safe air navigation, and charting of new objects. Any person/organization who intends to sponsor any of the following construction or alterations must notify the Administrator of the FAA:

- Any construction or alteration exceeding 200 feet above ground level.
- Any construction or alteration
    - Within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with at least one runway more than 3,200 feet.
    - Within 10,000 feet of a public use or military airport which exceeds a 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 feet.
    - Within 5,000 feet of a public use heliport which exceeds a 25:1 surface.
- Any highway, railroad or other traverse way whose prescribed adjusted height would exceed the above noted standards.
- When requested by the FAA.
- Any construction or alteration located on a public use airport or heliport regardless of height or location.

Proponents proposing any of these construction or alterations must submit FAA form 7460-1, "Notice of Proposed Construction or Alteration" so the FAA can review the proposed action and make the appropriate determination.

4.4.3.2 State

Cortese List

California Government Code 65962.5 (commonly referred to as the *Cortese List*) includes hazardous waste facilities and sites listed by the Department of Toxic Substances Control (DTSC), Department of Health Services lists of contaminated drinking water wells; sites listed by the State Water Resources Control Board (SWRCB) as having underground storage tank leaks or a discharge of hazardous wastes or materials into the water or groundwater; and lists from local regulatory agencies of sites with a known migration of hazardous waste/material.

California Health and Safety Code (Hazardous Waste Control Act)

DTSC, a department of the California Environmental Protection Agency (Cal/EPA), is the primary agency in California for regulating hazardous waste, cleaning up existing contamination, and finding ways to reduce the amount of hazardous waste produced in California. DTSC regulates hazardous waste primarily under the authority of the federal RCRA and the California Health and Safety Code (primarily Division 20, Chapters 6.5 through 10.6, and Title 22, Division 4.5, also known as the Hazardous Waste Control Act). Division 20, Chapter 6.5, of the California Health and Safety Code identifies hazardous waste control regulations pertaining to transportation, treatment, recycling, disposal, enforcement, and the permitting of hazardous waste. Division 20, Chapter 6.10, identifies regulations applicable to the cleanup of hazardous materials releases. Title 22, Division 4.5, contains environmental health standards for the management of hazardous waste, as well as standards for the identification of hazardous waste (Chapter 11), and standards that are applicable to transporters of hazardous waste (Chapter 13).

In addition, the Hazardous Waste Control Act requires a hazardous waste generator that stores or accumulates hazardous waste for periods greater than 90 days at an onsite facility or for periods greater than 144 hours at an offsite or transfer facility, which treats or transports hazardous waste, to obtain a permit to conduct such activities. The law provides for the development of a state hazardous waste program that administers and implements the provisions of the federal RCRA for a cradle-to-grave waste management system in California. It also provides for the designation of California-only hazardous waste and development of standards that are equal to or, in some cases, more stringent than federal requirements, such as mandating source-reduction planning and regulating the number of types of waste and waste management activities that are not covered by federal law with the RCRA.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (California Health and Safety Code, Chapter 6.11, Sections 25404–25404.9)

This program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of the environmental and emergency response programs and provides authority to the Certified Unified Program Agency (CUPA). The CUPA for San Diego County is the San Diego County Department of Environmental Health's Hazardous Materials Division (HMD), which has the responsibility and authority for implementing and enforcing the requirements listed in Chapter 6.5 (commencing with Section 25100), Chapter 6.67 (commencing with Section 25270), Chapter 6.7 (commencing with Section 25280), Chapter 6.95 (commencing with Section 25500), and Sections 25404.1 and 25404.2, including the following.

- **Aboveground Petroleum Storage Act Requirements for SPCC Plans.** Facilities with a single tank or cumulative aboveground storage capacities of 1,320 gallons or greater of petroleum-based liquid product (e.g., gasoline, diesel, lubricants) must develop an SPCC plan. An SPCC plan must be prepared in accordance with the oil pollution prevention guidelines in 40 CFR 112. This plan must describe the procedures, methods, and equipment needed at the facility to prevent discharges of petroleum from reaching navigable waters. A registered professional engineer must certify the SPCC plan, and a complete copy of the plan must be maintained on site.
- **California Accidental Release Prevention Program.** This program requires any business that handles more than threshold quantities of an extremely hazardous substance to develop a Risk Management Plan. The Risk Management Plan is implemented by the business to prevent or mitigate releases of regulated substances that could have offsite consequences through hazard identification, planning, source reduction, maintenance, training, and engineering controls.
- **Hazardous Materials Business Plan/Hazardous Materials Inventory Statements.** Hazardous Materials Business Plans contain basic information regarding the location, type, quantity, and health risks of hazardous materials and/or waste. Each business must prepare a Hazardous Material Business Plan if that business uses, handles, or stores a hazardous material and/or waste or an extremely hazardous material in quantities greater than or equal to the following:
    - 55 gallons for a liquid;
    - 500 pounds for a solid;
    - 200 cubic feet for any compressed gas; or

    - Threshold planning quantities of an extremely hazardous substance.

- **Hazardous Waste Generator Program**. This program regulates businesses that generate any amount of a hazardous waste. Proper handling, recycling, treating, storing, and disposing of hazardous waste are key elements to this program.
- **Tiered Permitting Program**. This program regulates the onsite treatment of hazardous waste.
- **Underground Storage Tank Program.** This program regulates the construction, operation, repair, and removal of underground storage tanks that store hazardous materials and/or waste.

Environmental Health Standards for the Management of Hazardous Waste

These standards (California Code of Regulations, Title 22 [CA Title 22], Division 4.5, Section 66001 et seq.) establish requirements for the management and disposal of hazardous waste in accordance with the provisions of the state Hazardous Waste Control Act and federal RCRA.

California Code of Regulations, Title 8—Industrial Relations

Title 8 of the California Code of Regulations, Section 1532.1 is a rule developed by the federal Occupational Safety and Health Administration in 1993 and adopted by the state of California. This rule is comparable to the federal standards described above. Occupational safety standards exist in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the workplace. The federal Occupational Safety and Health Administration and the California Division of Occupational Safety and Health (Cal/OSHA) are responsible for ensuring worker safety in the workplace. Cal/OSHA assumes primary responsibility for developing and enforcing standards for safe workplaces and work practices. These standards would be applicable to both construction and operation of the proposed project. Title 8 includes regulations pertaining to hazard control (including administrative and engineering controls), hazardous chemical labeling and training requirements, hazardous exposure prevention, hazardous material management, and hazardous waste operations.

Title 8 also specifies requirements for the removal and disposal of asbestos-containing materials (ACMs). In addition to providing information regarding how to remove ACMs, specific regulations limit the time of exposure, regulate access to work areas, require demarcation of work areas, prohibit certain activities in the presence of ACM removal activities, require the use of respirators, require monitoring of work conditions, require appropriate ventilation, and require qualified persons for ACM removal.

Title 8 also covers the removal of lead-based paint (LBP). Specific regulations cover the demolition of structures that contain LBP, the process associated with its removal or encapsulation, remediation of lead contamination, the transportation/disposal/storage/containment of lead or materials containing lead, and maintenance operations associated with construction activities involving lead, such as LBP. Similar to ACM removal, LBP removal requires proper ventilation, respiratory protection, and qualified personnel.

California Labor Code (Division 5, Parts 1 and 7)

California Labor Code regulations ensure appropriate training regarding the use and handling of hazardous materials and the operation of equipment and machines that use, store, transport, or dispose of hazardous materials. Division 5, Part 1, Chapter 2.5, ensures that employees who handle

hazardous materials are appropriately trained and informed about the materials. Division 5, Part 7, ensures that employees who work with volatile flammable liquids are outfitted with appropriate safety gear and clothing.

State Water Resources Control Board Construction General Permit (2009-0009-DWQ)

Construction activities that disturb 1 acre or more of land must obtain coverage under the SWRCB Construction General Permit (Order 2009-0009-DWQ as amended by Order 2010-0014-DWQ, and Order 2012-006-DWQ). Under the terms of the permit, applicants must file a complete and accurate Notice of Intent and Permit Registration Documents with the SWRCB. Applicants must also demonstrate conformance with applicable construction Best Management Practices (BMPs) and prepare a construction Storm Water Pollution Prevention Plan containing a site map that shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project site.

Porter-Cologne Water Quality Control Act (Water Code, Division 7)

The Porter-Cologne Water Quality Control Act (embodied in the California Water Code) of 1969 (Porter-Cologne Act) is California's statutory authority for the protection of water quality. Under the Porter-Cologne Act, the state must adopt water quality policies, plans, and objectives that protect its waters for the use and enjoyment of the people. Under the California Water Code, the State of California is divided into nine regions governed by RWQCBs that, under the guidance and review of the SWRCB, implement and enforce provisions of the California Water Code and the CWA. The project site is in Region 9, the San Diego Region, and governed by the San Diego RWQCB (see also Section 4.5, *Hydrology and Water Quality)*.

Chapter 5, *Enforcement and Implementation*, Section 13304 *Cleanup and Abatement*, of the California Water Code outlines the RWQCB or SWRCB's authority to order cleanup and abatement efforts to an entity that has discharged waste or has allowed the discharge of waste to waters of the state, or threatens to create a condition of pollution (California Water Code, Chapter 5, Section 13304). A cleanup and abatement order issued by the SWRCB or RWQCB may require the clean up of waste or abatement of the effects of waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts. California Water Code Section 13267, *Investigations, inspections,* outlines the RWQCB's authority to issue an investigative order. The RWQCB, in establishing or reviewing any water quality control plan or waste discharge requirements, or in connection with any action related to a plan or discharge requirements, may investigate the quality of waters within the region. The RWQCB can require that responsible parties investigate the discharge or threatened discharge of toxic pollutants.

State Water Resources Control Board Resolution Number 92-49

SWRCB Resolution Number 92-49 – *Policies and Procedures for the Investigation and Cleanup and Abatement of Discharges Under Section 13304* was adopted by the SWRCB in 1992. The resolution contains policies and procedures for the RWQCBs to follow for the oversight and regulation of investigations and cleanup and abatement activities for all types of discharges as described in Section 13304 of the California Water Code (described above). Resolution No. 92-49 also provides the requirements of establishing and maintaining a site's containment zone.

State Water Resources Control Board Resolution Number No. 68-16

SWRCB Resolution Number 68-16 – *Statement of Policy Regarding Maintaining High Quality Water in California* (also known as the Antidegradation Policy) protects the quality of water bodies where the quality is higher than the established standards for the protection of beneficial uses. Any actions that adversely affect water quality in surface or ground water must "1) be consistent with maximum benefit to the people of the State; 2) not unreasonably affect present and anticipated beneficial use of the water; and, 3) not result in water quality less than that prescribed in water quality plans and policies" (California Water Boards ND).

4.4.3.3 Regional

San Diego County Code, Title 6, Division 8

San Diego County Code of Regulatory Ordinances under Title 6, Division 8, Chapters 8 through 11 establish the HMD as the local CUPA. The HMD is responsible for the protection of public health, safety, and the environment and inspects businesses or facilities that handle or store hazardous materials, generate hazardous waste, generate medical waste, and own or operate underground storage tanks. HMD also administers the California Accidental Release Prevention Program and the Aboveground Petroleum Storage Act Program, and provides specialized instruction to small businesses through its Pollution Prevention Specialist. HMD has the authority under state law to inspect facilities with hazardous materials or hazardous waste and, in cases where a facility is in non-compliance with the applicable state law or regulations, take enforcement action.

Projects are required to notify HMD regarding the use, handling, release (spills), storage, and/or disposal of hazardous materials and hazardous waste in accordance with existing state law and County ordinance. The notification is the initial step in the HMD permitting process, which requires businesses that handle or store hazardous materials, are part of the California Accidental Release Prevention Program, generate or treat hazardous wastes, generate or treat medical waste, store at least 1,320 gallons of aboveground petroleum, or own and/or operate underground storage tanks to obtain and maintain a Unified Program Facility Permit. The online notification must be done using the State of California Environmental Reporting System by the applicant/permittee requesting a permit and submitted within 30 days.

If a building permit is required, Section 65850.2 of the California Government Code prohibits building departments from issuing a final Certificate of Occupancy unless a business or facility that handles hazardous materials has submitted and met the requirements of a Hazardous Materials Business Plan. The Hazardous Materials Business Plan contains detailed information on the storage of hazardous materials at regulated facilities and serves to prevent or minimize damage to public health, safety, and the environment from a release or threatened release of a hazardous material. The Hazardous Materials Business Plan also provides emergency response personnel with adequate information to help them better prepare and respond to chemical-related incidents at regulated facilities.

Operational Area Emergency Operations Plan

The San Diego County OA was formed to help the County and its cities develop emergency plans, implement such plans, develop mutual aid capabilities between jurisdictions, and improve communications between jurisdictions and agencies. The San Diego County OA consists of the

County and all jurisdictions within the County. The OA EOP is for use by the County and all of the cities within the County to respond to major emergencies and disasters. It defines roles and responsibilities of all County departments and many city departments.

Cities within the County are encouraged to adopt the OA EOP, with modifications that would be applicable to each city. The plan is updated once every 4 years by the Office of Emergency Services and the Unified Disaster Council of the Unified San Diego County Emergency Services Organization.

Water Quality Control Plans

The preparation and adoption of water quality control plans (basin plans) is required by the California Water Code (Section 13240) as prescribed by the CWA. Section 303 of the CWA requires states to adopt water quality standards that "consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses." According to Section 13050 of the California Water Code, basin plans consist of a designation or establishment of beneficial uses to be protected, water quality objectives to protect those uses, and a program of implementation needed for achieving the objectives for the waters within a specified area. Because beneficial uses, together with their corresponding water quality objectives, can be defined per federal regulations as water quality standards, basin plans are regulatory references for meeting the state and federal requirements for water quality control.

The Water Quality Control Plan for the San Diego Basin (Basin Plan) was adopted by the San Diego RWQCB in 2016 and designates the Beneficial Uses and Water Quality Objectives for water bodies under its jurisdiction (RWQCB 2016). See Section 4.5, *Hydrology and Water Quality,* for a detailed discussion of designated beneficial uses and objectives.

Cleanup and Abatement Order R9-2012-0024

In 2012, a Cleanup and Abatement Order (CAO) R9-2012-0024, *San Diego Bay Shipyard Sediment Cleanup for the NASSCO and BAE Leaseholds* (San Diego Bay Shipyard Sediment Cleanup) was issued by the San Diego RWQCB under the authority provided in Division 7 of the California Water Code, SWRCB plan and policies, and the Basin Plan. CAO R9-2012-0024 was issued for the cleanup of the contaminated sediment along the eastern shore of the Central San Diego Bay, from approximately Sampson Street Extension to the northwest and Chollas Creek to the southeast, and from the shoreline to the San Diego Bay main shipping channel to the west. The San Diego RWQCB named NASSCO, BAE Systems, the City of San Diego, Campbell Industries, Chevron, a Subsidiary of ChevronTexaco, BP as the Parent Company and successor to Atlantic Richfield, SDG&E, the U.S. Navy, and the District as responsible persons/dischargers. CAO R9-2012-0024 ordered the responsible dischargers to take all corrective actions necessary to remediate the contamination in compliance with the required stipulations laid out in the CAO.

4.4.3.4 Local

City of San Diego Solid Waste Local Enforcement Agency

The City's Solid Waste Local Enforcement Agency is responsible for enforcing federal and state laws and regulations for the safe and proper handling of solid waste. State law (Public Resources Code) requires that every local jurisdiction designate a solid waste Local Enforcement Agency that is

certified by the Department of Resources Recycling and Recovery to enforce federal and state laws and regulations for the safe and proper handling of solid waste.

Any development plan proposing to handle, process, transport, store, or dispose of solid wastes including household trash and garbage, construction debris, commercial refuse, sludge, ash, discarded appliances and vehicles, manure, landscape clippings, and other discarded wastes shall contact the Local Enforcement Agency for determination of the need for a solid waste facility permit.

RWQCB Municipal Stormwater Permit (Order No. R9-2013-0001)

The Municipal Stormwater Permit (Order No. R9-2013-0001 as amended by Order Nos. R9-2015-001 and R9-2015-0100) is a National Pollutant Discharge Elimination System (NPDES) Permit issued that requires the owners and operators of Municipal Separate Storm Sewer Systems (MS4s) within the San Diego region to implement management programs to limit discharges of pollutants and non-stormwater discharges to and from their MS4 from all phases of development. The Municipal Stormwater Permit requires the District and other "copermittees" to develop watershed-based Water Quality Improvement Plans. The Municipal Stormwater Permit emphasizes watershed program planning and program outcomes. The intent of the permit is to enable each jurisdiction to focus its resources and efforts to:

- Reduce pollutants in stormwater discharges from its MS4;
- Effectively prohibit non-stormwater discharges to its MS4; and
- Achieve the interim and final Water Quality Improvement Plan numeric goals.

Temporary Groundwater Extractions Permit (Order No. R9-2007-0034)

Order No. R9-2007-0034 is intended to cover temporary discharges of groundwater extraction wastes to the Bay, and its tributaries under tidal influence, from groundwater extraction due to construction and other groundwater extraction activities. Dischargers must meet the applicable criteria listed in the permit to be subject to waste discharge requirements under this permit. Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of the permit. The discharge of groundwater extraction waste from any site cannot, separately or jointly with any other discharge, cause violations of certain water quality objectives in the Bay.

Jurisdictional Runoff Management Plan

Under Regional Water Quality Control Board Order No. R9-2013-0001, NPDES Permit No. CAS0109266, the 18 cities within San Diego County, along with the Port of San Diego, are required to prepare Jurisdictional Runoff Management Plans (JRMPs). Each jurisdictional plan must contain a component that addresses issues related to construction activities and a component that addresses issues related to existing development. As principal permittee, the County of San Diego prepares and submits an annual report on the unified JRMP that describes the progress of the programs and the strategies to reduce the discharge of pollutants of concern to the MS4 and receiving waters to the maximum extent practicable. Enforcement of the JRMP assists with preventing release of pollutants into the local storm drains and ultimately the San Diego Bay.

The District has developed a list of pollution prevention BMPs applicable to industrial and commercial facilities on District tidelands as required by the Municipal Stormwater Permit. Because

pollution prevention BMPs eliminate pollutants at their source, they are a preferred means of preventing discharge of priority pollutants into the receiving waters. The list of pollution prevention BMPs includes the following:

- Keep waste containers covered or lids closed (trash);
- Minimize outdoor storage (trash, metals);
- Capture, contain, and/or treat wash water (bacteria, metals); and
- Conduct employee training (bacteria, trash, metals).

In addition, the JRMP provides an extensive list of minimum BMPs for commercial and industrial facilities. Categories of BMPs include general operations and housekeeping, non-stormwater management, waste handling and recycling, outdoor material storage, outdoor drainage from indoor activity, outdoor parking, vehicles and equipment, education and training, overwater activity, and outdoor activity and operation.

BMP Design Manual

In June 2015 the District adopted a jurisdiction-specific local BMP Design Manual to address the requirement of the Municipal Stormwater Permit. This BMP Design Manual is applicable to projects carried out on District-managed tidelands. Pursuant to the Municipal Stormwater Permit, the District began implementing the BMP Design Manual on February 16, 2016, and updated it in January 2018. The District's BMP Design Manual identifies updated post-construction stormwater requirements for both tenant- and District-sponsored major maintenance or capital improvement projects as required by the Municipal Stormwater Permit.

The BMP Design Manual identifies BMP requirements for both standard projects and priority development projects (PDPs) as outlined in the permit. All new development and redevelopment projects are required to implement standard source control and site design BMPs to eliminate or reduce stormwater runoff pollutants. For PDPs, the BMP Design Manual also describes structural treatment controls that must be incorporated into the site design and, where applicable, addresses potential hydromodification impacts from changes in flow and sediment supply.

Project proponents must submit a Storm Water Quality Management Plan (SWQMP) accurately describing how the project will meet source control site design and pollutant control BMP requirements. District staff provide technical review of and approve SWQMP documents and drainage design plans to ensure that pollutant control BMP requirements are met. The SWQMP is evaluated for compliance with the Municipal Stormwater Permit and with design criteria outlined in the District's BMP Design Manual. Once the approval process is complete, the project is able to commence and routine inspections are conducted throughout the duration of the project construction.

San Diego Unified Port District, Article 10

The District's own Article 10, the Port Stormwater Management and Discharge Control Ordinance, prohibits the deposit or discharge of any chemicals or waste to the tidelands or San Diego Bay and makes it unlawful to discharge pollutants directly into non-stormwater or indirectly into the stormwater conveyance system.

4.4.4 Project Impact Analysis

4.4.4.1 Methodology

The following impact analysis evaluates the potential effects from hazards and hazardous materials associated with the proposed project. The reports listed above under Section 4.4.1, *Overview*, were used to evaluate potential impacts associated with hazards and hazardous materials. Based upon the existing conditions described above, the impact analysis assesses the direct and indirect impacts related to hazards and hazardous materials by determining whether the proposed project would trigger any of the thresholds listed below.

4.4.4.2 Thresholds of Significance

The following significance criteria are based on Appendix G of the State CEQA Guidelines and provide the basis for determining significance of impacts associated with hazards and hazardous materials resulting from the implementation of the proposed project. The determination of whether a hazards and/or hazardous materials impact would be significant is based on the thresholds described below and the professional judgment of the District as Lead Agency, all of which is based on the evidence in the administrative record.

Impacts are considered significant if the project would result in any of the following.

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
2. 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.
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
4. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.
5. Be located within an airport land use plan or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and exacerbate a safety hazard or excessive noise for people residing or working within the vicinity of the project area.
6. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
7. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires

The analysis of whether the proposed project would have a significant impact related to hazards and hazardous materials under Thresholds 1, 3, 5, 6, and 7 is provided in Section VIII of the Initial Study/Environmental Checklist (Appendix A of this Draft EIR), which determined that the proposed project would not result in a significant impact related to these thresholds. Those conclusions and the rationale that supports them are summarized in Chapter 6, Section 6.4 *Effects Not Found to Be Significant*. Therefore, only Thresholds 2 and 4 are discussed in the impact analysis that follows.

4.4.4.3 Project Impacts and Mitigation Measures

Threshold 2: Implementation of the proposed project would 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.

Impact Discussion

Construction

Some existing structures and infrastructure would be demolished for both landside and waterside improvement projects. In total the proposed project would require approximately 3,440 cy of excavation associated with landside development, and approximately 116,600 cy of dredging in the Bay. Based on the historic industrial uses of the project site, it is possible ground-disturbing construction activities could encounter contaminated soil and/or groundwater throughout the entire project site, as well as contaminated sediment during in-water construction activities. There are several specific locations on the project site where proposed grading and/or construction is likely to encounter contaminated soil, groundwater, and/or sediments, which are explained further below.

Landside

The project site is located within a developed industrialized area dominated by marine industrial-related facilities. The database search conducted as part of the HMTS (Appendix E) contained several listings related to unauthorized release cases both onsite and on adjacent properties. As detailed in Section 4.4.2, *Existing Conditions*, an unauthorized hazardous release was encountered during the installation of an electric conduit at the southern bulkhead between Pier 3 and Pier 4 and was reported in 2002 (listing H09689-003). A subsurface investigation indicated diesel- and gasoline- impacted soil and groundwater were present at the site. The case status is listed as "remedial investigation" on the San Diego County Site Assessment and Mitigation Program (SAM) website. The County of San Diego referred the case to RWQCB in October 2002; however, information was not available on the GeoTracker database. Documentation indicating that the contamination was adequately assessed or remediated was not found during the record search. No construction or excavation work is proposed in the location between Pier 3 and Pier 4 that may encounter petroleum-impacted soil and groundwater. However, Project Element 3 (Fender System Repair and Replacement) would require bulkhead replacement along the shore south of Pier 3, during which contaminated soil and/or groundwater could be encountered.

In addition, a closed case related to unauthorized release (listing H09689-002) was identified in the southern portion of the project site. A former 10,000-gallon UST, located on the southern property boundary with General Dynamics NASSCO at the Sicard Street extension, was cleaned, filled with slurry, and closed in place. Piping and a fuel dispenser located along the bulkhead between Pier 3 and Pier 4 were also cleaned and closed. Diesel–impacted soil was discovered at the fuel dispenser, and soil and groundwater samples were taken. It was estimated that less than 10 cy of hydrocarbon impacted soil is present at depths of 5 to 13 feet below ground surface (bgs) in the vicinity of the former dispenser. Based on the industrial use of the property, it was determined the level of contaminants did not pose a threat to human health and the case was closed in May 1998. The

proposed project does not include landside ground-disturbing activities in the area of the former UST, piping, or fuel dispenser. On the water side, activities for Project Element 3 (Fender System Repair and Replacement) would occur along the bulkhead between Pier 3 and 4. While Project Element 3 is generally a waterside project element, replacement of the bulkhead may involve landside subsurface disturbance in the area of the fuel dispenser, and fuel-impacted soils may be encountered. Encountering contaminated soil and/or groundwater associated with case H09689-003 and case H09689-002 during construction of Project Element 3 could expose workers, the public, and/or the environment to hazardous materials.

The project site has historically consisted of industrial uses and has documented fuel storage tanks on the site in several locations throughout this history. Based on a review of historic records, a 6,000-gallon fuel oil storage tank was located on the southern end of the site, an oil storage wharf was located on the southern end of the bulkhead, and two steel oil tanks were located along the southern bulkhead at the Sicard Street extension (Appendix E). While grading or excavation activities are not proposed in these locations, the potential for historic contamination in the vicinity of these sites exists. In addition, the records reviewed indicated the northern portion of the former SDG&E leasehold contained soil and groundwater impacted by petroleum hydrocarbons, PCBs, VOCs, and metals as a result of the use of former wastewater storage ponds (see Figure 4.4-1). No subsurface excavation is proposed in this area (Appendix E). The closest ground-disturbing project element is Project Element 13 (Pier 1 Restroom Renovation and/or Demolition), which is located approximately 60 feet south of the SDG&E leasehold boundary. However, due to the current and historic industrial use of the site and the historic use and storage of hazardous materials throughout the site, there is a high likelihood that contaminated soil and/or groundwater may be encountered throughout the entire project site. Consequently, ground-disturbing construction activities have the potential to encounter prior known contaminated or undocumented contaminated soil and/or groundwater and release hazardous materials to the environment, which would be considered a significant impact (**Impact-HAZ-1**).

The database search conducted as part of the HMTS (Appendix E) also identified two properties adjacent to the project site that represent a potential environmental concern. The operations at the property adjacently northwest, currently occupied by R.E. Staite, have resulted in documented impacts on soil and groundwater from petroleum hydrocarbons (diesel and oil), PAHs, PCBs, VOCs, calcium chloride, formaldehyde, hydrochloric acid, ammonia, sulfuric acid, sodium hypochlorite, N,N-Dimethylformamide, methanol, and chlorinated solvents. Although regulatory agencies have closed the cases because the areas of concern were not accessible in some cases or conditions were deemed acceptable based on the current operations of the property in other cases, there is potential that the soil and/or groundwater adjacent to the project site has been impacted.

The database search also identified documentation indicating there is a chlorinated solvent groundwater plume in the general vicinity of the project site that has not been attributed to a particular source. The chlorinated solvent plume was detected at a property upgradient of the project site, suggesting the chlorinated solvent plume has likely migrated, and the groundwater at the project site may be impacted by these chemicals. Ground-disturbing construction activities may encounter contaminated soil and/or groundwater due to the documented cases adjacent to the project site, which would represent a significant impact (**Impact-HAZ-1**).

Based on the age of the buildings and structures present on site there is a high likelihood that LBP and/or ACM are present on site. Specifically, buildings corresponding to the existing Production Shop (Buildings 6 and 7), which are proposed for demolition and redevelopment associated with Project Element 11 (New Production Building), have been present on site from as early as 1949 (Appendix E). Any demolition or grading activities would be required to comply with Title 8, Industrial Relations, of the California Code of Regulations, which provides specific guidance and mandatory specifications related to the removal and disposal of ACM and LBP. As such, compliance with these regulations would ensure that removal of any ACM and/or LBP would be conducted in a safe manner, including proper disposal in an approved facility. Therefore, impacts associated with the removal and disposal of ACM and LBP would be less than significant.

Waterside

Numerous hazardous database listings for spills in the San Diego Bay were identified in the database search results for the project site. The listed spills included releases of oil, paints, fuels, bleach, etc. Some of these listings noted an "oily sheen" on the Bay potentially associated with contaminated soil on the landside and/or contamination released into the water from creosote treated wood piles. It is possible the sediment in the waterside portion of the project site is impacted as a result of these releases. Additionally, the project site is part of CAO R9-2012-0024. As detailed in Section 4.4.2, *Existing Conditions*, the San Diego Bay Shipyard Sediment Cleanup was divided into the North Shipyard, which was entirely within the BAE Systems occupancy, and the South Shipyard, which was the southern tenant's area of responsibility. The CAO was issued by the San Diego RWQCB in response to the impacted sediments in the Bay from historical and current industrial operations along this area of the Bayfront for the following COCs: copper, mercury, HPAHs, total PCBs, and tributyltin. The cleanup process, which was concluded in 2016, included the removal of approximately 142,745 cubic yards of impacted sediments for both the North and South Shipyards, as well as the installation of sand or gravelly sand covers over contaminated sediments where removal was infeasible due to structural stability concerns. Sand or gravelly sand covers were used under the piers and along the bulkhead because dredging activities would threaten the stability of these in-water structures. Sand cover was used for relatively flat areas and under-pier areas, while gravelly sand was used for sloping areas. The gravelly sand and sand covers were put in place to protect sediments with concentrations of COCs above the CAO requirements that could not be removed from being released into the water column. The covers promote physical isolation and stabilization of contaminated sediments under over-water structures, and maintain structural stability on sloping areas.

Because some contaminated sediment was covered and left in place, sediment-disturbing activities including, but not limited to, dredging, pile removal and installation, and bulkhead replacement could encounter contaminated sediment and could result in the release of contaminants to the environment or the public by releasing them to the Bay. Dredging is proposed for four project elements: Project Element 1 (Pride of San Diego Drydock Dredging/Mooring Replacement), Project Element 4 (Pier 3 South Nearshore Dredging), Project Element 6 (Pier 3 North Lunchroom Wharf Replacement and Realignment), and Project Element 7 (Quay Wall Modifications). Project Element 1 (Pride of San Diego Drydock Dredging/Mooring Replacement) proposes to dredge approximately 98,800 cy of material. This includes the sediment that was not dredged during the past remediation activities associated with the CAO R9-2012-0024 because its proximity to existing structures made dredging infeasible.

Up to approximately 87,900 cy of dredged materials from Project Element 1 are planned for ocean disposal at EPA's LA-5 disposal site, if the sediment is determined to be suitable for unconfined aquatic ocean disposal. To determine the suitability, BAE Systems would conduct a dredge material suitability study in consultation with the U.S. Army Corps of Engineers (USACE) and the EPA as required under the Ocean Dumping Permit process. Project Element 4 (Pier 3 South Nearshore Dredging) proposes to dredge 15,000 cy of sediment: two scenarios for the disposal of this material are proposed depending on the results of the dredge material suitability study, including a 50 percent landfill/50 percent ocean disposal scenario and 100 percent landfill disposal scenario. Project Element 6 (Pier 3 North Lunchroom Wharf Replacement and Realignment) proposes to dredge 2,000 cy of contaminated sediment that was previously covered and left in place associated with the CAO R9-2012-0024. Project Element 7 (Quay Wall Modifications) would result in 500 cy of sediment to be disposed of at an approved upland disposal site, as well as 300 cy of rock that would be disposed of at a local recycling facility. These dredging activities would remove existing contaminated sediment that was covered and left in place, which would potentially avoid disturbing and releasing contaminated sediments from in-water construction activities (i.e. pile installation, wharf replacement, etc.). However, these dredging activities may also result in the disturbance of existing sand or gravelly sand covers such that underlying contaminated sediment is exposed to the environment.

In addition to the dredging associated with the project elements identified above, in-water work is also proposed as part of Project Element 2 (Pride of San Diego Drydock Wharf Replacement and Realignment), Project Element 3 (Fender System Repair and Replacement), Project Element 5 (Pier 3 Mooring Dolphin), Project Element 8 (Port Security Barrier Replacement), and Project Element 9 (Small Boat Mooring Float Replacement), all of which would potentially result in the disturbance of covered contaminated sediments. As part of these in-water construction activities, spudding, an anchoring technique used to hold barges in position, may be required. When spuds are removed, covered contaminated sediments may be disturbed. Likewise, jetting, a technique used for pile installation or removal, would potentially result in the disturbance of covered contaminated sediments. Even if sediment-disturbing activities are proposed outside of areas of known contamination previously covered by sand or gravelly sand cover, water currents and general vessel maneuvers within the BAE Systems ship repair yard may have disturbed the boundary of the sand covers and modified the areas of contamination. As such, in-water activities associated with the proposed project would potentially result in disturbance of sand cover or contaminated sediments. Because the full extent of sediment contamination within the BAE Systems leasehold is unknown at present, any sediment-disturbing construction activities would potentially resuspend contaminated sediments, resulting in a release of hazardous materials to the environment, which would be considered a significant impact (**Impact-HAZ-2**). For a discussion of potential water quality impacts associated with disturbing contaminated sediment, please see Section 4.5, *Hydrology and Water Quality.*

The San Diego RWQCB issued Investigative Order R9-2017-0083, *SDG&E and BAE Systems Northern Sediment Delineation Investigation* in August 2017 related to contaminated sediments north of the BAE Systems leasehold and TUOP parcels that have not been fully delineated. Sediment chemistry data on which the San Diego Bay Shipyard Sediment Cleanup CAO was based indicated waste discharges from the project site extended beyond the property boundary to the north; however, the extent and magnitude of contamination had not yet been delineated at the time the CAO R9-2012-0024 was issued. A *Sampling and Analysis Report for the Area of Investigation Under Investigative Order No. R9-2017-0083* was prepared on April 30, 2019 (Geosyntec Consultants 2019). The results

of the Sampling and Analysis Report indicate elevated concentrations of PCBs, PAHs, and some metals are present in the Investigation Area (Geosyntec Consultants 2019). The location of this Investigative Order is immediately north of the proposed project area; however, Project Element 8 (Port Security Barrier Replacement) could overlap with the boundary of the contaminated sediment delineation. The Port Security Barrier is generally a floating device; however, anchors are used to keep it in place. Therefore, the installation of the anchors for the Port Security Barrier may disturb potentially contaminated sediment, which would be considered a significant impact (**Impact-HAZ-2**).

Wooden components in the piers, wharfs, fender system, and bulkheads may have been treated with creosote, a product used to preserve wood before its carcinogenic properties were discovered. The proposed project would include removal and/or demolition of some creosote-treated wood. The handling, transportation, and disposal of creosote-treated wood is regulated by Division 20, Chapter 6.5, and Title 22, Division 4.5 of the California Health and Safety Code, as described in Section 4.7.3, *Applicable Laws and Regulations.* In addition, the Occupational Safety and Health Administration (OSHA) provides specific standards for maintaining safe and healthy working conditions pertaining to hazardous materials; listed in 29 CFR 1910 Subpart H. Compliance with these regulations would ensure the safe management and proper disposal of creosote-treated wood and that any related hazardous materials impacts would be less than significant. For a discussion of potential water quality impacts associated with creosote treated wood piles, please see Section 4.5, *Hydrology and Water Quality.*

Construction-Related Hazardous Materials

Typical construction-related hazardous materials would be used during landside and waterside construction, including gasoline, oil, and other vehicle- or vessel-related fluids, paints, and solvents. It is possible that any of these substances could be accidentally released during construction activities. However, as described in Section 4.7.3, *Applicable Laws and Regulations*, and in Section 4.5, *Hydrology and Water Quality*, the proposed project would comply with federal, state, and local regulations and would be required to obtain a Clean Water Act Section 10 permit and Section 401 Certification. Moreover, the proposed project would be required to comply with the Municipal Stormwater Permit and the District's JRMP, which identifies construction BMPs that would be implemented in order to prevent stormwater runoff. The District's JRMP requires preparation of a Construction BMP Plan. Construction BMPs, identified in the Construction BMP Plan, would be required to be implemented throughout the various construction phases. This would ensure that all construction-related hazardous materials are used, stored, and disposed of properly, which would minimize potential impacts related to an accidental hazardous materials release during construction activities. Therefore, impacts from the use of construction-related hazardous materials would be less than significant.

Operation

Operations at the BAE Systems San Diego Ship Repair Yard would remain similar to existing conditions but efficiency of operations would increase as a result of the proposed project. The proposed project would allow BAE Systems to service newer, larger ships at the ship repair yard by removing existing physical limitations and constraints at the site; however larger ships would occupy the facilities longer, which would result in fewer ships being serviced annually compared to existing conditions. The ship repair yard would continue to utilize hazardous materials as part of day-to-day operations; however, the use of hazardous materials is not anticipated to increase as

a result of the proposed project because of the annual decrease in the total number of ships being serviced at the site. Therefore, quantities of hazardous materials are not anticipated to substantially increase as a result of the proposed project. The project site has been listed as an LQG under the RCRA and would continue to comply with the regulations established by the EPA, the California Health & Safety Code Section 25505, and the local CUPA to ensure safe handling, use, and disposal of hazardous materials. Therefore, potential impacts associated with operations of the proposed project would be less than significant.

Level of Significance Prior to Mitigation

Implementation of the proposed project would 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. Potentially significant impact(s) include:

Impact-HAZ-1: Landside Potential to Encounter Hazardous Materials in Soil and/or Groundwater. Based on documentation compiled from database searches, hydrocarbon-impacted soils are present south of Pier 3 along the bulkhead, related to historic unauthorized releases. Construction and excavation in this area may encounter contaminated soils. The disturbance of contaminated soils could potentially result in a release of hazardous materials and exacerbate the existing hazardous conditions at the project site. Furthermore, historical information reviewed indicates the project site has a history of handling, disposal, and releases of hazardous materials that have affected soil and/or groundwater on site. In addition, adjacent offsite properties have involved handling, disposal, and releases of hazardous materials that could have migrated to the project site, potentially resulting in contaminated soil and/or groundwater. Therefore, undocumented contaminated soils and/or groundwater may be encountered during landside construction activities, which could potentially result in a release of hazardous materials and exacerbate the existing hazardous conditions at the project site. The potential to encounter prior documented or undocumented contaminants would be a significant impact.

Impact-HAZ-2: Waterside Potential to Encounter Hazardous Materials in Sediment. Historical information, reports, and site assessments compiled from database searches indicate that it is reasonably foreseeable that contaminated sediments may be encountered during in-water construction activities including dredging and pile installation/removal associated with Project Element 1 (Pride of San Diego Drydock Dredging/Mooring), Project Element 2 (Pride of San Diego Wharf Replacement/Realignment), Project Element 3 (Fender System Repair and Replacement), Project Element 4 (Pier 3 South Nearshore Dredging), Project Element 5 (Pier 3 Mooring Dolphin), Project Element 6 (Pier 3 North Lunchroom Wharf Replacement and Realignment), Project Element 7 (Quay Wall Modifications), Project Element 8 (Port Security Barrier Replacement), and Project Element 9 (Small Boat Mooring Float Replacement). As such, in-water construction activities that disturb the sediment would potentially result in a release of hazardous materials and create a potentially significant hazard to the environment, regardless of whether it occurs within the CAO area or not, by bringing and releasing subsurface sediment contaminants to the surface of the Bay floor or exacerbating the existing hazardous conditions by spreading contaminated sediment; impacts would be significant.

Mitigation Measures

For **Impact-HAZ-1**:

MM-HAZ-1: Implement a (Landside) Soil and Groundwater Management Program. The project proponent shall retain a licensed Professional Geologist, Professional Engineering Geologist, or Professional Engineer (licensed professional) with experience in contaminated site redevelopment and restoration to oversee the implementation of a *Soil and Groundwater Management Program*, which must be approved by the District. The Soil and Groundwater Management Program will be implemented prior to and throughout the duration of landside construction activities for the proposed project. Each of the elements included in the Soil and Groundwater Management Program shall include the following elements, each of which have specific timing mechanisms as identified in the description of each element below:

A. Site Contamination Characterization Report

B. Soil and Groundwater Testing and Profiling Plan

C. Soil and Groundwater Disposal Plan

D. Site Worker Health and Safety Plan

E. Site-Specific Community Health and Safety Program

F. Monitoring and Reporting Program

G. Project Closeout Report

A. A *Site Contamination Characterization Report (Contamination Characterization Report)* shall be prepared which delineates the vertical and lateral extent and concentration of landside residual contamination in project site areas proposed for construction and/or ground disturbance, including, but not limited to, areas with unauthorized releases identified along the landward side of the southern bulkhead between Pier 3 and Pier 4. The Contamination Characterization Report shall be prepared prior to commencing landside construction consistent with the ASTM D5730-04 guidance, the DTSC *Preliminary Endangerment Assessment Guidance Manual*, and/or other similar guidance for industry standards. The Contamination Characterization Report shall include a compilation of data based on (1) historical records review and (2) investigative and historical assessment reports performed on the project site. If the licensed professional concludes, after the initial characterization based on past records and reports, that either (1) there are data gaps, or (2) historical records do not accurately characterize potential site contamination, new soil and groundwater sampling to characterize the existing vertical and lateral extent and concentration of landside residual contamination must be completed. Any sampling and analysis conducted must be consistent with applicable regulations utilizing the methodologies outlined in ASTM Standard E1903, County of San Diego DEH *Site Assessment and Mitigation (SAM) Manual*, or some other well-accepted methodology for sampling and analysis leading to site characterization, as approved by the District. The project proponent also shall enroll in the Voluntary Assistance Program (VAP) with the County of San Diego Department of Environmental Health and shall submit the results of the Contamination Characterization Report to DEH staff for regulatory concurrence of results.

B. A *Soil and Groundwater Testing and Profiling Plan (Testing and Profiling Plan)* shall be prepared for those soils and materials that are proposed to be disposed of during construction. The Testing and Profiling Plan shall be prepared after the Contamination Characterization Report and shall utilize the information in the Contamination Characterization Report and include protocols for independent testing of soils and materials identified for disposal for all potential contaminants of concern, including CA Title 22 metals, PAHs, volatile organic compounds, pesticides, PCBs, semi-volatile organic compounds, hydrocarbons, or any other potential contaminants. The Testing and Profiling Plan shall document compliance with CA Title 22 for proper identification and segregation of hazardous and solid waste as needed for acceptance at a CA Title 22–compliant offsite disposal facility.

C. A *Soil and Groundwater Disposal Plan (Disposal Plan)* shall be prepared following the Testing and Profiling Plan, which shall describe the process for excavating, stockpiling, dewatering, treating, and loading and hauling of soil and groundwater from the site. The Disposal Plan shall be prepared in accordance with the Testing and Profiling Plan and shall adhere to applicable regulatory requirements and standards, including CA Title 22 Division 4.5, and DOT Title 40 CFR Part 263, CAC Title 27, and ensure compliance with applicable regulations for the disturbance, handling of contaminated materials, prevention of cross contamination, spills, or releases, such as segregation into separate piles for waste profile analysis based on organic vapor, and visual and odor monitoring. All excavation activities shall be actively monitored for the potential presence of contaminated soils and for compliance with the Disposal Plan.

D. A *Site Worker Health and Safety Plan (Safety Plan)* shall be prepared prior to initiation of construction to ensure compliance with 29 CFR Part 120, Hazardous Waste Operations and Emergency Response regulations for site workers at uncontrolled hazardous waste sites. The Safety Plan shall be prepared after, and shall be based on, the Contamination Characterization Report and the planned site construction activity to ensure that site workers potentially exposed to site contamination in soil and groundwater are trained, equipped, and monitored during site activity. The training, equipment, and monitoring activities described in the Safety Plan shall ensure that workers are not exposed to contaminants above personnel exposure limits established by Table Z, 29 CFR Part 1910.1000. The Safety Plan shall be signed by and implemented under the oversight of a California State Certified Industrial Hygienist.

E. A *Site-Specific Community Health and Safety Program (Safety Program)* shall be prepared prior to the District Development Services Department's approval of the project's landside working drawings, which addresses the chemical constituents of concern for the project site in order to minimize the exposure of chemical constituents during construction to the surrounding community. The Safety Program shall be prepared in accordance with the County of San Diego DEH's *Site Assessment and Mitigation Manual* (2009) and EPA's *SW-846 Manual* (1986). The Safety Program shall include detailed plans on environmental and personal air monitoring, dust control, and other appropriate construction means and methods to minimize the public's exposure to the chemical constituents of concern. The Safety Program shall be reviewed, approved, and monitored for compliance by the District. Following District Environmental Protection Department approval, the project proponent shall implement the Safety Program throughout ground-disturbing construction activities and any other construction activity that may encounter or use chemicals of concern. The

contractor shall utilize a Certified Industrial Hygienist with significant experience with chemicals of concern on the project site to actively monitor compliance with the Safety Program and ensure its proper implementation during project construction activities that use substances that may include chemicals of concern.

F. *Monitoring and Reporting Program.* During and upon completion of landside construction, the project proponent shall prepare a Monitoring and Reporting Program and submit it to the District's Development Services Department and the RWQCB for review and approval. The Monitoring and Reporting Program shall document implementation of the Soil and Groundwater Management Program. The Monitoring and Reporting Program shall include the project proponent's submittal of monthly reports (during project elements that include active landside disturbance activities, starting with the first ground disturbance activities and ending at the completion of ground disturbance activities of a project element) to the District's Development Services Department, signed and certified by the licensed Professional Geologist, Professional Engineering Geologist, or Professional Engineer, as applicable, documenting compliance with the provisions of the Soil and Groundwater Management Program and the overall Soil and Groundwater Management Program.

G. *Project Closeout Report***.** Within 30 days of completion of landside construction activities the project proponent shall prepare a Project Closeout Report and submit it to the District's Development Services Department for review and approval. The Project Closeout Report shall summarize all disturbance, demolition, and construction activity at the site and document implementation of the Soil and Groundwater Management Program. The Project Closeout Report would also include the reports and closure documentation associated with the VAP case opened for the site, including the correspondence with the DEH and the closure letter.

For **Impact-HAZ-2**:

MM-HAZ-2: Implement a Dredging Management Program. The project proponent shall implement a Dredging Management Program (DMP) that complies with applicable permit requirements, including the Section 404 permit and the Section 401 water quality certification. The DMP shall be implemented prior to, during, and upon completion of dredging activities for the proposed project. The DMP shall contain the following elements, each of which have specific timing mechanisms as identified in the description of each element below:

A. *Dredging Operations Plan.* Prior to commencement of dredging activities, the project proponent shall develop a Dredging Operations Plan that identifies the standard operating procedures (SOPs) that will be implemented during dredging activities. The Dredging Operations Plan shall be submitted to the District's Development Services Department for review and approval prior to commencing dredging activities. The Dredging Operations Plan shall include step-by-step procedures to complete dredging operations safely, in an efficient manner, and to avoid releases of hazardous materials into the environment. The SOPs shall include guidance with respect to, among other things, the following:

- Proper operation of the dredge bucket;
- Proper positioning of the barge vessel to minimize propeller wash; and
- Placement and maintenance of double silt curtains.

In addition, the Dredging Operations Plan shall identify sediment control BMPs to be implemented during dredging activities. The project proponent, or their contractor, shall at a minimum, implement the following BMPs for the safe handling of dredged material:

- **Sediment Unloading.** During dredging activities, the contractor shall reduce water column impacts by controlling the swing radius of the unloading equipment, using a spillage plate, and using a power wash unit to reduce impacts related to spillage from the excavator arm onto transport vehicles.
- **Filling Transport Vehicles.** During dredging activities, the contractor shall ensure that truck volumes are limited to 90 percent based on visual observations, and that trucks shall be covered and secured per Caltrans regulations during transport to the disposal facility.
- **Sediment Loading**. During dredging activities, the contractor shall ensure that trucks are loaded within a constructed loading zone to confine sediment spilled during the loading process.

B. *Contingency Plan*. Prior to commencement of dredging activities, the project proponent shall develop a Contingency Plan, which shall be implemented in the case of equipment or operational failures, such as, but not limited to, silt curtain damage, spillage of sediment resulting from overloading the material barge, contact with sediment on or around the materials barge during loading, equipment failure of bucket or shear pin during loading procedures, or material barge or tugboat collision with another vessel. The Contingency Plan shall be submitted to the District's Development Services Department for review and approval prior to commencing dredging activities. The Contingency Plan shall contain step-by-step procedures for response to equipment or operational failures and shall reduce the potential for the release of sediments to the water column.

C. *Health and Safety Plan for Dredging Activities*. Prior to the commencement of dredging activities, the project proponent shall prepare a Health and Safety Plan for Dredging Activities (Health and Safety Plan) and submit the plan to the District's Environmental Protection Department for review and approval. Following District approval, the project proponent shall implement the Health and Safety Plan for the duration of the dredging activity. The Health and Safety Plan shall be prepared in general accordance with Federal Occupational Safety and Health Administration Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120) and Title 8 California Code of Regulations (CCR) Section 5192. The Health and Safety Plan shall provide procedures for workers for safe operation, personal protection, and emergency response during dredging operations.

D. *Communication Plan*. Prior to the initiation of dredging activities, the project proponent or their contractor shall prepare a Communication Plan and operation guidelines for communications between the U.S. Coast Guard and Harbor Police and all vessel operators to ensure the safe movement of project vessels from the dredge site to the unloading area. The Communication Plan shall be submitted to the District's Development Services Department and Harbor Police for review and approval prior to commencing dredging activities. After the District's approval, the contractor shall implement the Communication Plan throughout the duration of dredging activities.

E. *Sediment Sampling and Remediation.* Following the completion of dredging, the project proponent must adhere to the following:

1. If no in-water construction work that could potentially disturb sediment is proposed for a dredging area (a specific area that was subject to dredging within the project site), or if proposed in-water construction work proposed for the dredging area will not commence within 90 days after the completion of dredging, sediment sampling and testing shall be conducted to determine whether contaminated sediments may have been exposed by dredging activities. Any sampling shall be conducted in accordance with Investigative Order No. R9-2017-0083 (IO), utilizing the methods required by the IO. The sediment samples shall be tested for the presence of the COCs identified in the CAO R9-2012-0024. A report explaining the sampling methodology used and containing the results of any sampling shall be provided to the RWQCB for review and approval, and to the District for concurrence. If no subsequent in-water construction work is proposed within the dredging area, the project proponent must comply with mitigation measure **MM-HAZ-5**. The project proponent must also comply with mitigation measure **MM-HAZ-3** prior to any in-water construction.
2. If in-water construction work that may potentially disturb sediment is proposed for a dredging area and will commence within 90 days after the completion of dredging, the project proponent must implement a Sediment Management Program, including sampling, as required by mitigation measure **MM-HAZ-3**, and must comply with all other mitigation measures.

MM-HAZ-3: Implement a (Waterside) Sediment Management Program. The project proponent shall retain a licensed Professional Engineer with substantial experience (i.e., more than 5 years) in marine sediment contamination, sediment sampling, and contamination remediation to oversee the implementation of a Sediment Management Program. The Sediment Management Program will be implemented prior to and throughout the duration of waterside construction activities for the proposed project. The Sediment Management Program shall include the following elements, each of which have specific timing mechanisms as identified in the description of each element below:

A. Sampling Analysis Plan

B. Marine Sediment Contamination Characterization Report

C. Contaminated Sediment Management Plan

D. In-Water Activity Specific Procedures

E. Post-Construction Sampling and Analysis

A. *Sampling and Analysis Plan (SAP).* Prior to in-water demolition or construction that may potentially disturb sediment, a licensed Professional Engineer shall (1) delineate the area of potential disturbance (Disturbance Area); (2) develop an SAP, which must be consistent with the sampling requirements of IO R9-2017-0083; and (3) perform sediment sampling. The SAP shall set forth the methodology to be used, the locations where sampling would occur, and analysis of the COCs so that it is consistent with the sampling requirements of IO R9-2017-0083, and proper decontamination and disposal procedures. The sediment samples shall be tested for the presence of the COCs identified in the CAO R9-2012-0024. The sampling area and sampling methodology shall identify sample locations determined to be appropriate, at the discretion of the District and RWQCB (or other applicable agencies), to adequately characterize any Disturbance Area associated with project elements. All

sediment sampling and analysis must occur after dredging activity and prior to other sediment-disturbing construction activity and shall be performed in accordance with the requirements of the SAP. The SAP must be submitted to the RWQCB for review and approval, and to the District for concurrence.

The results of all sediment sampling shall be documented in a report and submitted to the RWQCB for their review and approval prior to any marine-side sediment-disturbing activities.

B. *Marine Sediment Contamination Characterization Report (Sediment Characterization Report).* Prior to in-water construction (excluding dredging activities), the licensed Professional Engineer shall prepare a Sediment Characterization Report delineating the vertical and lateral extent and concentration of the project site's potential COCs in areas where pile driving or removal and other sediment-disturbing activities are proposed as part of this project. The Sediment Characterization Report shall be developed taking into account the site assessment reports, final cleanup reports, and post-remediation monitoring reports associated with the San Diego Shipyard Sediment Cleanup – North Shipyard, and sediment sampling performed per the SAP. The project proponent shall submit the Sediment Characterization Report to the RWQCB (and any other appropriate regulatory agencies) for approval as representative of sediment conditions in Disturbance Areas.

C. *Contaminated Sediment Management Plan (Sediment Management Plan)*. If contaminated sediment is identified in the Sediment Characterization Report in any of the proposed project Disturbance Area, the project proponent shall prepare a Sediment Management Plan for the District's and RWQCB's approval. Once approved, the Sediment Management Plan shall be implemented by the project proponent and be subject to oversight by the appropriate overseeing regulatory agencies, including the District. The Sediment Management Plan shall describe in detail the methods to be employed to prevent waterside construction activity from adversely affecting or exposing the gravelly-sand or sand-covered contaminated sediment, or disturbing contaminated sediment, as identified in the Sediment Characterization Report, and the monitoring that will occur postconstruction.

D. *In-Water Activity–Specific Procedures (Pile Installation or Removal).* Pile installation or removal shall be conducted in a manner that implements applicable permit requirements, including the CWA Section 404 permit and CWA Section 401 Water Quality Certification. The following measures are required based on the type of pile installation, or removal, that occurs.

1. **Impact Hammer Pile Driving**.

OR

2. **Internal Jetting.**

    A. Internal jetting shall not be allowed unless the project proponent can demonstrate, to the District's satisfaction, there are no feasible alternatives to the use of internal jetting.

    B. Turbidity curtains shall be installed in compliance with the District's Best Management Practices and Environmental Standards for Overwater Structural Repair and Maintenance Activities for Existing Port Facilities Conducted by the San Diego Unified Port District (District 2019).

OR

3. **Spudding**. Spudding shall not be allowed unless the project proponent can demonstrate, to the District's satisfaction, there are no feasible alternatives to the use of spudding. If no alternatives to spudding are feasible, when spuds are lifted during in-water construction, they shall be lifted slowly—at least a quarter of the speed that spuds are lifted during normal operation. Before the spud reaches the subsurface of the Bay floor during removal, the operator shall conduct spud extraction in 2-minute intervals (repeated 2-minute extraction followed by 2-minute pause) to reduce the disturbance of Bay sediment.

E. *Post-Construction Sampling and Analysis*. At the conclusion of construction activities within a Disturbance Area, the project proponent shall conduct post-construction sediment sampling that adequately characterizes potential contamination resulting from construction activities (and dredging activities if the in-water construction occurred within a dredging area) to determine if in-water construction or disturbance activities resulted in COCs in excess of the levels above the levels set forth in CAO R9-2012-0024. All sampling shall be conducted in accordance with IO No. R9-2017-0083, utilizing the methods required by the IO. The project proponent shall prepare, for submittal to and approval by the District and RWQCB, a Post-Construction Sampling Plan that shall outline the methodology to be used, the locations where sampling would occur, and the COCs to be analyzed consistent with CAO R9-2012-0024.

MM-HAZ-4: Comply with Federal and State Permits. Prior to in-water construction, the project proponent shall obtain all federal and state permits required for in-water construction activities, provide evidence of such permits to the District, and demonstrate to the District compliance with all permit conditions during in-water construction.

MM-HAZ-5: Implement Post-Dredging and/or Post-Waterside Construction Remediation. If, after the completion of any dredging activity for a dredging area or in-water construction work, consistent with the requirements of mitigation measures **MM-HAZ-2** and **MM-HAZ-3**, site sampling shows that concentrations of COCs exceed those set forth in CAO R9-2012-0024 (or other levels as prescribed by the RWQCB), the project proponent shall propose remediation consistent with CAO R9-2012-0024 (or other levels as prescribed by the RWQCB), subject to approval by the RWQCB, and any other agencies with jurisdiction over the site contamination, and concurrence by the District. The project proponent's remediation approaches may include, but are not limited to, additional dredging, placement of sand cover, or Enhanced Monitored Natural Recovery sand containing active carbon. If remediation is required, the remediation shall be conducted with oversight from the appropriate local, state, or federal regulatory agency. In addition, documentation evidencing the remediation work and completion thereof shall be submitted to the District. The project proponent shall monitor the remediation for its effectiveness, consistent with the standards set forth by CAO R9-2012-0024 (or other levels as prescribed by the RWQCB), for a period consistent with guidance from the regulatory agency with jurisdiction. A monitoring report shall be submitted to the District and the RWQCB for their review on a monthly basis, or at a frequency determined appropriate by the relevant agency overseeing the remediation activities.

If, after the completion of any dredging activity for a dredging area or in-water construction work within a Disturbance Area, consistent with the requirements of mitigation measures **MM-HAZ-2** and **MM-HAZ-3**, concentrations of COCs in the area of potential contamination do

not exceed those levels set forth in CAO R9-2012-0024 (or other levels as prescribed by the RWQCB), no further mitigation is required.

Level of Significance After Mitigation

With implementation of **MM-HAZ-1**, **Impact-HAZ-1** would be reduced to less-than-significant levels because safeguards would be taken during landside construction to ensure upset and accident conditions do not occur, and effects in the event of an unanticipated upset condition would be minimized.

Implementation of mitigation measures **MM-HAZ-2** through **MM-HAZ-5** would minimize potential impacts associated with sediment contamination during in-water construction activities, including dredging and pile installation located within areas with contaminated sediment (**Impact-HAZ-2**). **MM-HAZ-2** requires the project proponent to implement a Dredging Management Program that must include the development of: (A) Dredging Operations Plan identifying the appropriate SOPs and sediment control BMPs to be implemented; (B) Contingency Plan to prepare for equipment or operational failures; (C) Health and Safety Plan for Dredging Activities; (D) Communication Plan; and (E) Sediment Sampling and Remediation, to assess the condition of sediment post-dredging and outline potential remediation approaches, as appropriate. All of the plans and reports included in the Dredging Management Program would be reviewed and approved by the District and/or the San Diego RWQCB. **MM-HAZ-3** requires the project proponent to implement a (Waterside) Sediment Management Program that must contain: (A) Sampling Analysis Plan (SAP); (B) Marine Sediment Contamination Characterization Report; (C) Contaminated Sediment Management Plan; (D) In-Water Activity Specific Procedures; and (E) Post-Construction Sampling and Analysis. **MM-HAZ-4** requires the project proponent to obtain all federal and state permits required for in-water construction activities and demonstrate to the District compliance with all permit conditions during in-water construction. **MM-HAZ-5** requires the project proponent to propose and conduct remediation of the site if, after in-water construction activities and dredging are complete, site sampling shows that concentrations of COCs exceed those set forth in CAO R9-2012-0024 (or other levels as prescribed by the RWQCB). With implementation of **MM-HAZ-2** through **MM-HAZ-5**, **Impact-HAZ-2** would be reduced to less than significant.

Threshold 4: The proposed project would be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would not create a significant hazard to the public or the environment.

Impact Discussion

As discussed in Section 4.7.3.2, the lists compiled pursuant to Government Code Section 65962.5 (or the Cortese list) include a variety of hazardous waste facilities, unauthorized releases, and cleanup sites. As shown in Table 4.7-2, the project site would be located on an unauthorized release site with an unknown status (H09689-003), on a contaminated sediment cleanup site (CAO R9-2012-0024), and on potentially contaminated soil and/or groundwater due to historic land uses and database listings. If not properly handled, these contaminated soils, groundwater, and sediments could result in a release of hazardous materials into the environment, exacerbating the existing hazardous condition at the project site during construction of the proposed project (**Impact-HAZ-1** and **Impact-HAZ-2**).

Level of Significance Prior to Mitigation

Implementation of the proposed project would occur on sites that are 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. Potentially significant impact(s) include:

Impact-HAZ-1 and **Impact-HAZ-2**, as discussed under Threshold 2 above.

Mitigation Measures

For **Impact-HAZ-1**:

Implement **MM-HAZ-1**, as described under Threshold 2 above.

For **Impact-HAZ-2**:

Implement **MM-HAZ-2** through **MM-HAZ-5**, as described under Threshold 2 above.

Level of Significance After Mitigation

With implementation of **MM-HAZ-1**, **Impact-HAZ-1** would be reduced to less-than-significant levels because safeguards would be taken during landside construction to ensure upset and accident conditions do not occur, and effects in the event of an unanticipated upset condition would be minimized.

Implementation of mitigation measures **MM-HAZ-2** through **MM-HAZ-5** would minimize potential impacts associated with sediment contamination during in-water construction activities including dredging and pile installation located within areas with contaminated sediments (**Impact-HAZ-2**). These mitigation measures would require implementation of a Dredging Management Program and Sediment Management Program, compliance with federal and state permits, and post-dredging and/or post-waterside construction remediation. With implementation of **MM-HAZ-2** through **MM-HAZ-5**, **Impact-HAZ-2** would be reduced to less than significant.

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Section 4.5
Hydrology and Water Quality

4.5.1 Overview

This section describes the existing conditions and applicable laws and regulations for hydrology and water quality, followed by an analysis of the proposed project's potential to: (1) violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, (3) substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river or through the addition of impervious surfaces, (4) in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation, and (5) conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. All other hydrology and water quality issues were addressed in Section IX of the Initial Study/Environmental Checklist (Appendix A) and determined to be less than significant. The analysis and conclusions regarding these impacts are also summarized in Chapter 6, Section 6.4, *Effects Not Found to Be Significant*.

Table 4.5-1. Summary of Significant Hydrology and Water Quality Impacts and Mitigation Measures

Summary of Potentially Significant Impact(s)	Summary of Mitigation Measure(s)	Level of Significance After Mitigation	Rationale for Finding After Mitigation
Impact-HWQ-1: Degradation of Water Quality from Waterside Sediment Contamination	Implement **MM-HAZ-2, MM-HAZ-3, MM-HAZ-4**, and **MM-HAZ-5** in Section 4.4, *Hazards and Hazardous Materials*	Less than Significant	Implementation of **MM-HAZ-2, MM-HAZ-3, MM-HAZ-4,** and **MM-HAZ-5** would ensure the project proponent characterizes the contaminated sediment on site, implements appropriate BMPs, manages contaminated sediment and dredge materials, remediates sediments if necessary, and complies with all federal and state permits; thereby reducing potential degradation of water quality due to contamination.
Impact-HWQ-2: Removal of Creosote Piles Could Result in Resuspension of Sediments Contaminated with PAHs	**MM-HWQ-1:** Remove and Dispose of Creosote Piles Properly	Less than Significant	**MM-HWQ-1** would ensure that chemicals from the existing piles do not leach into the adjacent sediments or the water column.

4.5.2 Existing Conditions

This section describes the hydrology and water quality settings of the project site.

4.5.2.1 Surface Water Hydrology

The project site is within the jurisdiction of the San Diego Regional Water Quality Control Board (RWQCB). The San Diego Region is divided into 11 hydrologic units (HUs) for administrative purposes. Each of the HUs flow from elevated regions in the east to lagoons, estuaries, or bays in the west and feature similar water quality characteristics and issues. The proposed project is within the San Diego Bay Watershed, which is within the Pueblo San Diego HU. The Pueblo San Diego HU is the smallest in San Diego County and covers approximately 60 square miles of predominantly urban landscape in the cities of San Diego, La Mesa, Lemon Grove, and National City. Approximately 75 percent of the watershed is developed. The Pueblo San Diego HU contains three hydrologic areas: Point Loma (908.1), San Diego Mesa (908.2), and National City (908.3). The project site is in the San Diego Mesa hydrologic area. The San Diego Bay and Chollas Creek fall within the San Diego Mesa hydrologic area. The project site is adjacent to and within the San Diego Bay and northwest of Chollas Creek. Major water features in the Pueblo San Diego HU include Chollas Creek, Paleta Creek, and San Diego Bay (Project Clean Water 2018). Pueblo San Diego has no central stream system and instead consists primarily of a group of relatively small local creeks and pipe conveyances, many of which are concrete-lined and drain directly into San Diego Bay.

4.5.2.2 Surface Water Quality

San Diego Bay is the receiving water body for the project site. Water quality in San Diego Bay is influenced by processes and activities that take place within the Pueblo San Diego watershed. The creeks in the watershed are highly affected by urban runoff, such as contaminants from roadways, industry, and other urban sources. Major contaminants found in San Diego Bay include chlorinated hydrocarbons, toxic components of petroleum hydrocarbons, polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyl (PCBs), heavy metals, and organotins (organic compounds with one or more tin atoms) such as tributyltin. The most significant sources of pollutants affecting the beneficial uses of San Diego Bay are urban and agricultural runoff, resource extraction, septic systems, and marinas and boating activities (Project Clean Water 2018).

Tidal exchange in San Diego Bay controls the flushing of contaminants, salt and heat balance, and residence time of water. The ebb and flow of tides mix ocean and San Diego Bay waters. Tides produce currents, which induce changes in salinity, and alternately expose and wet portions of the shoreline. Tidal flushing and mixing are important for dispersing pollutants, maintaining water quality, and moderating water temperature that has been affected by exchange with the atmosphere or heating. Tidal flushing and currents affect water quality in north-central San Diego Bay. Water quality also is influenced locally by freshwater inflows.

Sediment Contamination

On March 14, 2012, a Cleanup and Abatement Order (CAO) R9-2012-0024*, San Diego Bay Shipyard Sediment Cleanup for the NASSCO and BAE Leaseholds* (San Diego Bay Shipyard Sediment Cleanup) was issued by the San Diego RWQCB for sediment contamination within the General Dynamics NASSCO and BAE Systems leaseholds (San Diego RWQCB 2012). The State Water Resources Control

Board's (SWRCB's) GeoTracker database includes numerous documents associated with CAO R9-2012-0024. An assortment of waste has been generated at these facilities including spent abrasive, paint, rust, petroleum products, marine growth, sanitary waste, and general refuse. The CAO was issued to order the cleanup of impacted sediments within the NASSCO and BAE Systems leaseholds, which was collectively referred to as the Shipyard Sediment Site. The Shipyard Sediment Site was divided into the North Shipyard (the property leased by BAE Systems) and the South Shipyard (the property leased by NASSCO). As such, the waterside portion of the project site is within the North Shipyard Cleanup boundary.

The CAO required cleanup of impacted sediments that contained contaminants of concern (COCs) above San Diego Bay background sediment levels. Cleanup levels were established for primary COCs of copper; mercury; high-molecular weight polynuclear aromatic hydrocarbons (HPAHs), which was defined as the sum of fluoranthene, perylene, benzo(a)anthracene, chrysene, benzo(a)pyrene, and dibenzo(a,h) anthracene; PCBs; and tributyltin. Cleanup levels for secondary COCs were established for arsenic, cadmium, and zinc. The remedial action for the Shipyard Sediment Site (both North and South Shipyards) consisted of mechanically removing approximately 142,745 cubic yards of material to remove contaminated sediment located at the site. Within the North Shipyard, approximately 114,085 cubic yards of impacted sediments were removed and disposed offsite. In addition, contaminated sediments that were unable to be dredged (in sloping and under-pier areas)—42,698 tons of cover material (including both sand cover and gravelly sand cover)—were placed in both shipyard sites (Anchor QEA 2016). Order R9-2013-0093 was issued on July 10, 2013 for the waterside portions of the site related to sediment remediation requirements of t CAO R9-2012-0024 (San Diego RWQCB 2013). Order R9-2013-0093 imposed requirements that regulate discharges of waste associated with dredging activities required by CAO R9-2012-0024 (SRWQCB 2013). Contaminated marine bay sediments adjacent to the BAE Systems and NASSCO shipyards in San Diego Bay was removed under Order R9-2013-0093 using environmental dredging techniques performed specifically for the removal of contaminated sediment while minimizing the spread of contaminants to the surrounding environment during dredging operations. The dredged sediment was off-loaded from haul barges to a landside staging area (sediment staging area or sediment management area), dewatered and solidified (onshore or on a barge), sampled for waste characterization, and transported by trucks to the appropriate landfill disposal facility. The cleanup was reported completed as of April 2016 and the site is currently under post-remediation monitoring to evaluate the effectiveness of the cleanup (Appendix E).

On August 4, 2017, the San Diego RWQCB issued Investigative Order R9-2017-0083 (RWQCB 2017). According to Investigative OrderR9-2017-0083, the San Diego RWQCB required additional sediment data for the area of San Diego Bay north of and including a portion of the BAE Systems leasehold. The data are needed to delineate the extent and magnitude of pollutants discharged by San Diego Gas and Electric Company (SDG&E) and BAE Systems and to determine if additional cleanup and abatement activities are required to restore the beneficial uses of San Diego Bay. While Order R9-2013-0093 required dredging and removing contaminated Bay sediments to remediate the sediments for the primary COCs, the northernmost end of the remedial dredging footprint under CAO R9-2012-0024 was limited to within the current BAE Systems' site's northwestern boundary, even though the sediment data upon which the CAO was based showed that impacted sediments extended beyond the leasehold boundary to the north. Thus, the extent and magnitude of the contamination was not fully delineated at the time CAO R9-2012-0024 was issued.

As required under Investigative Order R9-2017-0083, a Sampling and Analyses Report was completed in April 2019 and evaluated sediment chemistry to understand the availability of selected

chemicals in surface sediment, characterize the nature and extent of sediment contamination, identify potential sources of chemicals to the sediment, and evaluate the fate and transport of sediment bound contamination. The Sampling and Analyses Report indicated elevated concentrations of PCBs, PAHs, and some metals are present in the Investigation Area.

Hazardous Material Structures in Water

The Hazardous Material Technical Study (HMTS) prepared for the proposed project (Appendix E) identifies the potential for wooden components in piers, wharfs, or bulkheads within the project site to have been treated with creosote. Creosote is a common wood preservative and contains toxic PAHs. The Emergency Response Notification System database listing from April 30, 2013, mentions an oily sheen present in the Bay, and identifies the potential source of the oily sheen as creosote piles. Oily sheen indicates transfer of creosote components directly to the marine environment. Organisms can be directly exposed to the PAH in the water column, from clinging to the wood, and from sediments.

Total Maximum Daily Loads

A Total Maximum Daily Load (TMDL) is a calculation of the total maximum amount of a pollutant that a water body can receive on a daily basis and still safely meet water quality standards. The SWRCB approved the 2014 and 2016 Integrated Report (Clean Water Act [CWA] Section 303(d) List / 305(b) Report) on October 3, 2017. On April 6, 2018, the United States Environmental Protection Agency (EPA) approved the California 303(d) List of Water Quality Limited Segments. As shown in Table 4.5-2, water bodies with 303(d)-listed impairments with potential to be affected by the proposed project include Chollas Creek, San Diego Bay, San Diego Bay shoreline between Sampson Street (adjacent to the project site) and 28th Street (directly south of the project site), and the San Diego Bay shoreline near Coronado Bridge (north of the project site) based on the 2014 and 2016 California Integrated Report (SWRCB 2016).

The entirety of San Diego Bay remains on the 303(d) list as impaired for PCBs in fish tissue as a result of historic uses, including from storm drains that drain the former bayside Teledyne Ryan Aeronautical Facility in Convair Lagoon, approximately 3 miles northwest of the project site. Although Teledyne Ryan Aeronautical Facility abated the effects of historic PCB discharges into Convair Lagoon, the Bay remains impaired (RWQCB 2013).

Table 4.5-2. 303(d)-Listed Impairments for Water Bodies and Adjacent Shorelines Within the Project Vicinity

Reach	303(d)-listed Impairments	Source	Expected Attainment Date
Chollas Creek	Benthic Community Effects	Unknown	2005
	Sediment Toxicity	Unknown	2010
San Diego Bay	PCBs	Unknown	Est. 2019
	PAHs	Unknown	Est. 2025
	Mercury	Atmospheric deposition, contaminated sediments, historic land management activities, urban runoff	Est. 2027
San Diego Bay Shoreline, near Coronado Bridge	Benthic Community Effects	Unknown	Est. 2019
	Sediment Toxicity	Unknown	Est. 2019
San Diego Bay Shoreline, between Sampson and 28th Streets	Copper	Unknown	Est. 2015
	Mercury	Major Industrial Point Source	Est 2013
	PAHs	Unknown	Est 2013
	PCBs	Unknown	Est. 2013
	Zinc	Unknown	Est. 2013

Source: State Water Resources Control Board 2016

PCBs = polychlorinated biphenyls; PAHs= Polycyclic aromatic hydrocarbons; TMDL = Total Maximum Daily Load; est. = estimated

4.5.2.3 Drainage Patterns

The project site and surrounding area includes dense urban development and associated infrastructure (e.g., roads, sidewalks, gutters); therefore, the majority of the drainage area can be classified as highly impervious. The existing site development consists of an asphalt parking lot, concrete pathways and piers, several buildings, and a few minimally landscaped areas. The receiving water body for surface runoff from the project site is the San Diego Bay. A large portion of the existing site drains via overland sheet flow into the Bay or through an existing underground storm drain system. Based on a review of the City of San Diego's municipal separate storm sewer system (MS4) Inventory Map (City of San Diego 2015) and the District's MS4 Map (District 2018), the project site is underlain by both City and District (tenant-influenced) storm drain lines that discharge directly to the Bay. The project site contains a Storm Water Diversion System (SWDS), operated and maintained by BAE Systems to eliminate and/or reduce the volume of pollutants discharged to the San Diego Bay. This system consists of 36 catch basins (drains) and associated piping, as well as secondary containment from various hazardous materials areas. The diversion system is designed to capture at least the first 1.0 inch of stormwater that has fallen upon the facility. Rain gauges are utilized to determine when 1.0 inch of rainfall has been achieved. Collected stormwater is held in 11 tank systems (DS1 through DS11) and is managed in accordance with the

BAE Systems Industrial User Discharge (IUD) Permit, issued by the City of San Diego Industrial Wastewater Control Program. Once the stormwater has been determined to meet IUD permit parameters, it is discharged into the onsite sewer (District 2015).

4.5.2.4 Potential Flooding

Flood hazard areas on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) are identified as a Special Flood Hazard Area. As shown in FEMA FIRM No. 06073C1885G (Figure 4.5-1), the landside portion of the project site is outside the FEMA 100-year floodplain (FEMA 2012). However, the waterside portion of the project site is within Flood Zone AE, which is an area subject to flooding during the 100-year storm event (1 percent annual chance of flooding where base flood elevations and flood hazard factors are determined).

4.5.3 Applicable Laws and Regulations

This section provides an overview of the pertinent federal, state, and local laws and regulations governing hydrology and water quality for the proposed project.

4.5.3.1 Federal

Clean Water Act

The primary goals of the CWA are to restore and maintain the chemical, physical, and biological integrity of the nation's waters and to make all surface waters fishable and swimmable. EPA is the lead federal agency responsible for water quality management. The CWA of 1972 (33 United States Code [USC] 1251–1387) is the primary federal law that governs and authorizes water quality control activities by EPA as well as the states. The federal CWA of 1977 (33 USC 1251 et seq.), which amended the federal Water Pollution Control Act of 1972, established the basic structure for regulating discharges of pollutants into the waters of the United States (not including groundwater). Under the CWA, it is unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a National Pollutant Discharge Elimination System (NPDES) permit is obtained and implemented within compliance. In addition, the CWA requires the states to adopt water quality standards for receiving water bodies and to have those standards approved by EPA. Water quality standards consist of designated beneficial uses for a particular receiving water body (e.g., wildlife habitat, agricultural supply, fishing), along with water quality criteria necessary to support those uses.

The proposed project would be required to comply with the CWA, as discussed in the subsections below.

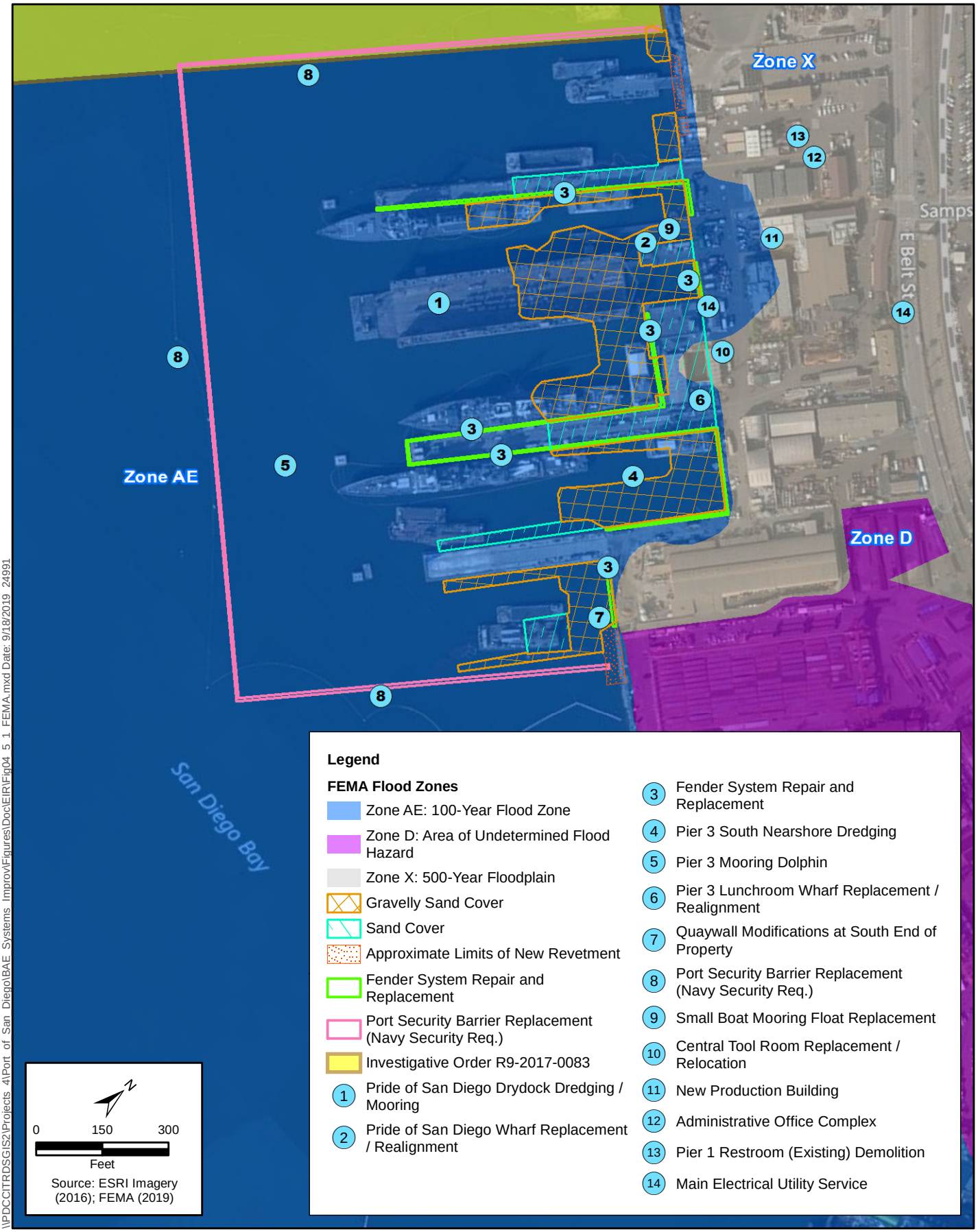

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Figure 4.5-1
FEMA Flood Zones
BAE Systems Waterfront Improvement Project

Section 303: Impaired Water Bodies (303(d) list) and Total Maximum Daily Loads

Under Section 303(d) of the CWA, the SWRCB is required to develop a list of impaired water bodies that do not meet water quality standards (promulgated under the National Toxics Rule [NTR] or the California Toxics Rule [CTR]) after the minimum technology-based effluent limitations have been implemented for point sources. Lists are to be priority ranked for development of a TMDL. The California RWQCBs and EPA are responsible for establishing TMDL waste-load allocations and incorporating improved load allocations into water quality control plans, NPDES permits, and waste discharge requirements. Section 305(b) of the CWA requires that states assess the status of water quality conditions within the state in a report to be submitted every 2 years.

Both CWA requirements are being addressed by the SWRCB through the development of a 303(d)/305(b) Integrated Report, which will address both an update to the 303(d) list and a 305(b) assessment of statewide water quality. As noted in Section 4.5.2.2, *Surface Water Quality,* the SWRCB developed a statewide 2014 and 2016 California Integrated Report based upon the Integrated Reports from each of the nine RWQCBs. The 2014 and 2016 California Integrated Report was approved by the SWRCB on October 3, 2017, and EPA issued its final decision and approval on April 6, 2018.

All of the 303(d) listed impaired waters with potential to be affected by the proposed project would be evaluated as part of the project, and minimization measures would be implemented to protect waters from further water quality impairment.

Section 401: Water Quality Certification

Under Section 401 of the CWA, an applicant for a Section 404 permit to discharge dredged or fill material into waters of the United States must first obtain a certificate from the appropriate state agency stating that the fill is consistent with the state's water quality standards and criteria. In California, the authority to either grant water quality certification or waive the requirement is delegated by the SWRCB to the nine RWQCBs. In addition, an applicant under Section 10 of the Rivers and Harbor Act must also obtain a Section 401 Water Quality Certification.

The proposed project would require a Section 401 Water Quality Certification from the SWRCB for project activities permitted under the CWA Section 404 Permit and Rivers and Harbor Act Section 10 Permit.

Section 402: National Pollutant Discharge Elimination System Permits

Section 402(p) of the CWA was amended in 1987 to require EPA to establish regulations for permitting of municipal and industrial (including active construction sites) stormwater discharges under the NPDES permit program. EPA published final regulations for industrial and municipal stormwater discharges on November 16, 1990. The NPDES program requires all industrial facilities and municipalities of a certain size that discharge pollutants into waters of the United States to obtain a permit. Stormwater discharges in California are commonly regulated through general and individual NPDES permits, which are adopted by the SWRCB or RWQCBs and are administered by the RWQCBs. EPA requires NPDES permits to be revised to incorporate waste-load allocations for TMDLs when the TMDLs are approved (40 Code of Federal Regulations [CFR] 122).

NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the

discharger, including industrial pretreatment, pollution prevention, self-monitoring, or other activities.

The proposed project would be required to comply with the local NPDES Permit, as described in the Local Regulations section (4.5.3.3) below under *RWQCB Municipal Stormwater Permit*.

Section 404: Permits for Dredged or Fill Material

Under Section 404, the U.S. Army Corps of Engineers (USACE) and EPA regulate the discharge of dredged and fill materials into the waters of the United States. These waters are primarily defined as navigable waterways or water features (including wetlands) that have a significant nexus to navigable waters. Project sponsors must obtain authorization from USACE for all discharges of dredged or fill materials into waters of the United States before proceeding with a proposed activity. Individual Section 404 permits may only be issued for a least environmentally damaging practicable alternative. Compliance with CWA Section 404 requires compliance with several other environmental laws and regulations. USACE cannot issue an individual permit or verify the use of a general permit until the requirements of the National Environmental Policy Act of 1969, Endangered Species Act, Coastal Zone Management Act, and National Historic Preservation Act have been met. Additionally, no permit can be issued or verified until a water quality certification, or waiver of certification, has been issued pursuant to CWA Section 401.

The proposed project would be required to obtain and comply with a Section 404 Permit from USACE for dredging activities associated with Project Element 1 (Pride of San Diego Drydock Dredging and Moorage Replacement, Project Element 4 (Pier 3 South Nearshore Dredging), and Project Element 7 (Quay Wall Modifications) and for the discharge of clean sand cover into San Diego Bay.

Section 10, Rivers and Harbors Act of 1899

The Rivers and Harbors Act is a primary federal law regulating activities that may affect navigation on the nation's waterways. Section 10 of the Rivers and Harbors Act grants USACE control over obstructions to navigable waters of the United States and gives USACE exclusive authority to approve construction of smaller structures, such as wharves, booms, and bulkheads, as well as to approve dredging and filling operations.

The proposed project would require a Section 10 Permit from USACE for the following project elements that involve the addition of new and/or replacement structures in the water:

- Project Element 1 (Pride of San Diego Drydock Dredging and Moorage Replacement)
- Project Element 2 (Pride of San Diego Drydock Wharf Replacement and Realignment)
- Project Element 3 (Fender System Repair and Replacement)
- Project Element 4 (Pier 3 South Nearshore Dredging)
- Project Element 5 (Pier 3 Mooring Dolphin)
- Project Element 6 (Pier 3 North Lunchroom Wharf Replacement and Realignment)
- Project Element 8 (Port Security Barrier Replacement)
- Project Element 9 (Small Boat Mooring Float Replacement)

Federal Emergency Management Agency

FEMA administers the National Flood Insurance Program to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA also issues FIRMs that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection is established by FEMA. FEMA's minimum level of flood protection for new development is the 100-year flood event, also described as a flood that has a 1-in-100 chance of occurring in any given year.

Additionally, FEMA has developed requirements and procedures for evaluating earthen levee systems and mapping the areas affected by those systems. Levee systems are evaluated for their ability to provide protection from 100-year flood events, and the results of this evaluation are documented in the FEMA Levee Inventory System. Levee systems must meet minimum freeboard standards and must be maintained according to an officially adopted maintenance plan. Other FEMA levee system evaluation criteria include structural design and interior drainage.

The waterside portion of the project site falls within FEMA FIRM No. 06073C1885G and would therefore be subject to FEMA regulations.

4.5.3.2 State

California Ocean Plan

The Water Quality Control Plan for Ocean Waters of California (California Ocean Plan) of the SWRCB implements standards for ensuring consistency between water quality control plans and policies (SWRCB 2019). In the adoption and amendment of water quality control plans, each plan provides for the attainment and maintenance of the water quality standards of downstream waters. To the extent there is a conflict between a provision of the California Ocean Plan and a provision of another statewide plan or policy, or a regional water quality control plan (Basin Plan), the more stringent provision applies except where pursuant to Chapter III.J of the California Ocean Plan.

The proposed project would be required to comply with the California Ocean Plan.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (embodied in the California Water Code) of 1969 (Porter-Cologne Act) is California's statutory authority for the protection of water quality. Under the Porter-Cologne Act, the State must adopt water quality policies, plans, and objectives that protect its waters for the use and enjoyment of the people. Under the California Water Code, the State of California is divided into nine regions governed by RWQCBs that, under the guidance and review of the SWRCB, implement and enforce provisions of the California Water Code and the CWA. The project site is in Region 9, the San Diego Region, and governed by the San Diego RWQCB.

The Porter-Cologne Act also requires waste dischargers to notify the RWQCBs of their activities through the filing of Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, NPDES permits, Section 401 water quality certifications, or other approvals.

Section 13050 of the California Water Code defines what is considered pollution, contamination, or nuisance. Briefly defined, pollution means an alteration of water quality such that it unreasonably affects the beneficial uses of water. Contamination means an impairment of water quality to the degree that it creates a hazard to public health. Nuisance is defined as anything that is injurious to health, is offensive to the senses, or is an obstruction to property use, and which affects a considerable number of people.

Section 13304 *Cleanup and Abatement*, outlines the RWQCB or SWRCB's authority to order cleanup and abatement efforts to an entity that has discharged waste or has allowed the discharge of waste to waters of the state, or threatens to create a condition of pollution (Water Code Chapter 5, Section 13304). A cleanup and abatement order issued by the SWRCB or RWQCB may require the clean up of waste or abatement of the effects of waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts (CSWRCB 2019). Water Code Section 13267, *Investigations, inspections,* outlines the RWQCB's authority to issue an investigative order. The RWQCB, in establishing or reviewing any water quality control plan or waste discharge requirements, or in connection with any action related to a plan or discharge requirements, may investigate the quality of waters within the region. The RWQCB can require that responsible parties investigate the discharge or threatened discharge of toxic pollutants.

The proposed project would be required to comply with the Porter-Cologne Water Quality Control Act through compliance with the San Diego Region Basin Plan and NPDES Permit.

State Water Resources Control Board Resolution Number 92-49

SWRCB Resolution Number 92-49 – *Policies and Procedures for the Investigation and Cleanup and Abatement of Discharges Under Section 13304* was adopted by the SWRCB in 1992. The resolution contains policies and procedures for the RWQCBs to follow for the oversight and regulation of investigations and cleanup and abatement activities for all types of discharges as described in Section 13304 of the Water Code (described above). Resolution No. 92-49 also provides the requirements of establishing and maintaining a site's containment zone.

State Water Resources Control Board Resolution Number No. 68-16

SWRCB Resolution Number 68-16 – *Statement of Policy Regarding Maintaining High Quality Water in California* (also known as the Antidegradation Policy) protects the quality of water bodies where the quality is higher than the established standards for the protection of beneficial uses. Any actions that adversely affect water quality in surface or ground water must " 1) be consistent with maximum benefit to the people of the State; 2) not unreasonably affect present and anticipated beneficial use of the water; and, 3) not result in water quality less than that prescribed in water quality plans and policies" (SWRCB 1968).

Water Quality Control Plan for Enclosed Bays and Estuaries

The Water Quality Control Plan for Enclosed Bays and Estuaries: Part 1 Sediment Quality Objectives (Enclosed Bays and Estuaries Plan) was adopted by the SWRCB in 2008, and was most recently amended on June 5, 2018, to include the *Sediment Quality Provisions*. The Enclosed Bays and Estuaries Plan Sediment Quality Provisions is intended to comply with the legislative directive of Water Code Section 13393, which requires the SWRCB to adopt sediment quality objectives. The

Enclosed Bays and Estuaries Plan Sediment Quality Provisions includes measures to protect sediment-dependent biota communities in enclosed bays and estuaries. The Sediment Quality Provisions include sediment quality objectives for the projection of aquatic life, human health, wildlife, and resident finfish.

SWRCB Construction General Permit (Order 2009-0009-DWQ)

Construction activities that disturb 1 acre or more of land must obtain coverage under the SWRCB Construction General Permit (Order 2009-0009-DWQ as amended by Order 2010-0014-DWQ and Order 2012-0006-DWQ). Under the terms of the permit, applicants must file complete and accurate Notice of Intent and Permit Registration Documents with the SWRCB. Applicants must also demonstrate conformance with applicable construction best management practices (BMPs) and prepare a construction Storm Water Pollution Prevention Plan (SWPPP) containing a site map that shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project site. The proposed project would not be required to comply with the Construction General Permit because it would disturb less than 1 acre of land during construction.

4.5.3.3 Local

Water Quality Control Plan (Basin Plan)

The preparation and adoption of water quality control plans (Basin Plans) is required by the California Water Code (Section 13240) as prescribed by the CWA. Section 303 of the CWA requires states to adopt water quality standards that "consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses." According to Section 13050 of the California Water Code, Basin Plans consist of a designation or establishment of beneficial uses to be protected, water quality objectives to protect those uses, and a program of implementation needed for achieving the objectives for the waters within a specified area. Because beneficial uses, together with their corresponding water quality objectives, can be defined per federal regulations as water quality standards, the Basin Plans are regulatory references for meeting the state and federal requirements for water quality control.

Beneficial Uses

The San Diego RWQCB has designated Beneficial Uses and Water Quality Objectives for water bodies under its jurisdiction (San Diego RWQCB 2016). They are defined as the uses of water necessary for the survival or well-being of humans, plants, and wildlife. These uses of water serve to promote the tangible and intangible economic, social, and environmental goals of mankind. Examples include drinking, swimming, industrial, and agricultural water supply, and the support of fresh and saline aquatic habitats (San Diego RWQCB 2016).

Because of the project site's location, the receiving waters are limited to the Bay, the designated beneficial uses of which include the following.

- Industrial Service Supply (IND) includes use of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well repressurization.

- Navigable (NAV) includes uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.
- Contact Water Recreation (REC1) includes uses of water for recreational activities that involve body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and SCUBA diving, surfing, white water activities, fishing, or the use of natural hot springs.
- Non-contact Water Recreation (REC2) includes the uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
- Commercial and Sport Fishing (COMM) includes the uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.
- Preservation of Biological Habitats or Special Significance (BIOL) includes uses of water that support designated areas or habitats.
- Estuarine Habitat (EST) includes uses of water that support estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, or shorebirds).
- Wildlife Habitat (WILD) includes uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife, or wildlife water and food sources.
- Rare, Threatened, or Endangered Species (RARE) includes uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.
- Marine Habitat (MAR) includes uses of water that support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds).
- Migration of Aquatic Organisms (MIGR) includes uses of water that support habitats necessary for migration, acclimatization between fresh and salt water, or other temporary activities by aquatic organisms, such as anadromous fish.
- Spawning, Reproduction, and/or Early Development (SPWN) includes uses of water that support high-quality habitats suitable for reproduction, early development, and sustenance of marine fish and/or cold freshwater fish.
- Shellfish Harvesting (SHELL) includes uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters, and mussels) for human consumption, commercial, or sport purposes.

The designated beneficial uses of the Pueblo San Diego Hydrologic Unit include the following:

- Municipal and Domestic Supply (MUN) includes uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.

Water Quality Objectives

The Basin Plan sets narrative and numerical water quality objectives that must be attained or maintained to protect beneficial uses and conform to the State's degradation policy. The water quality objectives are the levels of water quality constituents that must be met to protect the beneficial uses (San Diego RWQCB 2016). Table 4.5-3 lists these water quality constituents that received narrative or numerical concentration objectives. Surface water and groundwater Quality Objectives for the Pueblo San Diego HU are shown in Table 4.5-4. A complete and detailed list of water quality objectives can be found in the Basin Plan. Each water quality constituent may result in varied objectives conditional on the beneficial use of the waters.

Table 4.5-3. Water Quality Constituents

Bacteria – Total coliform, Fecal Coliform, E. Coli, and Enterococci	pH
Biostimulatory Substances	Phenolic Compounds
Boron	Radioactivity
Chlorides	Secondary Drinking Water Standards[2]
Color	Sediment
Dissolved Oxygen	Sodium
Floating Material	Sulfate
Fluoride	Suspended and Settleable Solids
Inorganic Chemicals[1]	Tastes and Odors
Iron	Temperature
Manganese	Total Dissolved Solids
Methylene Blue–Activated Substances	Toxicity
Nitrate	Toxic Pollutants[3]
Oil and Grease	Trihalomethanes
Organic Chemicals	Turbidity
Pesticides	

Source: San Diego RWQCB 2016

[1] Waters designated for use as domestic or municipal supply (MUN) cannot contain concentrations of inorganic chemicals in excess of the maximum contaminant levels set forth in California Code of Regulations, Title 22, Table 64431-A of section 64431 (Inorganic Chemicals), which is incorporated by reference into the Basin Plan. Inorganic chemicals include aluminum, antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrate+nitrite, nitrite, selenium, and thallium.

[2] Water designated for use as domestic or MUN cannot contain concentrations of chemical constituents in excess of the maximum contaminant levels specified in Table 64449-A of section 64449 of Title 22 of the California Code of Regulations (Secondary Maximum Contaminant Levels, Consumer Acceptance Limits), which is incorporated by reference into the Basin Plan. Includes aluminum, color, copper, corrosivity, foaming agents, iron, manganese, methyl tert-butyl ether (MTBE), odor threshold, silver, thiobencarb, turbidity and zinc.

[3] EPA promulgated a final rule prescribing water quality criteria for toxic pollutants in inland surface waters, enclosed bays, and estuaries in California on May 18, 2000 (The California Toxics Rule or "CTR" [40 CFR 131.38]). CTR criteria constitute applicable water quality criteria in California. In addition to the CTR, certain criteria for toxic pollutants in the National Toxics Rule [40 CFR 131.36] constitute applicable water quality criteria in California as well. The Shelter Island Yacht Basin portion of San Diego Bay is designated as an impaired water body for dissolved copper pursuant to Clean Water Act section 303(d). A Total Maximum Daily Load (TMDL) has been adopted to address this impairment.

Table 4.5-4. Surface- and Groundwater Quality Objectives

	Constituent (mg/L or as noted)												
	TDS	Cl	SO_4	% N	N&P	Fe	Mn	MBAS	B	ODOR	Turb NTU	Color Units	F
Surface Water Quality Objectives													
Pueblo San Diego HU	--	--	--	--	--	--	--	--	--	None	20	20	-
Groundwater Quality Objectives													
Pueblo San Diego HU[1]	--	--	--	--	--	--	--	--	--	--	--	--	--

Source: San Diego RWQCB 2016.

[1] No significant amount of groundwater in this unit.

B = boron; Cl = chlorine; F = fluoride; Fe = iron; HU = hydrologic unit; MBAS = methlylene blue activated substances; mg/L = milligrams per liter; Mn = manganese; N = nitrogen; N&P = nitrogen and phosphorus; SO_4 = sulfate; TDS = total dissolved solids; Turb NTU = turbidity (reported in nephelometric turbidity units).

The project site falls within the San Diego RWQCB's jurisdiction and would therefore be required to comply with the Basin Plan.

Municipal Stormwater Permit (Order R9-2013-0001 as amended by Orders R9-2015-001 and R9-2015-0100)

The Municipal Stormwater Permit (Order R9-2013-0001 as amended by Orders R9-2015-0001 and R9-2015-0100) is an NPDES permit issued that requires the owners and operators of MS4s within the San Diego Region to implement management programs to limit discharges of pollutants and non-stormwater discharges to and from their MS4 from all phases of development. The Municipal Stormwater Permit requires the District and other "copermittees" to develop watershed based Water Quality Improvement Plans (WQIPs). The Municipal Stormwater Permit emphasizes watershed program planning and program outcomes. The intent of the Permit is to enable each jurisdiction to focus its resources and efforts to:

- Reduce pollutants in stormwater discharges from its MS4,
- Effectively prohibit non-stormwater discharges to its MS4, and
- Achieve the interim and final WQIP numeric goals.

The proposed project would be required to comply with the Municipal Stormwater Permit requirements as well as any specific WQIP requirements and BMPs identified by the District to be implemented in compliance with the Municipal Stormwater Permit (as stated in the sections below).

San Diego Bay Watershed Quality Improvement Plan

The Municipal Stormwater Permit requires the development of the San Diego Bay WQIP. The purpose of the WQIP is to guide the District and other Phase I Municipalities' Jurisdictional Runoff Management Program (JRMP) toward improving water quality in MS4 discharges and receiving waters. In the WQIP, priorities and goals are established and each jurisdiction identified strategies to assist in attaining the goals. This approach establishes the foundation that the District uses to develop and implement its JRMP. The District implements the WQIP in collaboration with other local agencies that have jurisdiction within the San Diego Bay Watershed Management Area, which comprises three hydrologic units: Pueblo San Diego, Sweetwater River, and Otay River.

The proposed project would be required to follow any specific actions or BMPs set forth in the WQIP.

Jurisdictional Runoff Management Program

Under the Municipal Stormwater Permit (Order No R9-2013-0001), each jurisdiction is to prepare a JRMP. Each JRMP includes a component that addresses issues related to construction activities and a component that addresses issues related to existing development. Additionally, each copermittee prepares and submits an annual report that describes the implementation of programs and strategies to reduce the discharge of pollutants of concern to the MS4 and receiving waters to the maximum extent practicable.

The District's JRMP is an informational document that provides an overall account of the program to be conducted by the District during the 5-year life of the Municipal Stormwater Permit. The District's JRMP has been developed to meet the conditions of the Municipal Stormwater Permit and to assist the District in achieving the goals identified in the WQIP. Port-specific WQIP-based strategies have been incorporated into the JRMP. The JRMP's focus is on controlling stormwater discharges to the MS4, with the overall goal of achieving improvements in receiving water quality. The District has developed a list of BMPs that are applicable to all persons, activities, and operations taking place on District tidelands. The JRMP utilizes District-specific jurisdictional activities as well as watershed-based strategies. Enforcement of the JRMP helps to prevent stormwater pollutants from entering into the local storm drains and, ultimately, San Diego Bay.

As part of the District's JRMP, a *BMP Design Manual* was developed to provide guidelines for incorporating post-construction BMPs into new and priority redevelopment projects. The *BMP Design Manual* identifies the required source-control and site-design BMPs to eliminate or reduce pollutants in stormwater runoff. For priority development projects (PDPs), the *BMP Design Manual* also describes pollutant-control BMPs that must be incorporated into the site design and, where applicable, addresses potential hydromodification impacts from changes in flow and sediment supply. The *BMP Design Manual* is applicable for both tenant- and District-sponsored major maintenance or capital improvement projects, as required by the Municipal Stormwater Permit.

The District has developed a list of pollution prevention BMPs outlined in the JRMP that are applicable to industrial and commercial facilities on District tidelands as required by the Municipal Stormwater Permit. Because pollution prevention BMPs eliminate pollutants at their source, they are a preferred means of preventing discharge of priority pollutants into the receiving waters. The list of pollution prevention BMPs includes the following.

- Keep waste containers covered or lids closed (trash).
- Minimize outdoor storage (trash, metals).
- Capture, contain, and/or treat wash water (bacteria, metals).
- Conduct employee training (bacteria, trash, metals).

In addition, Table 7-4 of the JRMP provides an extensive list of minimum BMPs for commercial and industrial facilities. Categories of BMPs include general operations and housekeeping, non-stormwater management, waste handling and recycling, outdoor material storage, outdoor drainage from indoor activity, outdoor parking, vehicles and equipment, education and training, overwater activity, and outdoor activity and operation.

The proposed project would be required to follow all specific actions or BMPs set forth in the JRMP.

BMP Design Manual

In January 2018, the District adopted an updated jurisdiction-specific local *BMP Design Manual* to address the requirement of the Municipal Stormwater Permit. This *BMP Design Manual* is applicable to projects carried out on District-managed tidelands. Pursuant to the Municipal Stormwater Permit, the District began implementing the *BMP Design Manual* on February 16, 2016. The District's *BMP Design Manual* is consistent with the *Model BMP Design Manual* (District 2018) that was developed collectively with the other San Diego County jurisdictions. The District's *BMP Design Manual* identifies updated post-construction stormwater requirements for both tenant- and District-sponsored major maintenance or capital improvement projects, as required by the Municipal Stormwater Permit.

The *BMP Design Manual* identifies BMP requirements for both standard projects and PDPs as outlined in the permit. All new development and redevelopment projects are required to implement standard source control and site design BMPs to eliminate or reduce stormwater runoff pollutants. For PDPs, the *BMP Design Manual* also describes pollutant control BMPs that must be incorporated into the site design and, where applicable, addresses potential hydromodification impacts from changes in flow and sediment supply.

The hierarchy for implementing pollutant control BMPs on a PDP is as follows: the standard for stormwater pollutant control is retention of the 24-hour 85th percentile stormwater volume, defined as the event that has a precipitation total greater than or equal to 85 percent of all daily storm events larger than 0.01 inch over a given period of record in the project area (design capture volume). For situations where onsite retention of the design capture volume is technically not feasible, biofiltration must be provided to satisfy specific standards. For situations where biofiltration is technically not feasible, flow-through treatment BMPs must be implemented onsite and the developer must participate in an alternative compliance project.

Site design decisions may influence the ability of a PDP to meet applicable performance standards for pollutant control and hydromodification management BMPs. For example, the layout of the site drainage and reservation of areas for BMPs relative to areas of infiltrative soils may influence the feasibility of capturing and managing stormwater. Infiltration must be avoided in areas with the following.

- Physical and chemical characteristics (e.g., appropriate cation exchange capacity, organic content, clay content, and infiltration rate) that are not adequate for proper infiltration durations and treatment of runoff for the protection of groundwater beneficial uses.
- Groundwater contamination and/or soil pollution, if infiltration could contribute to the movement or dispersion of soil or groundwater contamination or adversely affect ongoing cleanup efforts, either onsite or down-gradient of the project.

If infiltration is under consideration for one of the above conditions, a site-specific analysis should be conducted to determine where infiltration-based BMPs can be used without adverse impacts.

The depth to seasonally high groundwater tables (normal high depth during the wet season) beneath the base of any infiltration BMP must be greater than 10 feet for infiltration BMPs to be allowed. The depth to groundwater requirement can be reduced from 10 feet at the discretion of the

approval agency if the underlying groundwater basin does not support beneficial uses and the groundwater quality is maintained at the proposed depth.

Concentration of stormwater pollutants in runoff is highly dependent on the land uses and activities present in the area tributary to an infiltration BMP and the receiving waters. Likewise, the potential for groundwater contamination due to the infiltration BMP is a function of pollutant abundance, concentration of pollutants in soluble forms, and the mobility of the pollutant in the subsurface soils. Therefore, infiltration BMPs must not be used for areas of industrial or light industrial activity unless source control BMPs to prevent exposure of high-threat activities are implemented, or runoff from such activities is first treated or filtered to remove pollutants prior to infiltration.

Project proponents must submit a Storm Water Quality Management Plan (SWQMP) accurately describing how the project will meet source control site design and pollutant control BMP requirements. District staff provide technical review of and approve SWQMP documents and drainage design plans to ensure that pollutant control BMP requirements are met. The SWQMP is evaluated for compliance with the Municipal Stormwater Permit and with design criteria outlined in the District's *BMP Design Manual*. Once the approval process is complete, the project is able to commence and routine inspections are conducted throughout the duration of project construction.

The proposed project is a PDP, and therefore a SWQMP, source control BMPs, and treatment control BMPs are required.

Source Control and Site Design Requirements

The Municipal Stormwater Permit directs the District to require the development of a SWQMP during the planning process for all development projects. Both standard and PDP projects must implement source control and site design requirements.

General requirements for the BMPs to be included in the SWQMP include the following.

1. Onsite BMPs must be located so as to remove pollutants from runoff prior to its discharge to any receiving waters, and as close to the source as possible.
2. Structural BMPs must not be constructed within waters of the United States.
3. Onsite BMPs must be designed and implemented with measures to avoid the creation of nuisance or pollution associated with vectors (e.g., mosquitos, rodents, flies).

Source control BMPs must be implemented at all development projects where applicable and feasible. Source control BMP requirements include the following.

1. Prevention of illicit discharges into the MS4.
2. Storm drain system stenciling or signage.
3. Protection of outdoor material storage areas from rainfall, run-on, runoff, and wind dispersal.
4. Protection of materials stored in outdoor work areas from rainfall, run-on, runoff, and wind dispersal.
5. Protection of trash storage areas from rainfall, run-on, runoff, and wind dispersal. and
6. Use of any additional BMPs determined to be necessary by the District to minimize pollutant generation at each project

Site Design BMPs must be implemented at all development projects where applicable and feasible. Site Design BMP requirements include the following.

1. Maintenance or restoration of natural storage reservoirs and drainage corridors (including topographic depressions, areas of permeable soils, natural swales, and ephemeral and intermittent streams)
2. Buffer zones for natural water bodies (where buffer zones are technically infeasible, project applicant is required to include other buffers such as trees, access restrictions, etc.)
3. Conservation of natural areas within the project footprint including existing trees, other vegetation, and soils
4. Construction of streets, sidewalks, or parking lot aisles to the minimum widths necessary, provided public safety is not compromised
5. Minimization of the impervious footprint of the project
6. Minimization of soil compaction to landscaped areas
7. Disconnection of impervious surfaces through distributed pervious areas
8. Landscaped or other pervious areas designed and constructed to effectively receive and infiltrate, retain, and/or treat runoff from impervious areas, prior to discharging to the MS4
9. Small collection strategies located at, or as close as possible to, the source (i.e., the point where stormwater initially meets the ground) to minimize the transport of runoff and pollutants to the municipal and receiving waters
10. Use of permeable materials for projects with low traffic areas and appropriate soil conditions
11. Landscaping with native or drought-tolerant species
12. Harvesting and using precipitation

Stormwater Pollutant Control Requirements for PDPs

Redevelopment projects that create or replace 2,500 square feet of impervious surface adjacent to an environmentally sensitive waterbody (i.e., San Diego Bay) and/or fit into a specific use category as identified in the District's *BMP Design Manual* are categorized as PDPs. In addition to the site design and source control BMPs discussed above, PDPs are required to implement stormwater pollutant control BMPs to reduce the quantity of pollutants in stormwater discharges. Stormwater pollutant control BMPs are engineered facilities that are designed to retain (i.e., intercept, store, infiltrate, evaporate, and evapotranspire), biofilter, and/or provide flow-through treatment of stormwater runoff produced from a 24-hour, 85th percentile storm event (Design Capture Volume) on the project site. Section 4.5.2, Table 4-5 of the JRMP identifies the PDP categories, as defined by the Municipal Stormwater Permit and outlined in the District's *BMP Design Manual*.

The Municipal Stormwater Permit prioritizes the use of retention BMPs either as "harvest and use" or though infiltration. Full infiltration may be potentially determined to be infeasible due to high groundwater at the project site. When infiltration is infeasible, biofiltration must be considered and requires a BMP minimum footprint of 3 percent of the site area. If biofiltration is not feasible, then flow-through BMP plus participation in alternative compliance is the remaining option. Participation in alternative compliance requires construction of a BMP off site to treat an equivalent pollutant load.

Construction-Related Best Management Practices

The Municipal Stormwater Permit directs the District to require minimum BMPs at all construction and grading projects. The minimum BMPs are required to ensure a reduction of potential pollutants from the project site to the maximum extent practicable and to effectively prohibit non-stormwater discharges from construction sites to the MS4. These BMPs also ensure that all construction and grading activities are in compliance with applicable District ordinances and other environmental laws and are supportive of the WQIP goals.

The required minimum BMPs fall into several major categories as outlined in the Municipal Stormwater Permit, including project planning, good site management, non-stormwater management, erosion control, sediment control, run-on and runoff controls, and, where applicable, active/passive sediment treatment. The BMPs to be implemented at a particular project must be site specific, seasonally appropriate, and construction phase appropriate. Notwithstanding seasonal variation, projects occurring during the dry season will be required to plan for and must be able to address rain events that may occur.

The District's JRMP also includes minimum BMPs that support the WQIP priorities and integrate WQIP strategies PO-12 and PO-13.[1] Good Housekeeping BMPs prevent discharges of WQIP high-priority pollutants including metals, bacteria, and trash to the MS4. Additionally, pursuant to strategy PO-13, the District requires sites to cover construction material stockpiles that contain metals, such as treated timber during wet weather. Table 4.5-5 provides a list of the minimum BMPs for construction sites.

Table 4.5-5. Minimum BMPs for Construction Sites

BMP Category	BMP
Project Planning	Minimization of areas that are cleared and graded to only the portion of the site that is necessary for construction Develop and implement a SWPPP or Construction BMP Plan Contractor Training (formal training or District staff training)
Non-Stormwater Management	Water Conservation Practices (NS-1) **Illicit Connection/Illegal Discharge Detection and Reporting (NS-6)** Dewatering Operations (NS-2) Paving and Grinding Operations (NS-3) Potable Water/Irrigation (NS-7) **Vehicle and Equipment Cleaning (NS-8)** Vehicle and Equipment Fueling (NS-9) Vehicle and Equipment Maintenance (NS-10)
Good Housekeeping/ Waste Management	**Cover construction material stockpiles such as treated lumber during wet weather (WQIP Strategy PO-13)** **Material delivery and storage (WM-1)** **Material Use (WM-2)** **Solid Waste Management (WM-5)** Stockpile Management (WM-3) **Spill Prevention and Control (WM-4)** **Hazardous Waste Management (WM-6)**

BMP Category	BMP
	Contaminated Soil Management (WM-7)
	Concrete Waste Management (WM-8)
	Sanitary/Septic Waste Management (WM-9)
	Construction Road Stabilization (TC-2)
	Stabilized Construction Entrances (TC-1)
	Entrance/Outlet Tire Wash (TC-3)
Erosion Control[1] (choose at least one or a combination based onsite conditions)	Preservation of Existing Vegetation (EC-2)
	Minimization of Exposure Time of Disturbed Soil Areas
	Scheduling (EC-1)[2]
	Hydraulic Mulching (EC-3)
	Soil Binders – (EC-5)
	Straw Mulches (EC-6)
	Wood Mulching – (EC-8)
	Geotextiles and Mats (EC-7)
	Wind Erosion Control (WE-1)
	Soil Preparation/Roughening (EC-15)
	Preservation of Natural Hydrologic Features Where Feasible
	Permanent Revegetation or Landscaping as Early as Feasible
Sediment Control (choose at least one or a combination based onsite conditions)	Silt Fence (SE-1)
	Street Sweeping and Vacuuming (SE-7)
	Sand Bag Barrier (SE-8)
	Storm Drain Inlet Protection (SE-10)
	Sediment Trap (SE-3)
	Sediment Basin (SE-2)
	Check Dams (SE-4)
	Fiber Rolls (SE-5)
	Gravel Bag Berms (SE-6)
	Compost Socks and Berms (SE-13)
Run-on and Runoff Control	Protect site perimeter to prevent run-on from entering the site and site runoff

Source: District 2018.

BMPs in **bold** target WQIP priority pollutants, including metals, trash, and bacteria.

[1] Erosion controls must be implemented in all inactive disturbed soil areas. An inactive disturbed soil area is where construction activities such as grading, clearing, excavation, or disturbances to ground are not occurring and those that have been active and are not scheduled to be re-disturbed for at least 14 days.

[2] Limitation of grading to a maximum disturbed area, determined by the District to be 5 acres during the rainy season and 17 acres during the non-rainy season, before either temporary or permanent erosion controls are implemented to prevent stormwater pollution (see Section 5.6.1 of the JRMP for additional information).

San Diego Unified Port District Code, Article 10

District Code, Article 10, the District Stormwater Management and Discharge Control Ordinance, prohibits the deposit or discharge of any chemicals or waste to the tidelands or San Diego Bay and makes it unlawful to discharge pollutants directly into non-stormwater or indirectly into the stormwater conveyance system. Article 10 also requires the implementation of BMPs, stormwater plans, and other measures, as appropriate to control the discharge of pollution to tideland or receiving waters. Where enforcement is required to maintain compliance, the District will use its enforcement authority established by Article 10. The article enables the District, including District

inspectors, to prohibit discharges and require BMPs so that discharges on tidelands do not cause or contribute to water quality problems. Article 10 establishes enforcement procedures to ensure that responsible dischargers are held accountable for their contributions and/or flows.

The proposed project would be required to comply with District Code, Article 10.

Order R9-2015-0034 (NPDES No. CA0109151) Waste Discharge Requirements BAE Systems San Diego Ship Repair Inc. Discharge to San Diego Bay

Under Order R9-2015-0034, BAE Systems is listed as a Discharger subject to waste discharge requirements for its San Diego Ship Repair Yard. The ship repair yard discharges wastewater to San Diego Bay, a water of the United States. Discharges from the ship repair yard to the San Diego Bay include dry dock ballast tank water, as well as drips and leaks of potable water, fire protection water, and steam condensate from hoses supplying these services to ships. The water supply for fire protection and dry dock ballast is the San Diego Bay.

Contact stormwater is generally not discharged to the San Diego Bay, but is collected onsite and then discharged to the wastewater treatment plant for disposal. However, discharges of stormwater may occur to the San Diego Bay when the holding capacity is exceeded or the stormwater collection system is not operating properly. Order R9-2015-0034 identifies effluent limitations, discharge specifications and receiving water limitations. The Discharger is required to maintain and implement an effective SWPPP designed to reduce or prevent the discharge of pollutants from industrial activities conducted in Industrial High Risk Areas to the technology–based standards of best available technology for toxic and non-conventional pollutants, and best control technology for conventional pollutants. Order R9-2015-0034 identifies Monitoring and Reporting Program Requirements that is provided to the San Diego RWQCB.

The proposed project would be required to comply with Order R9-2015-0034 Waste Discharge Requirements for discharges to the San Diego Bay.

San Diego Municipal Code Floodplain Ordinance (§131.0205 Purpose of the OF (Open Space--Floodplain) Zone

The purpose of the Open Space-Floodplain (OF) zone is to control development within floodplains to protect the public health, safety, and welfare and to minimize hazards due to flooding in areas identified by the FIRM on file with the City Engineer. The intent of the OF zone is to preserve the natural character of floodplains while permitting development that will not constitute a dangerous condition or an impediment to the flow of flood waters. The intent is also to minimize the expenditure of public money for costly flood control projects and to protect the functions and values of the floodplains relating to groundwater recharge, water quality, moderation of flood flows, wildlife movement, and habitat.

The proposed project would be required to comply with Section 131.0205 of the San Diego Municipal Code.

Temporary Groundwater Extractions Permit (Order R9-2015-0013; NPDES No. CAG919003)

Order R9-2015-0013 is intended to cover temporary discharges of groundwater extraction wastes to San Diego Bay, and its tributaries under tidal influence, from groundwater extraction due to

construction and other groundwater extraction activities. Dischargers must meet the applicable criteria listed in the permit to be subject to waste discharge requirements under this permit. Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of the permit. The discharge of groundwater extraction waste from any site must not, separately or jointly with any other discharge, cause violations of certain water quality objectives in San Diego Bay.

The proposed project would be required to comply with Order R9-2015-0013 requirements if dewatering is required during construction.

San Diego Harbor Safety Plan

The San Diego Harbor Safety Plan is designed to provide mariners using the waters of San Diego Bay an up-to-date guide to critical navigation issues that will enhance vessel safety, with the ultimate goal of pollution prevention and protection of the region's valuable resources. This plan has been developed by the San Diego Harbor Safety Committee as mandated in the California Oil Spill Prevention and Response Act of 1990 (Government Code Sections 8574.1 et seq.). The goals of the act are to improve the prevention, removal, abatement, response, containment, clean up, and mitigation of oil spills in the marine waters of California. The act and its implementing regulations (California Code of Regulations Title 14 Sections 800–802) created harbor safety committees for the major harbors of California to "plan for the safe navigation and operation of tankers, barges, and other vessels within each harbor" by preparing "a harbor safety plan, encompassing all vessel traffic within the harbor."

The proposed project would be required to comply with California Code of Regulations Title 14 Sections 800–802 specified in the San Diego Harbor Safety Plan.

Cleanup and Abatement Order R9-2012-0024

In 2012, CAO R9-2012-0024, *San Diego Bay Shipyard Sediment Cleanup for the NASSCO and BAE Leaseholds* (San Diego Bay Shipyard Sediment Cleanup) was issued by the San Diego RWQCB under the authority provided in Division 7 of the Water Code, State Board plan and policies, and the Basin Plan. CAO R9-2012-0024 was issued for the cleanup of the contaminated sediment along the eastern shore of central San Diego Bay, from approximately Sampson Street Extension to the northwest and Chollas Creek to the southeast, and from the shoreline to the San Diego Bay main shipping channel to the west. The San Diego RWQCB named NASSCO, BAE Systems, the City of San Diego, Campbell Industries, Chevron, a Subsidiary of ChevronTexaco, BP as the Parent Company and successor to Atlantic Richfield, SDG&E, the U.S. Navy, and the District as responsible persons/dischargers. CAO R9-2012-0024 ordered the responsible dischargers to take all corrective actions necessary to remediate the contamination in compliance with the required stipulations laid out in the CAO.

4.5.4 Project Impact Analysis

4.5.4.1 Methodology

The impact analysis focuses on issues related to water quality, runoff, and flood hazards. Construction-related impacts were identified and evaluated based on the physical characteristics of the project site and the magnitude, intensity, location, and duration of construction activities for

both landside and waterside project elements. For the landside project elements, the surface water hydrology impact analysis considers changes in stormwater volumes and capacity, creation of new impervious surfaces, flood hazards, and implementation of MS4 Permit stormwater pollutant control requirements.

Impacts of the proposed project on surface water quality were analyzed using available information on potential existing sources of pollution and current water quality conditions in the project area for both landside and waterside project elements. These conditions were then compared to potential project-related sources of pollution during construction, such as sediments and other construction materials, and operation, such as operations and maintenance (O&M) activities, trash, and other pollutants generated from the landside project elements.

The proposed project was analyzed for potential impacts on beneficial uses and water quality objectives (i.e., pollutants of concern) of San Diego Bay receiving waters. Receiving and nearby waters with CWA Section 303(d) impaired water quality were identified, along with the impairment (pollutant/stressor), and an evaluation was performed of whether the impairment would have the potential to be further affected by the proposed project.

4.5.4.2 Thresholds of Significance

The following significance criteria are based on Appendix G of the State CEQA Guidelines and provide the basis for determining significance of hydrology and water quality impacts resulting from the proposed project. The determination of whether a hydrology and water quality impact would be significant is based on the thresholds described below and the professional judgment of the District as Lead Agency, all of which is based on the evidence in the administrative record.

Impacts are considered significant if the proposed project would result in any of the following.

1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.
2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
3. 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 result in: (i) substantial erosion or siltation on or off site; or (ii) substantial increase in the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; (iii) 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; or (iv) impede or redirect flood flows.
4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

As discussed in the Initial Study/Environmental Checklist Section XVI (Appendix A), Threshold 2 is not included in the analysis below, as it was determined that the proposed project would result in less-than-significant impacts related to decreasing groundwater supplies. Those conclusions and the rationale that supports them are summarized in Chapter 6, *Additional Consequences of Project Implementation*.

4.5.4.3 Project Impacts and Mitigation Measures

Threshold 1: Implementation of the proposed project would violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

Impact Discussion

Landside Construction

Construction activities associated with the proposed project such as pavement removal, demolition, grading and excavation, filling and compaction, and construction of above-ground facilities and buildings—including Project Element 6 (Pier 3 North Lunchroom Wharf Replacement), Project Element 10 (Central Tool Room Demolition and Reconstruction), Project Element 11 (New Production Building), Project Element 12 (Administrative Office Building), Project Element 13 (Pier 1 Restroom Renovation/Demolition), Project Element 14 (Main Electrical Utility Service Update), and Project Element 15 (Sanitary Sewer and Potable Water Utility Services)—could degrade water quality by increasing polluted stormwater runoff.

In case of heavy rain or wind conditions, when the project site is excavated or otherwise disturbed by construction activities, the potential for erosion and sediment transport from the project site, including onsite staging areas, could increase. Stormwater runoff (or wind) could carry the exposed or eroded sediments to the storm drain system or directly into the Bay. Erosion and sedimentation affect water quality through interference with photosynthesis, oxygen exchange, and the respiration, growth, and reproduction of aquatic species. Additionally, other pollutants, such as nutrients, trace metals, and hydrocarbons, can attach to sediment and be transported in the receiving water body, which could contribute to degradation of water quality.

In addition to potential pollutant contributions from disturbed soil areas, the delivery, handling, and storage of construction materials and wastes, as well as the use of construction equipment, could introduce a risk for stormwater contamination that could affect water quality. Spills or leaks from heavy equipment and machinery can result in oil and grease contamination. Some hydrocarbon compound pollution associated with oil and grease can be toxic to aquatic organisms at low concentrations. Onsite staging areas or building sites can also be the source of pollution because of the use of paints, solvents, cleaning agents, and metals during construction. Materials from soil excavation could contain hazardous materials that may be exposed to stormwater. Larger pollutants, such as trash, debris, and organic matter, are also associated with construction activities. Furthermore, concrete used for structures, footings, and other paving materials could be potential sources of water quality pollution if any of these materials were spilled or deposited on unprotected surfaces. Other potential effects include health hazards and aquatic ecosystem damage associated with introduction of bacteria, viruses, and vectors if waste management is not adequately implemented. As such, landside construction activities could potentially violate water quality standards or waste discharge requirements.

The proposed project would be required to comply with the Municipal Stormwater Permit and the District's JRMP, which identifies construction BMPs that would be implemented in order to prevent stormwater runoff. The District's JRMP requires preparation of a Construction BMP Plan. Construction BMPs, identified in the Construction BMP Plan, would be required to be implemented

throughout the various construction phases in order to protect water quality and ensure that water quality standards or waste discharge requirements are not violated. At a minimum, BMPs would include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with stormwater. The Construction BMP Plan specifies BMPs to control erosion and sedimentation in disturbed areas at the project site, and BMPs selected to control non-storm water pollution on the construction site.

The BMPs specified in the Construction BMP Plan are designed to comply with the requirements of the District's JRMP and the Municipal Stormwater Permit and would be subject to review and approval by the District. Construction-related measures would include BMPs from the following categories, as listed in Table 4.5-5.

- Project Planning
- Non-Stormwater Management
- Good Housekeeping/Waste Management
- Erosion Control
- Sediment Control
- Run-on and Run-off Control

Aside from the above categories of BMPs, the District's JRMP also limits grading to a maximum disturbed area of 5 acres during the rainy season (October 1–April 30) and 17 acres during the non-rainy season to prevent discharges of sediment (District 2018a). The BMP measures that must be included in the Construction BMP Plan, which must meet the standards of the Municipal Stormwater Permit (and the District's JRMP), are routinely implemented at construction sites and are proven to be effective in reducing pollutant discharges from construction activities.

Implementation of the BMPs identified in the Construction BMP Plan during construction would minimize the potential for water quality objectives, standards, and wastewater discharge thresholds to be violated. With Construction BMP Plan implementation and compliance with the District's JRMP, Municipal Stormwater Permit, local grading ordinances, and other related regulatory requirements—which include grading limitations during certain times of the year and implementation of erosion control, sediment control, non-stormwater management, and waste management construction BMPs—impacts on water quality from construction would be less than significant, and no mitigation is required.

Waterside Construction

Construction of the in-water project elements could result in short-term water quality impacts from the disturbance of sediments within the project site. As is typical for projects that involve in-water construction, disruption of sediments could adversely affect water quality by temporarily resuspending sediments, thereby increasing turbidity. Further, suspended sediments in the water column can lower levels of dissolved oxygen, increase salinity, increase concentrations of suspended solids, and possibly release chemicals present in sediments into the water. The degree of turbidity resulting from the suspended sediments would vary substantially with the quantity and duration of the construction activity and would also depend on the methods used, the quality of equipment, and the care of the operator. Higher turbidity is expected to be confined to the specific area of pile installation. Substantially depressed oxygen levels resulting from high turbidity (i.e., below 5 milligrams per liter [mg/L]) can cause respiratory stress to aquatic life, and levels below 3 mg/L can

cause mortality. The in-water project components would be constructed over a total period of 18 months; however, some in-water project elements would be constructed concurrently. Therefore, site-specific turbidity levels may be above ambient levels within a portion of the project site for an extended period. In-water BMPs, which are required to be implemented pursuant to the requirements of the CWA Section 401 Water Quality Certification and Section 404 permit obtained for the proposed project, as well as **MM-HAZ-2** through **MM-HAZ-4** required for hazardous materials impacts (see Section 4.4, *Hazards and Hazardous Materials*), may include BMPs such as double silt curtains or other source control BMPs would limit the spread of the turbidity plume outside the specific work area. With implementation of these BMPs, increased turbidity levels would be generally confined to within a few hundred yards of the activity or within the area of containment. After initial high turbidity levels within the specific work area, sediments would disperse, and background levels would be restored within hours of disturbance. In addition, tidal currents would slowly dissipate the oxygen-poor water and replenish ambient oxygen levels within one to several tidal exchanges. Therefore, suspended solids and depressed oxygen levels in the water column of the specific work area would only be expected to result in temporary effects on water quality, and impacts from turbidity would be less than significant.

During cleanup activities within the BAE Systems leasehold associated with CAO R9-2012-0024 under Order R9-2013-0093, sand or gravelly sand covers were placed under piers and along the bulkhead where analytical concentrations of COCs were detected above the CAO requirements because dredging activities in those areas would have threatened the stability of the in-water structures. As such, the contamination present in those sediments was not removed but was covered to prevent mixing of contaminants with the water column or clean sediment. Sand cover was used for relatively flat areas and under-pier areas, while gravelly sand was used for sloping areas. The covers promoted physical isolation and stabilization of contaminated sediments under over-water structures and maintaining structural stability on sloping areas. In addition, a gravelly sand cover was also placed over the remediated areas to ensure any residual sediments with contaminants were also isolated and stabilized. The primary COCs for the sediments in the project area are copper, mercury, HPAHs, PCBs, and tributyltin; the secondary constituents of concern are arsenic, cadmium, lead, and zinc. In-water construction activities such as dredging and pile driving could potentially disturb these areas.

Dredging is proposed for four project elements: Project Element 1 (Pride of San Diego Drydock Dredging/Mooring Replacement), Project Element 4 (Pier 3 South Nearshore Dredging), Project Element 6 (Pier 3 Lunchroom Wharf Replacement/Realignment), and Project Element 7 (Quay Wall Modifications). Project Element 1 proposes to dredge approximately 98,800 cubic yards of material. This includes the sediment that was not dredged during the past remediation activities associated with CAO R9-2012-0024 because its proximity to existing structures made dredging infeasible. Approximately 88,300 cubic yards of dredging materials from Project Element 1 are planned for ocean disposal at EPA's LA-5 disposal site, if the sediment is determined to be suitable for unconfined aquatic ocean disposal. To determine the suitability, BAE Systems would conduct a dredge material suitability study in consultation with USACE and EPA as required under the Ocean Dumping Permit process. Project Element 4 proposes to dredge 15,000 cubic yards of material: two scenarios for the disposal of this material are proposed depending on the results of the dredge material suitability study: a 50 percent landfill/50 percent ocean disposal scenario and a 100 percent landfill disposal scenario. Project Element 6 proposes to dredge 2,000 cubic yards of contaminated sediment that was previously covered and left in place associated with CAO R9-2012-0024. Project Element 7 would result in 500 cubic yards of sediment to be disposed of at a land-

based disposal site, as well as 300 cubic yards of rock that would be disposed of at a local recycling facility.

These dredging activities would remove existing contaminated sediment that was covered and left in place, which would potentially avoid disturbing and releasing contaminated sediments into the water column from future in-water construction activities (i.e., pile installation, wharf replacement, etc.). However, it is possible that dredging activities will expose contaminants into the water column, if not controlled correctly. In addition to the dredging associated with the project elements identified above, in-water work such as the removal of piles and other in-water structures, or the installation of piles, fender systems (if new and/or replacement H-piles are included), moorings, or other in-water structures, proposed as part of Project Element 2 (Pride of San Diego Drydock Wharf Replacement and Realignment), Project Element 3 (Fender System Repair and Replacement), and Project Element 9 (Small Boat Mooring Float Replacement) could disturb covered contaminated sediment. Under Project Element 3, it is assumed up to 39 steel H-pile fenders per year would be replaced over the life of the existing lease (through 2034). It should be noted that Project Element 3 could include the replacement of fenders without the need to also replace piles, in which case no sediment disturbance would occur. Furthermore, Project Element 8 (Port Security Barrier Replacement), located along BAE System's leasehold within the Bay, could potentially disturb a portion of the existing gravelly sand cover as well as other potentially contaminated sediments present associated with San Diego RWQCB Investigative Order R9-2017-0083 that have not been remediated or covered. The Port Security Barrier is generally a floating device; however, concrete anchored blocks with a mooring buoy are used to keep it in place. Replacement of the Port Security Barrier would involve removing and replacing the anchors, which could result in disturbing sediment and releasing it into the water column.

Given the known contamination in the project area, sediment-disturbing construction activities within the project area could degrade water quality by introducing contaminants into the water column that could degrade acceptable levels of habitat quality for organisms and degrade and/or impair the beneficial uses in San Diego Bay. The primary and secondary constituents of concern could be released when bed sediments are resuspended in the water column. Resuspended contaminants may dissolve and become available for uptake by biota. Re-deposition may occur near the dredge or construction areas, or, depending on the environmental conditions and controls, resuspended sediment may be transported to other nearby locations in the water body. Resuspension of contaminated sediments and release of COCs could impact water quality by increasing contaminant levels to levels toxic to aquatic receptors. As such, in-water construction of Project Elements 1 through 9 could result in disturbance of potentially contaminated sediments that would become suspended in the water column, resulting in the release of hazardous pollutants (**Impact-HWQ-1**).

In compliance with State regulations, the project proponent would obtain a CWA Section 401 Water Quality Certification for all project-related dredging activities. The RWQCB-issued Section 401 Water Quality Certification would specify methods for ensuring the protection of water quality during construction activities in the Bay, including water quality monitoring requirements in order to meet the Basin Plan water quality objectives; also, beneficial uses may require mitigation for impacts on waters of the United States, which would be enforced through the Section 401 Water Quality Certification process. In addition, the Section 401 Water Quality Certification would list specific conditions for the use of in-water construction BMPs to minimize the discharge of any materials from construction activities, control floating debris, and provide spill containment and cleanup equipment to control potential accidental spills in order to meet the Basin Plan water

quality objectives and beneficial uses. Anticipated measures required by San Diego RWQCB as part of the CWA Section 401 Water Quality Certification could include: use of automatic systems to monitor turbidity and constituents of concern; implementation of standard BMPs to minimize resuspension, spillage, and misplaced sediment during dredging operations, including use of double silt curtains to contain the resuspension of suspended sediments and prevent the dispersal of COCs outside the dredging and pile installation area; and water quality monitoring. The proposed project would also be required to obtain a CWA Section 404 permit and Rivers and Harbors Act Section 10 permit from USACE for dredging as well as the placement of piles, mooring dolphins, and any other structures in and over navigable waters. A Section 404 permit from USACE would be required prior to the discharge of dredged or fill materials into any waters of the United States. Section 10 of the Rivers and Harbors Act requires authorization from USACE for the construction of any structure in or over any navigable water of the United States prior to initiating in-water construction activities. Compliance with CWA Section 401 and 404, as well as Rivers and Harbors Act Section 10, would help reduce impacts on water quality associated with in-water construction activities. While the project proponent is required to comply with all regulatory requirements, they are further enforced through **MM-HAZ-4**, which requires the project proponent to obtain all federal and state permits required for in-water construction activities and demonstrate to the District compliance with all permit conditions during in-water construction.

In addition to these regulatory requirements, Section 4.4, *Hazards and Hazardous Materials*, identifies mitigation measures **MM-HAZ-2**, **MM-HAZ-3**, and **MM-HAZ-5** that are also applicable to the protection of water quality during in-water construction, the implementation of which would reduce water quality degradation from sediment disturbing activities. **MM-HAZ-2** requires the project proponent to implement a Dredging Management Program that will include the development of: (A) Dredging Operations Plan identifying the appropriate Standard Operating Procedures (SOPs) and sediment control BMPs to be implemented; (B) Contingency Plan to prepare for equipment or operational failures; (C) Health and Safety Plan for Dredging Activities; (D) Communication Plan; and (E) Sediment Sampling and Remediation, to assess the condition of sediment post-dredging and outline potential remediation approaches, as appropriate. All of the plans and reports included in the Dredging Management Program would be reviewed and approved by the District and/or the San Diego RWQCB. **MM-HAZ-3** requires the project proponent to implement a (Waterside) Sediment Management Program that shall contain: (A) Sampling Analysis Plan (SAP); (B) Marine Sediment Contamination Characterization Report; (C) Contaminated Sediment Management Plan; (D) In-Water Activity Specific Procedures; and (E) Post-Construction Sampling and Analysis. The Sediment Management Program will require post-construction sampling and analysis to determine if in-water construction or disturbance activities resulted in COCs in excess of the levels above the levels set forth in CAO R9-2012-0024 (the primary COCs copper, mercury, HPAHs, PCBs, and TBT, and the secondary COCs arsenic, cadmium, lead, and zinc). If concentrations of the COCs are determined to be above the parameters established by the CAO R9-2012-0024 (or other levels as prescribed by the RWQCB) after in-water construction activities are complete, as determined by **MM-HAZ-2** and **MM-HAZ-3**, mitigation measure **MM-HAZ-5** requires the project proponent to propose and conduct remediation of the site. As required by **MM-HAZ-5**, the proposed remediation approaches must be reviewed and approved by the RWQCB, and any other agencies with jurisdiction over the site contamination, in concurrence by the District. Compliance with regulatory requirements and implementation of these mitigation measures would reduce the proposed project's potential to degrade water quality from the introduction of contaminants into the water column and resuspend sediment that may be transported to other nearby locations in the water body.

Additionally, the Hazardous Material Technical Study (Appendix E) identified that there is the potential for wooden components in piers, wharfs, or bulkheads to have been treated with creosote. Creosote is a wood preservative and water-proofing agent for marine pilings used to preserve wooden structures from attack by fungi, marine borers, and insects. Chemical formulations of creosote have varied over the production years, but it is generally reported that PAHs and alkylated PAHs account for up to 90 percent of creosote mixtures. The degree of leaching is affected by salinity (greater in fresh water than in salt water), temperature (increases with increasing temperatures), flow, density of the wood, length of time since treatment of the wood (decreases with increasing age), and the surface area-to-volume ratio. Removal of creosote piles could result in resuspension of sediments contaminated with PAHs, which could result in a significant water quality impact (**Impact-HWQ-2**).

Methods of pile extraction vary for pile removal, and vibratory extraction is preferred over direct (vertical) pulling, cutting, and other methods. Piles that cannot be completely removed should be cut at least 1 foot below the mud line. If treated piles are fully extracted or if they are cut below the mudline, the project proponent must cap the holes or piles with appropriate material such as clean substrate (sand and/or gravel) or pile caps. This ensures that chemicals from the existing piles do not leach into the adjacent sediments or the water column. As required by mitigation measure **MM-HWQ-1**, removed creosote-treated piles must be disposed of in a manner that precludes their further use. Piles must be cut into manageable lengths (4-foot lengths are preferable) for transport and disposal in an approved upland location. Extracted piles and debris should be placed in a lined stockpile area or directly loaded into transport container or vehicle. Appropriate controls should be used to prevent runoff from leaving the stockpile and entering surface water or ground water.

Adherence to regulatory permit requirements associated with CWA Sections 401 and 404 and Rivers and Harbors Act Section 10, as well as implementation of **MM-HWQ-1** and **MM-HAZ-2** through **MM-HAZ-5** would ensure that project construction would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade existing water quality. These mitigation measures would reduce **Impact-HWQ-1** and **Impact-HWQ-2** to less-than-significant levels.

Landside Operation

The landside portion of the project site totals 11.7 acres and is composed of paved and developed areas. The proposed project would include the redevelopment of 5,000 square feet of impervious surface collectively, on an existing site of 10,000 square feet of impervious surfaces. Industrial uses generate pollutants that could impair water quality if not treated prior to discharge. Typical pollutants associated with industrial uses include, but are not limited, to suspended solids, pathogens, nutrients, pesticides, organic compounds, trash/debris, oxygen-demanding substances, and oil and grease. Typical pollutants associated with parking include heavy metals. However, a majority of the landside portion of the project site currently consists of impervious surfaces, and the proposed project would not result in additional pollutant input associated with increases in impervious surfaces.

District Code, Article 10 (Stormwater Management and Discharge Control Ordinance) and the JRMP include specific requirements for all development and redevelopment activities. Pursuant to the District's JRMP, post-construction BMPs are required for all projects falling under the Municipal Stormwater Permit. Post-construction BMPs are a subset of BMPs including structural and nonstructural controls that detain, retain, filter, or educate to prevent the release of pollutants to

surface waters during the functional life of developments. Article 10 also specifically requires pollutant control BMPs for all PDPs, which includes the proposed project. The proposed project is considered a PDP and would thus be required to implement pollutant control BMPs, following the hierarchy described in the District's *BMP Design Manual* (retention, partial retention with biofiltration, biofiltration, or flow-through with participation in an Alternative Compliance Program). Stormwater pollutant control BMPs are engineered facilities that are designed to retain (i.e., intercept, store, infiltrate, evaporate, and evapotranspire), biofilter, and/or provide flow-through treatment of stormwater runoff generated on the project site. Minimum BMPs consistent with the District's *BMP Design Manual* require the use of site design BMPs and source control and pollutant control BMPs. Additionally, a post-construction SWQMP must be prepared for all PDPs to identify the project-specific design BMPs and source control and pollutant control BMPs. These requirements are discussed under Section 4.5.3, *Applicable Laws and Regulations*, primarily under 4.5.3.4, *Local*.

The project proponent would prepare a project-specific SWQMP for approval by the District that identifies low-impact development (LID) features (site design and source control BMPs) and pollutant control BMPs to reduce the discharge of pollutants to the maximum extent practicable. The most significant water quality benefit of LID is removal of stormwater runoff from the storm drain system or receiving waters. The first flush of stormwater runoff during a rainfall event typically contains higher concentrations of pollutants than later rainfall. By directing this runoff through LID features and providing retention, infiltration into the various layers of the LID feature and/or the native soils below the LID, and evapotranspiration, the pollutants do not reach the receiving body of water. The proposed project would also include non-structural BMPs such as storm drain stenciling and signage, properly designed outdoor materials storage areas, properly designed trash storage areas, proof of ongoing BMP maintenance, and other items relevant to operations of the site. Implementation of site-specific LID features and pollutant control BMPs, in accordance with the JRMP, would filter potential pollutants from runoff prior to discharge into receiving waters.

Applicable site design BMPs and source control and pollutant control BMPs would be implemented in accordance with the District's JRMP and identified in the project-specific SWQMP, which would document that all permanent source control and site design BMPs have been considered for the project and implemented where feasible; document the planning process and the decisions that led to the selection of structural BMPs; provide the calculations for design of structural BMPs to demonstrate that applicable performance standards are met by the structural BMP design; identify O&M requirements of the selected structural BMPs; and identify the maintenance mechanism for long-term O&M of structural BMPs (District 2018b). The SWQMP must be provided with the first submittal of project drawings for review and approval by the District.

Therefore, with implementation of these requirements, operation of the landside portion of the proposed project would not violate any water quality standards or waste discharge requirements. Impacts would be less than significant; no mitigation measures are required.

Waterside Operation

Existing waterside operations include maintenance, repair, overhaul and conversion (MROC)-related activities. Working piers onsite are designed to accommodate berthing for large deep-draft Navy and commercial vessels and include a variety of crane and utility services. The proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase efficiency of operations. Specifically, the dredging and mooring improvements at the

Pride of San Diego Drydock (Project Element 1), as well as the addition of a mooring dolphin at Pier 3 (Project Element 5) and associated dredging (Project Element 4), would allow BAE Systems to improve operational efficiency; however, no new berthing space would be provided, and no increase in the number of vessels serviced on an annual basis would occur under the proposed project. The Pier 3 improvements would allow for servicing of newer and different classes of vessels compared to existing conditions.

Under the proposed project, similar types of pollutants such as abrasive blast grit material, primer, paint, paint chips, solvents, oils, fuels, sludges, detergents, cleansers, hazardous substances, toxic pollutants, nonconventional pollutants, materials of petroleum origin, or other substances would be generated. However, the proposed project would be required to continue to comply with the existing discharge requirements under BAE System's existing Order R9-2015-0034 to reduce the discharge of pollutants to the maximum extent practicable. BAE Systems would be required to amend the existing operational SWPPP that covers the site's activities to account for the proposed improvements allowing for servicing of larger ships. As such, the proposed project would result in similar types of pollutants being generated onsite, and because larger boats could be serviced, this would potentially increase the amount of pollutants generated and discharged offsite. The operation SWPPP amendment would identify if additional BMPs would be needed to address the potential increase in pollutants generated by the proposed project. Additionally, the proposed project would continue to discharge collected stormwater held in 11 tank systems (DS1 through DS11) in accordance with the BAE Systems IUD Permit. As such, the discharge of pollutants is anticipated to be similar to existing conditions, and with the necessary operation SWPPP amendments, would meet discharge requirements of Order R9-2015-0034.

Fenders are occasionally damaged when impacted by vessels and need to be replaced quickly in order to continue to provide safe vessel moorage. In some instances, only the fenders are damaged and therefore would not require the replacement of any piles that could disturb sediment. However, in the event steel H-piles are damaged by vessels, they would need to be replaced and would disturb sediment. The replacement of damaged fenders or H-piles would occur under Project Element 3 (Fender System Repair and Replacement). The potential impacts of replacing steel H-piles associated with Project Element 3 are discussed and addressed above under *Waterside Construction* (see **Impact-HWQ-1**).

In addition, Project Element 8 (Port Security Barrier Replacement) would require maintenance of the weighted anchors that hold the system in place, such as removing and replacing the anchors for maintenance annually. Conducting these maintenance activities may temporarily disturb sediment at the location of the anchor. However, these operational activities of replacing anchors are consistent with ongoing maintenance and repair activities that currently occur at the project site. Standard operating procedures would ensure the slight disturbance of sediment would not result in the release of additional sediment to the water column.

The continued implementation of standard operating procedures currently used during operations and maintenance would ensure regular ongoing maintenance and replacement activities do not result in additional disturbance of sediment. Therefore, the proposed project's potential to impair water quality during operations would be less than significant.

Level of Significance Prior to Mitigation

Landside Construction and Operation

Construction and operation of the landside components of the proposed project would not violate any water quality standards or waste discharge requirements, or otherwise substantially degrade existing water quality. Therefore, impacts would be less than significant.

Waterside Construction

Construction of the waterside components of the proposed project would potentially violate water quality standards or otherwise substantially degrade existing water quality. Potentially significant impact(s) include the following.

Impact-HWQ-1: Degradation of Water Quality from Waterside Sediment Contamination. Historical information, reports, and site assessments compiled from database searches indicate that it is reasonably foreseeable that contaminated sediments may be encountered during in-water construction activities, including such activities as dredging and pile installation/removal associated with Project Element 1 (Pride of San Diego Drydock Dredging/Mooring), Project Element 2 (Pride of San Diego Wharf Replacement/Realignment), Project Element 3 (Fender System Repair and Replacement), Project Element 4 (Pier 3 South Nearshore Dredging), Project Element 5 (Pier 3 Mooring Dolphin), Project Element 6 (Pier 3 North Lunchroom Wharf Replacement and Realignment), Project Element 7 (Quay Wall Modifications), Project Element 8 (Port Security Barrier Replacement), and Project Element 9 (Small Boat Mooring Float Replacement). It should be noted that Project Element 3 could include the replacement of fenders without the need to also replace piles, in which case no sediment disturbance would occur. As such, in-water construction activities that disturb the sediment would potentially result in a release of contaminated sediment into the water column and substantially degrade water quality. Impacts would be significant.

Impact-HWQ-2: Removal of Creosote Piles Could Result in Resuspension of Sediments Contaminated with PAHs. Existing piles could contain creosote and removal of the piles could result in resuspension of sediments contaminated with PAHs. The chemicals from the existing piles could have leached into the adjacent sediments or leach into the water column during removal. Impacts would be significant.

Waterside Operation

Operation of the waterside components of the proposed project would not violate any water quality standards or waste discharge requirements, or otherwise substantially degrade existing water quality. Therefore, impacts would be less than significant.

Mitigation Measures

For **Impact-HWQ-1:**

Implement mitigation measures **MM-HAZ-2** through **MM-HAZ-5** as described in Section 4.4, *Hazards and Hazardous Materials*.

For **Impact-HWQ-2:**

MM-HWQ-1: Remove and Dispose of Creosote Piles Properly. During pile extraction, if piles cannot be completely removed, they shall be cut at least 1 foot below the mud line. If treated piles are fully extracted or if they are cut below the mudline, the project proponent or contractor shall cap the holes or piles with appropriate material such as clean substrate (sand and/or gravel) or pile caps. Removed creosote-treated piles shall be disposed of in a manner that precludes their further use. The piles must be cut into manageable lengths (4-foot lengths are preferable) for transport and disposal in an approved upland location. Extracted piles and debris should be placed in a lined stockpile area or directly loaded into transport container or vehicle. Appropriate controls should be used to prevent runoff from leaving the stockpile and entering surface water or ground water.

Level of Significance after Mitigation

With implementation of **MM-HAZ-2** through **MM-HAZ-5**, **Impact-HWQ-1** would be reduced to less-than-significant levels. **MM-HAZ-2** requires the project proponent to implement a Dredging Management Program that must include the development of: (A) Dredging Operations Plan identifying the appropriate SOPs and sediment control BMPs to be implemented; (B) Contingency Plan to prepare for equipment or operational failures; (C) Health and Safety Plan for Dredging Activities; (D) Communication Plan; and (E) Sediment Sampling and Remediation, to assess the condition of sediment post-dredging and outline potential remediation approaches, as appropriate. All of the plans and reports included in the Dredging Management Program must be reviewed and approved by the District and/or the San Diego RWQCB. **MM-HAZ-3** requires the project proponent to implement a (Waterside) Sediment Management Program that must contain: (A) Sampling Analysis Plan (SAP); (B) Marine Sediment Contamination Characterization Report; (C) Contaminated Sediment Management Plan; (D) In-Water Activity Specific Procedures; and (E) Post-Construction Sampling and Analysis. **MM-HAZ-4** requires the project proponent to obtain all federal and state permits required for in-water construction activities and demonstrate to the District compliance with all permit conditions during in-water construction. **MM-HAZ-5** requires the project proponent to propose and conduct remediation of the site if, after in-water construction activities and dredging are complete, site sampling shows that concentrations of COCs exceed those set forth in CAO R9-2012-0024 (or other levels as prescribed by the RWQCB).

In addition, implementation of **MM-HWQ-1** would reduce potential impacts from creosote leeching into the water (**Impact-HWQ-2**) to less than significant by requiring measures for the proper removal, stockpiling, and disposal of piles.

Threshold 3: Implementation of the proposed project would not substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:

i. Result in substantial erosion or siltation on- or off-site

ii. Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site, substantially affecting the existing environment

iii. 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

iv. Impede or redirect flood flows.

Impact Discussion

Anticipated pollutants of concern associated with construction of the proposed project include sediments, turbidity, metals, petroleum products, trash, concrete/asphalt, and sanitary wastes that could contribute to the degradation of water quality during construction activities.

The proposed project would include the redevelopment of 5,000 square feet of impervious surface collectively, on an existing site of 10,000 square feet of impervious surfaces. BAE Systems currently operates and maintains an SWDS to eliminate and/or reduce the volume of storm water pollutants discharged to San Diego Bay. This system consists of 36 catch basins (drains) and associated piping, as well as secondary containment. The system is designed to capture the first inch of stormwater that falls on the facility, which is 100 percent impervious. The proposed project would not result in an increase in impervious surfaces and would continue to discharge directly into San Diego Bay and to the SWDS, similar to existing conditions. Under the proposed project, similar types of pollutants including abrasive blast grit material, primer, paint, paint chips, solvents, oils, fuels, sludges, detergents, cleansers, hazardous substances, toxic pollutants, nonconventional pollutants, materials of petroleum origin, or other substances would be generated during project operations. However, the proposed project would be required to comply with the existing Order R9-2015-0034, which would regulate polluted runoff.

The proposed project is considered a PDP in accordance with the District's JRMP. As a PDP, the proposed project would be required to implement post-construction BMPs through the preparation and implementation of a project-specific SWQMP. The proposed project would implement site design, source control, and pollutant control BMPs consistent with the District's JRMP and *BMP Design Manual*, as described previously under Section 4.5.3.3, *Local*. The JRMP requires that PDP applicants proposing to meet the performance standards onsite implement all feasible onsite retention BMPs needed to meet the stormwater pollutant control BMP requirements prior to installing onsite biofiltration BMPs, and then install onsite flow-through treatment control BMPs. Retention BMPs are structural measures that provide retention (i.e., intercept, store, infiltrate, evaporate, and evapotranspire) of stormwater as part of the pollutant control strategy; examples

that may be considered onsite include infiltration BMPs and cisterns, bioretention BMPs, and biofiltration with partial retention BMPs (District 2015). Flow-through treatment control BMPs are structural measures that provide flow-through treatment as part of the pollutant control strategy; examples include vegetated swales and media filters (District 2015). The groundwater depth may limit infiltration capabilities onsite.

Site design and source control BMPs are the minimum management practices, control techniques, and design and engineering methods to be included in the planning design to reduce the discharge of pollutants from the development and are intended to avoid or minimize the water quality impacts by managing site hydrology, providing treatment features integrated within the site, and reducing or preventing the introduction of pollutants from specific sources. The preparation of a Construction BMP Plan would be required that would eliminate or reduce pollutants in stormwater runoff and non-stormwater discharges from the project site during construction. Additionally, a SWQMP would be prepared for the proposed project to identify BMPs to retain as much runoff as possible. Implementation of site design, source control, and pollutant control BMPs would not only result in a reduction in pollutants discharged from the project site but also in stormwater runoff generated by the project site. As part of Order R9-2015-0034, the project site is subject to an operational SWPPP designed to reduce or prevent the discharge of pollutants from industrial activities. The operational SWPPP would need to be amended to account for updated site facility conditions. As a result, the proposed project would not 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.

Development of the proposed project would include implementation of pollutant control BMPs that would remove pollutants to the maximum extent practicable prior to discharge into the Bay. Additionally, compliance with the JRMP, Construction BMP Plan, Order R9-2015-0034, operational SWPPP, and existing regulations would be required. Therefore, project impacts would be less than significant.

Level of Significance Prior to Mitigation

Implementation of the proposed project would not substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would 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. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance after Mitigation

Impacts would be less than significant.

Threshold 4: In flood hazard, tsunami, or seiche zones, implementation of the proposed project would not risk release of pollutants due to project inundation.

Impact Discussion

As shown in FEMA FIRM No. 06073C1885G, some project elements located on the landside portion of the project site are within the FEMA 100-year floodplain, similar to existing conditions. Portions of landside Project Elements 6, 10, 11, and 14 would be located within a 100-year flood hazard area. The waterside portion of the project site is within Flood Zone AE, which is an area subject to flooding during the 100-year storm event (1 percent annual chance of flooding where base flood elevations and flood hazard factors are determined). The portion of the project site located in the Bay (i.e., waterside) would be within Flood Zone AE.

Construction

During construction activities associated with the proposed project, construction equipment would be mobile and could move to higher ground if needed. Thus, the temporary presence of the construction-related equipment would not represent a permanent change to the floodplain, and would not impede or redirect flood flows. Any open excavation associated with utilities or soil removal for foundation preparation may serve to capture stormwater and impede its flow if unprotected; however, BMPs would be in place to divert runoff away from the construction site and toward proper drainage locations. Therefore, because construction of the proposed project would not exacerbate the flooding potential of the project site or the effects of flooding on the existing environment, impacts during construction would be less than significant.

Operation

All structures proposed within Flood Zone AE must be designed to ensure that the floor elevation is raised at least 1 foot above the floodplain elevation and meets the structural requirements of FEMA to avoid any damage to persons or structures as a result of a 100-year flood. Approval of all permanent structure design plans by the District's Engineering Department and the City of San Diego's Engineering Section (of the Development Services Department) is a standard requirement to issue a grading and building permit. As this process is mandatory, no mitigation is needed. Moreover, flooding is typically a condition that occurs when the volume of water exceeds the capacity of the waterway channels or when tidal waters are pushed inland by coastal storms. As a result of the project location adjacent to San Diego Bay, the project site is unlikely to flood due to capacity of the waterway and is more vulnerable to tidal waters that are pushed inland by coastal storms. Potential impacts associated with the proposed project's potential to exacerbate flooding due to sea-level rise are discussed in Section 4.8, *Sea-Level Rise*, of this EIR.

Therefore, because operation of the proposed project would not exacerbate the flooding potential of the project site or the effects of flooding on the existing environment, impacts would be less than significant.

Level of Significance Prior to Mitigation

Implementation of the proposed project would not place within a 100-year flood hazard area structures that would impede or redirect flood flows. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance after Mitigation

Impacts would be less than significant.

Threshold 5: Implementation of the project would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Impact Discussion

Construction

As discussed under Threshold 1, landside and waterside construction activities associated with the proposed project would be required to comply with the Municipal Stormwater Permit and the District's JRMP as well as applicable regulatory permits under CWA Sections 401 and 404 and Rivers and Harbors Act Section 10. These permits would require project construction activities to implement BMPs to reduce or prevent runoff pollution. As discussed under Threshold 1, the proposed project would include waterside improvements that could disturb potentially contaminated sediments (**Impact-HWQ-1**), which could be released back into the water column and spread the contaminants beyond their existing locations. In addition, the proposed project could remove creosote piles and release PAHs into the water column (**Impact-HWQ-2**). As such, the proposed project could result in a conflict with the water quality control plan (i.e., Basin Plan). However, as identified in Threshold 1, with mandatory adherence to regulatory permit requirements associated with CWA Sections 401 and 404 and Rivers and Harbors Act Section 10 (as further enforced through **MM-HAZ-4**), which would be required from the RWQCB and USACE, as well as mitigation measures **MM-HAZ-2**, **MM-HAZ-3**, and **MM-HAZ-5**, project construction would not conflict with or obstruct implementation of a water quality control plan. Impacts from these activities would be less than significant.

The proposed project may result in temporary groundwater impacts during construction. However, the proposed project would comply with dewatering requirements imposed by the San Diego RWQCB general waste discharge requirements for discharges from temporary groundwater extraction and similar waste discharges to surface waters (Order R9-2015-0013). To obtain coverage under this order, a discharger must submit a complete Notice of Intent application package to the San Diego RWQCB office at least 60 days before proposed commencement of the discharge. The project proponents would be required to maintain compliance with the effluent limitations applicable to the receiving water, as specified in Order R9-2015-0013 (refer to Table 5 of the order). For example, the permit has effluent limitations for settable solids, total suspended solids, turbidity, pH, and a number of additional parameters. In addition, Order R9-2015-0013 identifies the monitoring and reporting program requirements. The purpose of the monitoring and reporting program is to determine and ensure compliance with effluent limitations and other requirements established in the order, assess treatment efficiency, characterize effluents, and characterize the receiving water and the effects of the discharge on the receiving water. The San Diego RWQCB may specify increased monitoring requirements as necessary to ensure that applicable water quality objectives are maintained in the receiving water. Any dewatering or construction-related non-

stormwater discharges would be controlled in compliance with the San Diego RWQCB permit for dewatering. The permit requires permittees to conduct monitoring of dewatering discharges and adhere to effluent and receiving water limitations contained within the permit so that water quality of surface waters is protected. As such, the proposed project is not anticipated to conflict with or obstruct implementation of a water quality control plan or a sustainable groundwater management plan.

Operation

As discussed under Threshold 1, several of the proposed project elements are infrastructure maintenance and modernization improvements that would not change the nature of existing operations at the project site, but rather would increase operational efficiencies. Although the proposed project would result in increased landside development compared to existing conditions, it would not substantially increase the amount of impervious surfaces at the site, which is currently developed entirely with impervious surfaces. As such, the proposed project would generally result in similar types of pollutants and other substances being generated on site compared to existing conditions. District Code, Article 10 (Stormwater Management and Discharge Control Ordinance) and the JRMP include specific requirements for all development and redevelopment activities. Minimum BMPs consistent with the District's *BMP Design Manual* require the use of site design BMPs and source control and pollutant control BMPs. Additionally, a post-construction SWQMP must be prepared for the proposed project to identify the project-specific design BMPs and source control and pollutant control BMPs. Implementation of site-specific LID features and pollutant control BMPs, in accordance with the JRMP, would filter potential pollutants from runoff prior to discharge into receiving waters.

Additionally, the proposed project would be required to continue to comply with the existing discharge requirements under BAE Systems' existing NPDES permit Order R9-2015-0034. BAE Systems would be required to amend the existing operational SWPPP that covers the site's activities to account for the proposed improvements allowing for servicing of larger ships. Therefore, compliance with these existing regulatory requirements would reduce the discharge of pollutants to the maximum extent practicable. Consequently, the proposed project would not conflict with or obstruct implementation of a water quality control plan, and impacts would be less than significant.

Level of Significance Prior to Mitigation

Construction

Construction of the proposed project would potentially conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Potentially significant impact(s) include the following.

Impact-HWQ-1 and **Impact-HWQ-2**, as discussed under Threshold 1 above.

Operation

Operation of the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, impacts would be less than significant.

Mitigation Measures

For **Impact-HWQ-1:**

Implement **MM-HAZ-2** through **MM-HAZ-5**, as described in Section 4.4, *Hazards and Hazardous Materials*.

For **Impact-HWQ-2:**

Implement **MM-HWQ-1**, as described under Threshold 1 above.

Level of Significance after Mitigation

Implementation of **MM-HAZ-2** through **MM-HAZ-5** would reduce potential impacts associated with sediment contamination during in-water construction activities (**Impact-HWQ-1**), including dredging and pile installation/removal located within areas with contaminated sediment, to less than significant. In addition, implementation of **MM-HWQ-1** would reduce potential impacts from creosote leeching into the water (**Impact-HWQ-2)** to less than significant by requiring measures for the proper removal, stockpiling, and disposal of piles. Therefore, **Impact-HWQ-1** and **Impact-HWQ-2** would be less than significant after mitigation.

Section 4.6
Land Use and Planning

4.6.1 Overview

Land use and planning considers the proposed project's compatibility with surrounding land uses and its consistency with land use plans, policies, and laws that have regulatory jurisdiction over the project site. This section describes the existing land uses that could be adversely affected by the proposed project; outlines the applicable laws and regulations related to land use and planning; and analyzes the proposed project's consistency with applicable plans and regulations, such as the California Coastal Act (CCA).

Impacts related to land use are considered significant if the proposed project would conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. All other potential land use and planning issues were analyzed in Section X of the Initial Study/Environmental Checklist (see Appendix A) and determined to have no impact. The analysis and conclusions regarding these issues are summarized in Chapter 6, Section 6.4, *Effects Not Found to Be Significant*.

As discussed in Section 4.6.4, *Project Impact Analysis*, all impacts related to land use and planning would be less than significant.

4.6.2 Existing Conditions

The project site occupies land that is under the jurisdiction of the District in the City of San Diego. In total, the District has jurisdiction over approximately 5,500 acres of tide and submerged lands (Tidelands), or about 37 percent of the total Tidelands on the Bay. The Port Master Plan (PMP) is the governing land use plan in the District and dictates the land and water uses within the District. Land use designations in the PMP are composed of approximately 15 percent commercial, 24 percent industrial, 19 percent public recreation, 28 percent conservation, 12 percent public facility, and 3 percent military (District 2017).

The PMP establishes ten planning districts. The project site is within the PMP's Tenth Avenue Marine Terminal Planning District (Planning District 4) and the vast majority of the project site lies within the Belt Street Industrial Subarea (Subarea 43) (see Figure 4.6-1).

4.6.2.1 Existing Port Master Plan Land and Water Use Designations

PMP land and water use designations within the project site include Marine Related Industrial and Specialized Berthing. The allowable uses for each are described below. Designated land and water uses within the project site are shown in Figure 2-2 of Chapter 2, *Environmental Setting*.

- Marine Related Industrial – Landside designation for sites within close proximity to water bodies due to functional dependencies on the industrial activity for direct access or for linkages to waterborne products, processes, raw materials, or large volumes of water. The primary users of marine-related industrial areas are dependent upon large ships, deep water, and specialized loading and unloading facilities, typically associated with shipbuilding and repair, processing plants, and marine terminal operations.
- Specialized Berthing – Waterside designation devoted to marine commercial and industrial uses including ship building and repair, water taxi, excursion and ferry craft, commercial fishing boat berthing as a priority use, cruise ship berthing, maritime museum exhibits and historic craft replicas, water intake and discharge, industrial and commercial launching, vessel loading and unloading, marine contractors, rigged vessels, barges, tugs/tow boats, breakwater, launch ramps and lifts, seawall margin wharves, and any other facility supporting the marine craft engaged in commercial and industrial uses.

In addition to the established land and water use designations, the PMP establishes conceptual plans for each subarea of the Precise Plan. As discussed under the Belt Street Industrial Subarea, the concept established by the PMP for the project site involves continued operation of the existing marine-related industries. Consideration should be given to expansion into the adjacent upland areas, should it be necessary. Renovation and redevelopment of existing facilities will continue as industries respond to market demands and changes in the maritime industrial climate.

4.6.2.2 Existing Community Characteristics

The existing characteristics of the project site and within the surrounding community are described in Chapter 2, *Environmental Setting*. For the reader's convenience, this section restates the existing site conditions provided in Chapter 2 as they apply to land use and planning.

Project Site

The project site consists of a combined total of approximately 35.9 acres, with approximately 11.8 acres of land area and 24.1acres of water area (Table 4.6-1). The water area of the project site consists of three working piers (Piers 1, 3, and 4), five wet berths, and two floating dry docks, all of which are used to modernize, repair, and overhaul marine vessels, primarily non-nuclear Navy vessels as well as commercial customers. In addition, the land area of the project site contains numerous buildings housing administrative and office spaces; training centers; fitness facilities; restrooms; production space; shops for structural, electrical, carpentry, painting, and metal work; and warehouses. There are also several storage yards and storage tanks scattered throughout the project site. The project site does not support any native vegetation, but does include some trees and other ornamental plantings. Figure 2-2 in Chapter 2, *Environmental Setting*, presents an aerial photograph of the existing condition of the project site.

Table 4.6-1. Project Site Acreage

	Land	Water	Total
Existing District Leasehold	9.8	16.6	27
TUOP[1]	2.0	4.0	6.0
California State Lands Commission Lease[2]	0	3.5	3.5
Total	11.8	24.1	35.9

[1] As explained in Chapter 3, *Project Description*, the TUOP between the District and BAE Systems expired October 31, 2019. However, it is anticipated that the TUOP will be renewed on a short-term basis for continuation of existing uses.

[2] Under Senate Bill 507, which grants in trust to the District additional tidelands and submerged lands held by the state within San Diego Bay, the leasing authority for these 3.5 acres of water area was transferred into the District's jurisdiction as of January 1, 2020. However, the California Coastal Commission still retains permitting authority for this area.

Surrounding Community

The project site is within and adjacent to the San Diego Bay in a highly industrialized area of the waterfront located approximately 0.20 mile south of the San Diego-Coronado Bay Bridge. West of Harbor Drive, uses to the northwest of the project site include primarily ship engineering services, ship building and repair facilities, and a hydrocolloid manufacturing plant. An electricity substation is located to the northeast. Uses to the east of the project site, across Belt Street, include distribution facilities for oil companies, which are characterized by large, white storage tanks. Uses to the southeast comprise more ship building and repair facilities, such as the expansive General Dynamics NASSCO facility, which is bounded on the south by Chollas Creek. South of Chollas Creek is a naval facility. Open water of the San Diego Bay is west of the project site, with the City of Coronado farther west (approximately 1 mile across the Bay from the project site).

Uses east of Harbor Drive, between Harbor Drive and Interstate 5, become more diverse and transition from light industrial uses into a mix of residential (both multi- and single-family), commercial and institutional uses (churches and schools), as well as some interspersed light industrial.

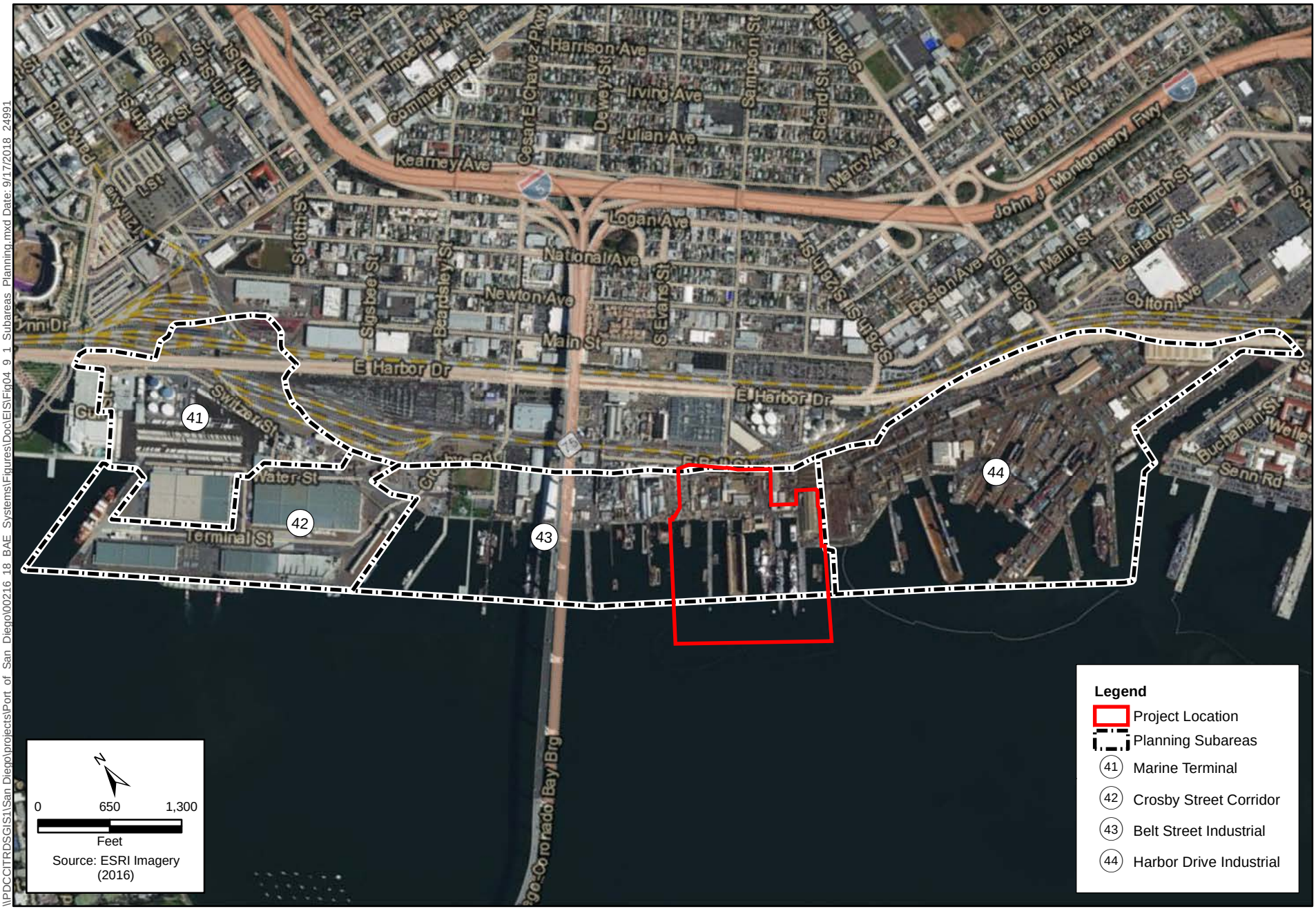

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Figure 4.6-1
Planning District 4: Tenth Avenue Marine Terminal Planning Subareas
BAE Systems Waterfront Improvement Project

4.6.3 Applicable Laws and Regulations

4.6.3.1 Federal

Coastal Zone Management Act of 1972

The U.S. Congress recognized the importance of meeting the challenge of continued growth in the coastal zone by passing the Coastal Zone Management Act in 1972. The act, administered by the National Oceanic and Atmospheric Administration (NOAA) Office of Ocean and Coastal Resource Management, provides for management of the nation's coastal resources and balances economic development with environmental conservation.

The Coastal Zone Management Act outlines two national programs. The National Coastal Zone Management Program includes 34 coastal programs that aim to balance competing land and water issues in the coastal zone. The National Estuarine Research Reserve System creates field laboratories that provide a greater understanding of estuaries and how humans affect them. The overall program objectives of the act are to "preserve, protect, develop, and, where possible, restore or enhance the resources of the nation's coastal zone."

The Coastal Zone Management Act ensures that development projects in coastal areas are designed and sited in a manner that is consistent with coastal zone land uses, maximizes public health and safety, and ensures that biological resources (e.g., wetlands, estuaries, beaches, fish and wildlife and their habitat) within the coastal zone are protected. The enforceable policies of that document are found in Chapter 3 of the California Coastal Act of 1976 (as amended). The California Coastal Commission (CCC or Commission) enforces the Coastal Zone Management Act by certifying that a proposed project is consistent with the California Coastal Act.

40 Code of Federal Regulations, Part 227 – Criteria for the Evaluation of Permit Applications for Ocean Dumping Materials

40 CFR Part 227 establishes the criteria for issuing or denying a permit or to impose conditions on any permit issued for the disposal or dumping of dredged material. Basic criteria include that the proposed disposal will not degrade or endanger the marine environment or the marine ecosystem; will not result in unacceptable adverse effects on human health; will not result in persistent or permanent effects due to the dumping of the particular volumes or concentrations of the dredged material; or will not adversely affect the ocean for other uses.

4.6.3.2 State

California Public Trust Doctrine

The Public Trust Doctrine is a common law doctrine that provides that public lands and waters are held by the State or its delegated trustee (i.e., the California State Lands Commission [SLC]) for the benefit of all people. All tide and submerged lands, granted or ungranted, as well as navigable rivers, sloughs, etc., are impressed with the Public Trust. The Public Trust Doctrine, as overseen by the SLC, restricts the type of land uses allowed on public lands, including the District Tidelands. The Public Trust Doctrine limits the uses of sovereign lands to waterborne commerce, navigation, fisheries,

open space, water-oriented recreation, ecological habitat protection, or other recognized Public Trust purposes. The entire project site would be subject to the Public Trust Doctrine.

California Coastal Act

The CCA of 1976 (Public Resources Code, Section 30000 et seq.) was enacted by the Legislature as a comprehensive scheme to govern land use planning for the entire coastal zone of California. A combination of local land use planning procedures and enforcement to achieve maximum responsiveness to local conditions, accountability, and public accessibility are relied upon to ensure conformity with the provisions of the act (Section 30004 (a) and (b)). Chapter 8, Article 3 of the CCA requires ports, including the Port of San Diego, to develop a PMP by which to designate land and water uses and issue individual coastal development permits or exclusions within their jurisdictions. Individual PMPs require review and certification by the CCC for conformity with the CCA, including any amendments to the certified PMP. The CCC must certify a PMP or PMP Amendment (PMPA) if it finds that the PMP or PMPA meets the requirements of, and is in conformity with, the CCA. Chapter 8 (Section 30715) also specifies which projects within a port are subject to Chapter 3 policies of the CCA, *Coastal Resources Planning and Management Policies*. Chapter 3 of the CCA provides broad statewide policies for public access to the coast, recreation, marine environment, land resources, development, and sea-level rise (SLR). A list of applicable policies and an associated consistency review is provided below in Table 4.6-2.

San Diego Unified Port District Act

The San Diego Unified Port District Act (Port Act) (Appendix 1 of the California Harbor and Navigation Code) was adopted in 1962. Through the Port Act, the State of California delegated its authority to the District to manage and control certain tidelands and submerged waters. Specifically, the District was established for the development, operation, maintenance, control, regulation, and management of the tidelands and lands underlying the inland navigable waters of San Diego Bay. Under the Port Act, the District was granted broad police powers. The Port Act requires the District to exercise its land management authority and powers over (1) the tidelands and submerged lands granted to the District and (2) any other lands conveyed to the District by any city or the County of San Diego or acquired by the District. The Port Act grants the District exclusive police power over property and development subject to its jurisdiction. A PMP is also required by the Port Act, which must specify the land and water uses within the District's jurisdiction.

4.6.3.3 Local

San Diego Unified Port District Port Master Plan

The PMP is the governing land use document for physical development within areas granted in trust to the District. The PMP, as certified, provides the District permitting authority and the ability to issue coastal development permits.

The PMP is organized into four sections: (I) Introduction, (II) Planning Goals, (III) Master Plan Interpretation, and (IV) Precise Plans. Section II establishes planning goals and related policies that pertain to development and operation of lands within the District's jurisdiction. Section III provides additional land use objectives and criteria that apply to specific land use types, including commercial, industrial, recreation, conservation, military, and public facility uses. Section IV

identifies ten Planning Districts, each of which is guided by a Precise Plan that guides future development.

As discussed above, the project falls within the Belt Street Industrial Subarea of Planning District 4: Tenth Avenue Marine Terminal. The concept established by the PMP for the project site involves continued operation of the existing marine-related industries with consideration being given to expansion into the adjacent upland areas, as necessary. Renovation and redevelopment of existing facilities will continue as industries respond to market demands and changes in the maritime industrial climate. Table 4.6-2 lists the applicable policies and describes the proposed project's consistency with those policies.

San Diego Unified Port District Port Master Plan Update

The District is in the process of conducting a comprehensive update of the PMP (Port Master Plan Update or PMPU). While the details of the PMPU are still in the process of being developed, the District adopted on August 12, 2014, under Resolution 2014-167, the Vision Statement and Guiding Principles that will govern the specific goals, policies, and land use decisions identified in the PMPU. The project's consistency with the Guiding Principles is analyzed in Table 4.6-2.

San Diego Bay Integrated Natural Resources Management Plan

The San Diego Bay Integrated Natural Resources Management Plan is a long-term strategy sponsored by two of the major managers of San Diego Bay: the U.S. Navy and the District. Its intent is to provide direction for the good stewardship that natural resources require, while also supporting the ability of the Navy and District to meet their missions and continue functioning within the Bay. The core strategies of the plan are to: (1) manage and restore habitats, populations, and ecosystem processes; (2) plan and coordinate projects and activities so that they are compatible with natural resources; (3) improve information sharing, coordination, and dissemination; (4) conduct research and long-term monitoring that supports decision-making; and (5) put in place a Stakeholder's Committee and Focus Subcommittees for collaborative, ecosystem-based problem-solving in pursuit of the goal and objectives.

San Diego International Airport Land Use Compatibility Plan

The San Diego International Airport Land Use Compatibility Plan (ALUCP) was adopted on April 3, 2014, and amended on May 1, 2014, with the purpose of promoting compatibility between San Diego International Airport (SDIA) and surrounding land uses. Specifically, the intent of the ALUCP is to protect public health, safety, and welfare in areas around the airport and establishes policies and standards related to noise, safety, airspace protection, and overflight. The ALUCP defines an airport influence area (AIA), which is the boundary in which the ALUCP applies and is the "area in which current and projected future airport-related noise, safety, airspace protection, or overflight factors/layers may significantly affect land use or necessitate restrictions on land use."

The ALUCP establishes two zones within the AIA:

- Review Area 1: the combination of the 60 decibel community noise equivalent level noise contour, the outer boundary of all safety zones, and the Threshold Siting Surfaces (TSSs). A TSS is critical airspace that must be protected to allow for safe approaches to runways. Any objects penetrating the TSS would cause the runway threshold to be further displaced, reducing available landing distances.

- Review Area 2: the combination of the airspace protection and overflight boundaries beyond Review Area 1. Airspace protection and overflight policies and standards only apply within Review Area 2.

The project site falls within Review Area 2. ALUC review is required for land use plans and regulations within Review Area 2 proposing increases in height limits, and for land use projects that: (1) have received from the Federal Aviation Administration (FAA) a Notice of Presumed Hazard, a Determination of Hazard, or a Determination of No Hazard subject to conditions, limitations, or marking and lighting requirements; and/or (2) would create any of the following hazards: glare; electromagnetic interference; thermal plumes; lighting, dust, water vapor and smoke; and bird attractants (San Diego County Regional Airport Authority 2014).

Local agencies must submit an application for consistency determination to the ALUC for its review at least 45-60 days prior to construction (San Diego County Regional Airport Authority 2014). The ALUC must respond to a local agency's request for consistency determination within 60 calendar days after the application is deemed complete by ALUC staff. In accordance with FAA Part 77, the FAA would be notified at least 45 to 60 days prior to construction.

4.6.4 Project Impact Analysis

4.6.4.1 Methodology

The proposed project includes maintenance, repair, and replacement of waterfront infrastructure associated with mooring and operational facilities at the project site, including replacement and realignment of wharf structures, replacement of aged buildings, mooring infrastructure improvements, and utility upgrades. The following impact analysis evaluates the land use and planning impacts resulting from the proposed project. Based upon the existing conditions described under Section 4.6.2, the impact analysis qualitatively assesses the project-related impacts on the existing community and provides a project consistency analysis with the existing applicable plans, policies, and regulations. Merely being inconsistent with an existing plan, policy, or regulation would not necessarily be considered a significant impact under CEQA; rather, the inconsistency must result in a substantial adverse effect on the environment.

4.6.4.2 Thresholds of Significance

The following significance criteria are based on Appendix G of the State CEQA Guidelines and provide the basis for determining significance of impacts associated with land use and planning resulting from the proposed project. The determination of whether a land use and planning impact would be significant is based on the professional judgment of the District as Lead Agency and the recommendations of qualified personnel at ICF, all of which is based on the evidence in the administrative record.

Impacts are considered significant if the proposed project would result in any of the following.

1. Physically divide an established community.
2. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal

program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

As discussed in the Initial Study/Notice of Preparation (IS/NOP) prepared for the proposed project (Appendix A), the proposed project would have no impacts related to the physical division of an established community because, as documented in the IS/NOP, all improvements occurring under the proposed project would occur entirely within BAE Systems' existing leasehold and would not expand into any adjacent parcels or communities. In addition, at the time the NOP was published, Appendix G included a third criterion under the land use and planning thresholds regarding whether the project would conflict with any applicable habitat conservation plan or natural community conservation plan (see Appendix A). Appendix G of the State CEQA Guidelines has since been revised to remove this criterion from the land use and planning checklist; however, this issue is analyzed under Threshold 5 in Section 4.2, *Biological Resources*. Therefore, only Threshold 2 is discussed below.

4.6.4.3 Project Impacts and Mitigation Measures

Threshold 2: Implementation of the proposed project would not conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

Impact Discussion

As discussed above, the PMP currently designates the landside and waterside areas of the project site for Marine-Related Industrial and Specialized Berthing uses, respectively. The proposed project would not involve any changes in land or water use designations. Existing land and water uses would continue to operate under the proposed project, and, as such, the proposed project would be consistent with the land and water use designations for the project site and would not require a PMP amendment. While the proposed project would not involve any changes to existing land or water uses, demolition activities and new construction within the landside and waterside areas of the project site have the potential to conflict with land use plans, policies, or regulations that were adopted for the purpose of avoiding or mitigating an environmental effect.

Table 4.6-2 lists all policies that are applicable to the proposed project, which includes policies from the CCA, the CCC's Sea Level Rise Policy Guidance, and the San Diego Bay Integrated Natural Resource Management Plan, and provides a comprehensive analysis of whether the project is consistent with these policies. Consistent with the Public Trust Doctrine, many PMP policies focus on the use of the tidelands for public benefit. As documented in Table 4.6-2, the proposed project would be consistent with these policies because the project would increase the operational efficiencies of the existing ship repair business and would ensure the economic and social benefits currently produced at the site in the form of jobs, revenue, and national defense. PMP policies and CCA policies also focus on the retention of water-adjacent properties for water-dependent uses and/or for public access and recreation and protection of water quality and biological resources. As noted in Table 4.6-2, the proposed project involves maintenance, repair, and reconstruction of facilities necessary to support the ship repair yard that currently operates at the project site, and would continue to operate under project conditions. As such, the project site is consistent with

policies of the PMP and CCA that aim to preserve waterfront parcels for water-dependent uses. In addition, CCA policies focus on limitations to dredging, pile driving, and water coverage in order to minimize associated environmental impacts, including adverse effects on biological resources. Several project elements would include these activities, including Project Elements 1 through 7 and Project Element 9, some of which fall under the CCC's permitting authority. As shown in Table 4.6-2, the proposed project would be consistent with these policies with the implementation of mitigation measures to ensure protection of biological resources and water quality.

Overall, with adherence to existing regulations, such as the District's Jurisdictional Runoff Management Program, and implementation of resource-specific mitigation measures identified throughout Chapter 4, the proposed project would maintain consistency with all applicable policies that have been adopted for the purposes of avoiding or mitigating environmental effects.

Regarding public access and recreation, because of the public safety and security concerns related to the heavy industrial operations associated with ship repair services, the project site is not an appropriate location to provide public access to the waterfront or water-related recreational facilities. Therefore, as discussed in Table 4.6-2, these policies are not applicable to the proposed project.

In addition, the proposed project is located within AIA Review Area 2 for SDIA. According to the ALUCP for SDIA, Review Area 2 is defined as the combination of the airspace protection and overflight boundaries beyond Review Area 1, and only the airspace protection and overflight policies and standards apply. However, overflight compatibility policies and standards only apply to residential projects, and therefore are not applicable to the proposed project (SDIA ALUCP, Section 1.6.1.4). The proposed project would not result in any land use changes that would be inconsistent with the SDIA ALUCP. The project site is also within the FAA notification boundary pursuant to Federal Aviation Regulations, Part 77. Project Elements 11, 12, and 13 include the replacement of existing one-story structures with new three-story structures. The proposed building heights for new structures would range between 50 and 55 feet. These proposed structures would be similar in height to other existing structures in the surrounding area. As a result, the proposed structures associated with Project Elements 11, 12, and 13 would not pose a hazard to air navigation, and the proposed project would be consistent with the ALUCP. Furthermore, in accordance with Federal Aviation Regulations, Part 77, the FAA would be notified at least 45 days prior to construction because of the proximity of the site to a navigation facility. The proposed project is required to obtain all necessary FAA determinations prior to construction, and comply with any conditions provided in the determination, if any.

Based on the above, impacts related to consistency with an applicable land use plan, policy, or regulation adopted for the purposes of avoiding or mitigating an environmental effect would be less than significant.

Level of Significance Prior to Mitigation

The proposed project would not conflict with applicable plans, policies or regulations adopted for the purposes of avoiding or mitigating an environmental effect. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance after Mitigation

Impacts would be less than significant.

Table 4.6-2. Project Consistency with Relevant Goals, Objectives, and Policies

Goal, Policy, Objective	Proposed Project Consistency
Port Master Plan – Section II	
Goal I. Provide for the present use and enjoyment of the bay and tidelands in such a way as to maintain options and opportunities for future use and enjoyment.	**Consistent.** The proposed project would increase the efficiency and reliability of the facilities that support the existing water-dependent maritime industrial operations at the project site, which would ensure the continued use of the site for its designated uses.
Goal II. The Port District, as trustee for the people of the State of California, will administer the Tidelands so as to provide the greatest economic, social, and aesthetic benefits to present and future generations.	**Consistent.** The proposed project would result in more efficient operations at the project site, thus ensuring the economic and social benefits currently produced at the site in the form of jobs, revenue, and national defense. In addition, reconstruction or rehabilitation of the existing facilities would be required to comply with the current California Building Code (California Code of Regulations Title 24) and would result in more energy efficient structures, which would provide the social benefits associated with good environmental stewardship.
Goal III. The Port District will assume leadership and initiative in determining and regulating the use of the bay and tidelands. • Encourage industry and employment generating activities which will enhance the diversity and stability of the economic base. • Encourage private enterprise to operate those necessary activities with both high and low margins of economic return.	**Consistent.** The proposed project would continue the ship repair uses that currently exist at the site, but would improve efficiency of operations for a company that provides diverse employment opportunities in the form of manufacturing/maintenance positions (mechanics, electricians, welders, etc.), engineering jobs, business and strategy planning positions as well as other office-related jobs such as accounting and finance opportunities, and many other specializations. Therefore, the project would encourage a private enterprise that provides employment generating activities.
Goal IV. The Port District, in recognition of the possibility that its actions may inadvertently tend to subsidize or enhance certain other activities, will emphasize the general welfare of statewide considerations over more local ones and public benefits over private ones. • Develop the multiple purpose use of the tidelands for the benefit of all the people while giving due consideration to the facts and circumstances related to the development of tideland and port facilities. • Foster and encourage the development of commerce, navigation, fisheries, and recreation by the expenditure of public monies for the	**Consistent.** The proposed project would improve efficiency of the existing operations at the project site, which includes water-dependent maritime industrial uses and, as such, promotes the multi-purpose uses of the tidelands and Port facilities. While the project site does not allow public access, due to safety and security reasons, it does provide public benefit in the form of economic considerations (jobs, local revenue, etc.) and national defense (by providing ship repair services to the Navy). The project does not involve the use of public monies and would not involve an exclusory use of the tidelands (i.e., the project involves restrictions to the bayfront for the purposes of safety and security and not for the

Goal, Policy, Objective	Proposed Project Consistency
preservation of lands in their natural state, the reclamation of tidelands, the construction of facilities, and the promotion of its use. • Encourage non-exclusory uses on tidelands.	purposes of promoting private enjoyment of the waterfront over public enjoyment of the waterfront).
Goal V. The Port District will take particular interest in and exercise extra caution in those uses or modifications of the Bay and Tidelands, which constitute irreversible action of loss of control. • Bay fills, dredging and the granting of long-term leases will be taken only when substantial public benefit is derived.	**Consistent.** The proposed project would include dredging within the Bay in order to accommodate improvements to or improve operations of the Pride of San Diego Drydock, Pier 3, and the quay wall. Specifically, dredging would allow the dry dock to submerge in place without the need to de-moor and be tugged westward into deeper water in order to allow a ship to enter the dry dock. As noted above, BAE Systems provides many employment opportunities in the San Diego area. In addition, the proposed project, including the dredging requirements, would facilitate the U.S. Navy's "Pivot West" strategy, which contributes to the nation's defense. As such, although the project requires dredging, the project would result in substantial public benefit and would be consistent with this goal.
Goal VI. The Port District will integrate the tidelands into a functional regional transportation network. • Encouraging development of improved major rail, water and air systems linking the San Diego region with the rest of the nation. • Improved automobile linkages, parking programs and facilities, so as to minimize the use of waterfront for parking purposes. • Providing pedestrian linkages. • Encouraging development of non-automobile linkage systems to bridge the gap between pedestrian and major mass systems.	**Not applicable.** The project involves improving the efficiency of ship repair operations at the project site and updating or reconstructing existing landside facilities, such as administrative offices and production buildings. The operational phase of the project would involve minimal changes to landside and waterside transportation networks at the site or within the surrounding area (i.e., the project would reduce the total number of vessel trips and the number of laborers at the project site) and does not involve adjustments to the availability of parking at the project site.
Goal VII. The Port District will remain sensitive to needs, and cooperate with adjacent communities and other appropriate governmental agencies in Bay and Tideland development. • The Port District will attempt to avoid disproportionate impact on adjacent jurisdictions both in benefits and any possible liabilities, which might accrue through bay and tideland activities.	**Consistent.** The District will coordinate with the City of San Diego and other agencies with jurisdiction over environmental resources within the project vicinity that would be affected by the proposed project as necessary to eliminate or reduce environmental impacts on those resources. As it relates to other resources (e.g., social and economic benefits), in making its decision whether to approve the proposed project, the Board of Port Commissioners will exercise its discretion so as to provide the greatest economic and social benefits to present and future generations.

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Goal VIII. The Port District will enhance and maintain the bay and tidelands as an attractive physical and biological entity. • Each activity, development and construction should be designed to best facilitate its particular function, which function should be integrated with and related to the site and surroundings of that activity. • Views should be enhanced through view corridors, the preservation of panoramas, accentuation of vistas, and shielding of the incongruous and inconsistent. • Establish guidelines and standards facilitating the retention and development of an aesthetically pleasing tideland environment free of noxious odors, excessive noise, and hazards to the health and welfare of the people of California. • Establish and foster an artworks program to promote, enhance, and enliven the waterfront experience through the public and private placement of works of art.	**Consistent.** The project would involve improvements and upgrades to existing facilities in order to better facilitate the function of the site, which operates ship repair services for the U.S. Navy and commercial customers. This use is related to the surrounding uses, which include other maritime industrial uses as well as a U.S. Naval base. The project site is not designated nor appropriate for providing public views or as a location for the placement of works of art. In addition, the emission of noxious odors, production of excessive noise, and other hazards are regulated by existing laws and regulations to avoid effects on the health and welfare of the people of California.
Goal IX. The Port District will insure physical access to the bay except as necessary to provide for the safety and security, or to avoid interference with waterfront activities. • Provide "windows to the water" at frequent and convenient locations around the entire periphery of the bay with public right-of-way, automobile parking and other appropriate facilities. • Provide access along the waterfront wherever possible with promenades and paths where appropriate, and elimination of unnecessary barricades which extend into the water.	**Consistent.** The proposed project would not involve public access to the waterfront or provide "windows to the water" because the project area is highly industrialized, and doing so would interfere with the safety and security of the public and users of the site.
Goal X. The quality of water in San Diego Bay will be maintained at such a level as will permit human water contact activities. • Maintain a program of flotsam and debris cleanup. • Insure through lease agreements that Port District tenants do not contribute to water pollution. • Cooperate with the Regional Water Quality Control Board, the County Health Department, and other public agencies in a continual program of monitoring water quality and identifying the source of any pollutant.	**Consistent.** Construction activities associated with the proposed project would involve dredging, which could increase the opportunity for debris or pollutants to enter into the Bay. In addition, operational activities involve ship repair, which has the potential to release pollutants, including cleaning agents, solvents, paint, etc., into the Bay. In accordance with the District's Jurisdictional Runoff Management Program and its accompanying *BMP Design Manual*, which require stormwater pollutant control best management practices, the project site currently operates, and would continue to operate under project conditions, a Storm Water Diversion System that eliminates or reduces stormwater discharges to receiving waters (the Bay). The District's Jurisdictional Runoff

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• Adopt ordinances, and take other legal and remedial action to eliminate sources of pollution.	Management Plan also requires the preparation of a Construction BMP Plan, that specifies BMPs to control erosion, sedimentation, and non-stormwater pollution on the construction site. In addition, the District would require the tenants of the proposed project to comply with the District's Harbor Safety Plan, which provides mariners with the District's policies regarding pollution prevention and protection of the region's resources. These measures would ensure that the water quality of the Bay would be protected during project construction and operation (see Section 4.5, *Hydrology and Water Quality*).
Goal XI. The Port will protect, preserve, and enhance natural resources, including natural plant and animal life in the Bay as a desirable amenity, an ecological necessity, and a valuable and usable resource. • Promote and advance public knowledge of natural resources through environmental educational materials. • Identify existing and potential assets. • Keep appraised of the growing body of knowledge on ecological balance and interrelationships. • Encourage research, pilot programs, and development in aquaculture as long as it is consistent with this goal. • Administer the natural resources so that impacts upon natural resource values remain compatible with the preservation requirements of the public trust.	**Consistent.** As detailed in Section 4.2, *Biological Resources*, the proposed project would be required to implement mitigation measures to protect California least tern and California brown pelican, implement a monitoring program during pile driving to avoid or protect green sea turtles and marine mammals, avoid nesting season for birds/conduct preconstruction surveys, and implement overwater coverage mitigation to compensate for loss of open water habitat. As a result, the proposed project would not inhibit the protection of any natural plant and animal life in the Bay.
Port Master Plan – Section III (Industrial Land Use Objectives and Criteria)	
Industrial activities on tidelands should: • Be located in convenient proximity to other industrial areas and to living areas from which there are interconnecting transit and thoroughfare routes.	**Consistent.** The proposed project is within an existing industrial portion of the bayfront and has access to East Harbor Drive and I-5, which provide access to adjoining industrial areas and local and regional residential communities. In addition, the project site is within walking distance of bus and trolley routes.
• Provide, under single ownership, a variety of reasonably level, well-drained sites on land that is either vacant or on developed lands that can be phased out economically for redevelopment.	**Not applicable.** The project would not involve acquisition and consolidation of parcels for the purposes of redevelopment. While the project site consists of areas within two different jurisdictions (i.e., the District and California Coastal Commission), the project would maintain the existing boundaries of the BAE Systems leaseholds and would not involve expansion into or acquisition of adjacent parcels.

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• Provide sites that are economical to develop and adequate for main buildings, accessory storage, off-street loading, off-street parking, and buffer strips.	**Consistent.** The project would involve improvements to and reconstruction of the existing facilities within a site that is adequate in size to accommodate the ship repair services provided by BAE Systems, including main buildings, storage, off-street loading, and off-street parking requirements of the existing operations.
• Be designed to meet performance standards adequate to avoid nuisances, thereby insuring compatibility with surrounding uses.	**Consistent.** The project includes performance standards for water quality, noise, and air quality that would ensure the project avoids nuisances and compatibility with the surrounding uses.
• Be limited to industrial uses which have a definite need for the availability of utilities, direct access to railroads and major thoroughfares, and the proximity of either airport or water frontage.	**Consistent.** The project site is currently used for, and would continue to operate, ship repair services. As such, the project site accommodates a use that requires direct access to water frontage.
• Provide substantial benefits to both local economic needs and to the regional hinterland.	**Consistent.** The project contributes to the local economy by operating the ship repair division of a major multinational company, and thus provides jobs and revenue at the local and regional levels. In addition, as noted above, part of the purpose of the project is to improve the efficiency of operations at the project site in order to accommodate adjustments to the U.S. Navy's plans, which contributes to the nation's defense strategy, thus providing substantial benefits to local and regional economic needs.
Marine Related Industry Designation	**Consistent.** This designation stipulates uses that require proximity to water bodies. The project involves a ship building and repair service, which meets that requirement and is a permitted use under the Marine Related Industry designation.
Port Master Plan Update Guiding Principles (Values and Standards)	
A. Achieve solidarity among partnering agencies and stakeholders. Establish a long-range vision and Master Plan with implementation strategies that represent the interest of all Californians, all five member jurisdictions, California State Lands Commission, and California Coastal Commission in a balanced, proactive, and deliberate way, which is essential to achieve long term success. As a trustee, the Port has an opportunity and an obligation to meet the needs of the public in the State of California, while protecting Tideland resources of San Diego Bay. The role of the Port goes beyond serving as an agent to manage existing assets and extends to a leadership function on behalf of all Californians both current and future.	**Not applicable.** This guiding principle specifically relates to the Port Master Plan Update, which the District is currently in the process of preparing, and provides overarching guidance for the approach to that plan.

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B. Promote clean air, healthy communities, and environmental justice. Seek to achieve environmental justice which shall be defined as: working to reduce the cumulative health burdens on neighboring communities and ensure fair treatment of people of all races, cultures, and incomes in developing, adopting, implementing, and enforcing environmental laws, regulations, and policies.	**Consistent.** The proposed reconstruction or rehabilitation of the existing facilities would be required to comply with the current California Building Code of Regulations Title 24. In addition, the proposed project would implement mitigation to address the project's environmental impacts. These measures would help promote clean air and healthy communities, and would not place disproportionately greater impacts on neighboring communities.
C. Ensure job creation, prudent economic policies, and financial sustainability. Balance economics, available resources and the public good. As the shepherd of public lands and water within the Tidelands, the Port shall require a strategy that outlines investment and costs that consider economic feasibility, long-term financial sustainability and viability for the Port District, broader State and community needs and impacts, while promoting public access, use, and enjoyment of the Bay. Utilize balanced and equitable investments in the tidelands and public realm in infrastructure improvements to create a value proposition for existing and future economic development, business attraction, growth, and public enjoyment of the Bay. Continue to increase revenues and support existing and future entrepreneurial opportunities in concert with Port operations such as, Cruise, Cargo, and Real Estate opportunities considering a progressive economic and business growth strategy.	**Consistent.** The proposed project would ensure the continued financial success of the existing ship repair services, which bring income and tax revenue to the District and the City. In making its decision whether to approve the proposed project, the Board of Port Commissioners will consider the economic, financial, and related policy concerns of this objective and will exercise its discretion based on available evidence.
D. Preserve the working Port as a dynamic and thriving element of the region's economy and cultural history. The Port's working waterfront serves an essential role in the region as an economic engine and a job generator. The Bay's history as a commercial center and cultural exchange, facilitated by commerce, are historically important and are reflected in the modern industrial facilities located on the Bay's working waterfront. Protecting the Bay as a shared waterway to promote commerce, navigation, fisheries, national defense, and recreation were foundational to the creation of the Port and will continue to underscore future investment in water-dependent industrial facilities.	**Consistent.** The project falls within the working waterfront areas of the Port and would continue to promote an existing water-dependent industrial facility that contributes to the local economy and national defense.
E. Incorporate state of the art sustainability practices. Consider the long-term impacts of sea level rise and climate change to both land and water resources. Implement principles of resiliency and seek to become a national leader in thought and implementation of these practices. Implement energy conservation and sustainability practices and reduce	**Consistent.** The project would be designed in accordance with the current California Building Code (California Code of Regulations Title 24) and, as such, would include more energy-efficient features than the existing buildings. In addition, potential impacts related to SLR, climate

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dependency on carbon-based energy. Promote the health and sustainability of natural resources, and the growth and proliferation of natural ecosystems. Create a sustainable fiscal budget and update it regularly.	change, and natural ecosystems have been considered in this EIR with mitigation implemented, where necessary.
Port Master Plan Update Guiding Principles (Planning Principles)	
1. Honor the water. Future decisions shall consider the health of the entire Bay eco-system as a single, multi-faceted entity. Create a water use plan comparable to a land use plan recognizing the value of land assets as a function of their adjacency to different types of water. Use this plan to maximize deep water and dredged resources, recreational opportunities, and natural resource protection. Encourage a variety of activities and entrepreneurial opportunities. Optimize infrastructure for water-dependent uses, organize water transportation routes, guide future decisions regarding infrastructure needs and upland uses adjacent to the Working Port, and integrate natural resources, climate change and water quality policies.	**Consistent.** The project promotes water-dependent industrial uses and would implement mitigation measures to ensure that project-related impacts on water quality and marine biological resources are less than significant.
2. Guarantee the public realm. Maximize Waterfront Access. The waters of San Diego Bay are the region's precious and shared asset. The design of places along the waters' edge should respond to multiple and different upland conditions and provide access to the public throughout the Bay in a manner that is meaningful and compatible with adjacent uses. These differences range from the full potential of the North Embarcadero as a major destination, to neighborhood places like Shelter Island and the Chula Vista Bayfront, to the working waterfront and the U.S. Navy, the U.S. Coast Guard, and to quiet natural edges along the Silver Strand, Grand Caribe Island and South Bay National Wildlife Refuge.	**Not applicable.** Due to safety and security reasons related to the ship repair services, including repair for Naval vessels, the project site is not an appropriate location to provide publicly accessible waterfront access.
3. Celebrate nature and ecology. Establish an Environmental Stewardship Strategy. Celebrate the whole Bay as an inter-related marine, estuarine, and bay ecosystem that is valued, managed, protected, and enhanced for its overall impact on biology, economic prosperity, public use, and enjoyment. Promote the careful integration of water, natural resources, open space, and buildings.	**Consistent.** The proposed project would upgrade and reconstruct existing ship repair facilities while protecting natural resources in the project area (see Section 4.2, *Biological Resources*).
4. Create a comprehensive open space plan. Establish a plan for a continuous network that connects existing and new waterfront parks, streets, and other open spaces. Integrate this network with the Bayshore Bikeway, existing waterfront streets, and any existing and future ferry	**Not applicable.** The proposed project does not involve the creation of a comprehensive open space plan. As noted above, due to safety and security reasons, the project site is not an appropriate location to provide publicly accessible open space or a waterfront park.

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routes. Consider planning, programming, maintenance, and enforcement of new parks and water access provisions when making decisions related to open space.	
5. Provide easy mobility on land and water. Develop a mobility plan that addresses both land and water transportation in a manner consistent with public health and clean air. Work with appropriate agencies to avoid redundant policies and facilities to create maximum efficiency. Protecting the Bay as a shared navigational waterway is fundamental to the Port and will continue to guide future investments in water transportation. Together, water and land-based transportation infrastructure will help meet the region's mobility needs as part of a single, coordinated, transportation plan that reduces air pollution and promotes access to the Bay in order to facilitate the region's commerce, navigation, fisheries, recreation, and environmental preservation needs. Water transportation should address a range from individual swimmers, kayakers, pleasure boaters, fishing vessels, commercial vessels, ferries, water taxis, cargo, cruise, and naval and public safety vessels. Land transport should address a range from pedestrians, bicyclists, shuttles, autos, buses, light rail, and passenger and freight rail.	**Not applicable.** The proposed project does not result in changes to landside operations that would result in an increase in transportation. The proposed project would include improvements that would make the existing ship repair operations more efficient, by reducing vessel movement in the water while being serviced at the ship repair yard, and, therefore, does not involve preparation of a mobility plan.
6. Streamline the approval process. Create certainty throughout the approval process by improving efficiency and reducing redundancy and time required for action. Create regulations that clearly define what can be achieved without an amendment process. Use the amendment process when hardship and other conditions apply when conformance cannot be achieved. A land use plan should clearly distinguish public land uses from private land use opportunities. Public land uses include streets, parks, waterfront access corridors, easements, and rights-of-way. Private land uses support leasable land opportunities, define acceptable uses, build-out capacities, development requirements, and required mitigation and environmental compliance policies. The project review and approval process should require conformance to the Master Plan. The project review process should fully coordinate with local, state and regional land and water approval agencies to minimize duplication and redundancy. The purpose of implementing a progressive Port Master	**Not applicable.** The project does not involve any changes to the District's approval process.

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Plan is to clarify requirements that are flexible, agile, and adaptive to respond to changing economic conditions and needs overtime. Implement and adopt a Port Master Plan that is consistent with the Port Act, State Lands Commission requirements, and the California Coastal Act.	
California Coastal Act	
Section 30210. In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.	**Not applicable.** The project site and surrounding area are predominantly occupied by heavy industrial and military uses. Due to public safety and security concerns, the project site is not an appropriate location to provide publicly accessible waterfront access.
Section 30211. Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.	**Not applicable.** The project site and surrounding area are predominantly occupied by heavy industrial and military uses. Due to public safety and security concerns, the project site is not an appropriate location to provide publicly accessible waterfront access.
Section 30212. (a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) It is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, [or] (2) Adequate access exists nearby.	**Consistent.** The proposed project does not provide public access to the coast because it is inconsistent with public safety and military security needs. In addition, adequate access exists at Cesar Chavez Park, approximately 0.33 mile to the northwest, and at many points along the Embarcadero Promenade, beginning a little over 1 mile to the northwest of the project site. The proposed project would not inhibit public access to these areas.
Section 30212.5. Wherever appropriate and feasible, public facilities, including parking areas or facilities, shall be distributed throughout an area so as to mitigate against the impacts, social and otherwise, of overcrowding or overuse by the public of any single area.	**Not applicable.** The proposed project would not increase the number of employees or laborers at the project site during operations. As such, the proposed project would not increase the demand for or supply of parking at the project site or in the surrounding area.
Section 30213. Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred. The commission shall not: (1) require that overnight room rentals be fixed at an amount certain for any privately owned and operated hotel, motel, or other similar visitor-serving facility located on either public or private lands; or (2) establish or approve any method for the	**Not applicable.** The project site is not a feasible location for lower cost visitor or recreational facilities, and does not involve the construction of these facilities.

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identification of low or moderate income persons for the purpose of determining eligibility for overnight room rentals in any such facilities.	
Section 30214. (a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following: (1) Topographic and geologic site characteristics. (2) The capacity of the site to sustain use and at what level of intensity. (3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses. (4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.	**Not applicable.** As noted above, due to safety and security concerns associated with the onsite ship repair services, the project site is not an appropriate location to provide public access to the waterfront.
Section 30220. Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.	**Not applicable.** Due to the industrialized nature of the project site and immediately surrounding area, the project site is not suitable for water-oriented recreational activities.
Section 30223. Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.	**Not applicable.** Due to the industrialized nature of the project site and immediately surrounding area, the project site is not suitable for water-oriented recreational activities.
Section 30224. Increased recreational boating use of coastal waters shall be encourage, in accordance with this division, by developing dry storage areas, increasing public launching facilities, providing additional berthing space in existing harbors, limiting non-water-dependent land uses that congest access corridors and preclude boating support facilities, providing harboring refuge, and by providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land.	**Not applicable.** Due to the industrialized nature of the project site and immediately surrounding area, the project site is not suitable for water-oriented recreational activities.
Section 30230. Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significant. Uses of the marine environment shall be carried out in a manner that will sustain the	**Consistent.** The proposed project would involve construction activities, including dredging and pile driving, in an area potentially containing green sea turtles, eelgrass, and foraging areas for California least tern, California brown pelican, and other birds. However, mitigation measures

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biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.	would be implemented to ensure that in-water work would not adversely affect the marine environment and these resources (see Section 4.2, *Biological Resources*).
Section 30231. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.	**Consistent.** The proposed project would not involve development adjacent to natural streams or riparian habitat. The proposed project would involve development adjacent to and within coastal waters and would include BMPs and low-impact design measures to prevent runoff from the project site from adversely affecting the water quality of the Bay (see Section 4.5, *Hydrology and Water Quality*). The BAE Systems San Diego Ship Repair Yard currently operates a Storm Water Diversion System to eliminate or reduce stormwater discharge from the site into the Bay. This system would continue to operate under project conditions. In addition, while the proposed project would involve development within areas that have the potential to disturb green sea turtles and marine mammals as well as foraging for California least tern and California brown pelicans, mitigation measures have been identified to ensure that in-water activities would not adversely affect the marine environment (see Section 4.2, *Biological Resources*).
Section 30232. Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.	**Consistent.** Construction activities associated with the proposed project could involve some use of hazardous materials (e.g., petroleum products). As discussed in Section 4.4, *Hazards and Hazardous Materials*, the Resource Conservation and Recovery Act, Hazardous and Solid Waste Act, California Code of Regulations 22 and 26, and the California Hazardous Waste Control Law would govern proper containment, spill control, and disposal of hazardous waste generated during demolition and construction. Implementing inventory accountability, spill prevention controls, and waste disposal controls associated with these regulations would limit both the frequency and severity of potential hazardous materials releases during demolition and construction.
Section 30233. (a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:	**Consistent.** The proposed project would require dredging (a total of approximately 115,880 cubic feet of rock and sediment) and pile-driving in order to maintain existing berths and improve operational efficiency related to the existing dry docks within areas that have been previously dredged. Dredged material that is suitable for ocean disposal would be disposed of at the EPA's Ocean Dredge Material Disposal Site (ODMDS) LA-5 location, which is a dredged material disposal site selected to

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(1) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.	minimize the risk of adverse impacts of the disposed material on human health and the marine environment. Remaining dredged material would be disposed of at a USACE or EPA-approved upland site, such as the Otay Landfill (amount and location of dredge disposal is detailed in Chapter 3, *Project Description*). In addition, additional mitigation measures have been identified to minimize the adverse environmental effects related to the dredging and pile-driving activities of the proposed project, including **MM-BIO-1: Implement Construction Measures to Eliminate Water Quality Impairment Impacts on California Least Tern and California Brown Pelican Foraging**, and **MM-BIO-3: Implement a Marine Mammal and Green Sea Turtle Monitoring Program During Pile Driving Activities**.
(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for these purposes to appropriate beaches or into suitable longshore current systems.	**Consistent.** Mitigation measures have been identified to ensure that dredging activities associated with the proposed project would avoid significant disruption to marine and wildlife habitats (see Section 4.2, *Biological Resources*).
(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California," shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division. For the purposes of this section, "commercial fishing facilities in Bodega Bay" means that not less than 80 percent of all boating facilities proposed to be developed or improved, where the improvement would create additional berths in Bodega Bay, shall be designed and used for commercial fishing activities.	**Consistent.** While the proposed project would involve construction activities within already developed parts of the Bay, it is not located within south San Diego Bay, which the District defines as the area generally south of the National City Bayfront. The project would not involve development in Bodega Bay or within a wetland or estuary.
(d) Erosion control and flood control facilities constructed on watercourses can impede the movement of sediment and nutrients that would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone,	**Not applicable.** The proposed project does not involve development on a watercourse and would not be required to implement erosion control or flood control facilities on a watercourse.

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whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal development permit for these purposes are the method of placement, time of year of placement, and sensitivity of the placement area.	
Section 30234. Facilities serving the commercial fishing and recreational boating industries shall be protected, and where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.	**Consistent.** There are no commercial fishing operations in the project vicinity, and the proposed project would not affect these operations. In addition, the proposed project would not reduce space for recreational boating or commercial fishing operations.
Section 30234.5. The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.	**Not applicable.** The project site currently does not support commercial or recreational fishing activities, and the project would not involve the addition of commercial or recreational fishing facilities to the project site. In addition, there are no commercial fishing operations in the project vicinity, and the proposed project would have no effect on commercial or recreational fishing operations located elsewhere in the San Diego Bay.
Section 30235. Revetments breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fishkills should be phased out or upgraded where feasible.	**Consistent.** The proposed project would involve modification and reinstallation of the existing rock revetment slope design wall in order to properly moor vessels. This project component would require dredging approximately 300 cubic yards of rock and 500 cubic yards of sediment as well as the installation of a 50-foot sheet pile structure in the location of the existing wall. These improvements would support a coastal-dependent use and would not affect or alter an existing natural shoreline. In addition, neither the existing nor proposed marine structures at the project site cause water stagnation that contribute to pollution or fishkills.
Section 30240. (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to	**Consistent.** As discussed in Section 4.2, *Biological Resources*, the project would involve in-water work within areas containing, or close to, eelgrass and open water habitats. Impacts resulting from the removal of eelgrass has already been mitigated for at the South Bay Mitigation Site for the recent Shipyard Sediment Abatement Project. Additional

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prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.	mitigation measures have been identified to reduce any impacts the proposed project may have on open water habitat and indirect impacts on eelgrass, and the project would not degrade environmentally sensitive habitat areas.
Section 30244. Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.	**Consistent.** As discussed in Sections V, *Cultural Resources*, of the IS/NOP (Appendix A of this EIR), the project would result in no impact or less than significant impacts on archaeological and/or paleontological resources.
Section 30250. (a) New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. In addition, land divisions, other than leases for agricultural uses, outside existing developed areas shall be permitted only where 50 percent of the usable parcels in the area have been developed and the created parcels would be no smaller than the average size of surrounding parcels.	**Consistent.** The proposed project would not involve the construction of a new industrial development, but would involve improvements to an existing industrial use that is adjacent and contiguous to an existing urbanized and developed area. The proposed project is also consistent with the existing developments and land uses, as discussed above. The project site is adequately served by existing public services (see Section XIV, *Public Services*, of the IS/NOP in Appendix A). The proposed project would not involve the division of land.
Section 30251. The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.	**Consistent.** As discussed in Section I, *Aesthetics*, of the IS/NOP (Appendix A), the proposed project would result in less-than-significant impacts on the scenic and visual qualities of the site and surrounding area.
Section 30252. The location and amount of new development should maintain and enhance public access to the coast by (1) facilitating the provision or extension of transit service (2) providing commercial facilities within or adjoining residential development or in other areas that will minimize the use of coastal access roads (3) providing non-automobile circulation within the development	**Not applicable.** The proposed project would not involve new development and, due to public safety and security concerns, does not involve public access to the coast.

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(4) providing adequate parking facilities or providing substitute means of serving the development with public transportation (5) assuring the potential for public transit for high intensity uses such as high-rise office buildings (6) assuring that the recreational needs of new residents will not overload nearby coastal recreation areas by correlating the amount of development with local park acquisition and development plans with the provision of onsite recreational facilities to serve the new development.	
Section 30253. New development shall do all of the following: (a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.	**Consistent.** The proposed project involves the maintenance, repair, and replacement of existing waterfront infrastructure and landside facilities at an existing ship repair yard and would not involve new development. Also, the proposed project would not increase risks to life and property due to geologic, flood, or fire hazards (see Section IV, *Geology and Soils,* from the IS/NOP [Appendix A] and Section 4.4, *Hazards and Hazardous Materials*, and Section 4.5*, Hydrology and Water Quality,* of this EIR).
(b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.	**Consistent.** The project site is located along a human-made shoreline and is not located along a bluff or cliff; no natural landforms would be altered by the proposed project.
(c) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Board as to each particular development.	**Consistent.** As analyzed in Section 4.1, *Air Quality and Health Risk*, the project would be consistent with the regional air quality strategy and the state implementation plan.
(d) Minimize energy consumption and vehicle miles traveled.	**Consistent.** The proposed project would include reconstruction of several landside buildings, which as required by the current California Building Code (California Code of Regulations Title 24) would include a number of energy-efficient features. As noted above, the proposed project would not involve any increase in operational capacity and would not result in any impacts related to vehicle miles traveled (see Section 4.9, *Transportation, Circulation, and Parking*).

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Section 30255. Coastal-developments shall have priority over other developments on or near the shoreline. Except as provided elsewhere in this division, coastal-dependent developments shall not be sited in a wetland. When appropriate, coastal-related developments should be accommodated within reasonable proximity to the coastal-dependent uses they support.	**Consistent.** The proposed project would include maintenance, repair, and replacement of facilities that support the existing ship repair yard, which provides vessel repair services for naval and commercial customers. As such, the proposed project involves a coastal dependent use. Furthermore, the project would not involve development in a wetland.
Section 30703. The California commercial fishing industry is important to the State of California; therefore, ports shall not eliminate or reduce existing commercial fishing harbor space, unless the demand for commercial fishing facilities no longer exists or adequate alternative space has been provided. Proposed recreational boating facilities within port areas shall, to the extent it is feasible to do so, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.	**Consistent.** The proposed project would not result in the loss or elimination of commercial fishing harbor space and would not interfere with any existing commercial fishing operations.
Section 30705. (a) Water areas may be diked, filled, or dredged when consistent with a certified port master plan only for the following: (2) New or expanded facilities or waterfront land for port-related facilities. (3) New or expanded commercial fishing facilities or recreational boating facilities. (d) For water areas to be diked, filled, or dredged, the commission shall balance and consider socioeconomic and environmental factors.	**Consistent.** The proposed project would require dredging for a port-related facility. The proposed project would not result in any land or water use changes, and no elements of the project would require an amendment to the PMP. In making its decision whether to approve the proposed project, the Board of Port Commissioners will consider the economic, financial, and related policy concerns of this objective and will exercise its discretion based on available evidence.
Section 30706. In addition to the other provisions of this chapter, the policies contained in this section shall govern filling seaward of the mean high tide line within the jurisdiction of ports: (a) The water area to be filled shall be the minimum necessary to achieve the purpose of the fill. (b) The nature, location, and extent of any fill, including the disposal of dredge spoils within an area designated for fill, shall minimize harmful effects to coastal resources, such as water quality, fish or wildlife resources, recreational resources, or sand transport systems, and shall minimize reductions of the volume, surface area, or circulation of water. (c) The fill is constructed in accordance with sound safety standards which will afford reasonable protection to persons and property against	**Consistent.** The proposed project would involve the placement of dredged materials within the EPA's ODMDS LA-5 dredge disposal site, which is identified by the EPA as a location that minimizes the potentially adverse impacts of disposed material on human health and the marine environment. Therefore, this site meets the requirements of this policy. In addition, BMPs and mitigation measures will be implemented to ensure the proposed project does not adversely affect open water habitat function, water quality, wildlife resources, or water circulation (see Sections 4.2, *Biological Resources*, and 4.5, *Hydrology and Water Quality*).

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the hazards of unstable geologic or soil conditions or of flood or storm waters. (d) The fill is consistent with navigational safety.	
Section 30708. All port-related developments shall be located, designed, and constructed so as to: (a) Minimize substantial adverse environmental impacts.	**Consistent.** As documented throughout this EIR, the proposed project would minimize substantial adverse environmental impacts to the extent feasible.
(b) Minimize potential traffic conflicts between vessels.	**Consistent.** The proposed project would include maintenance, repair, and replacement of existing facilities at a ship repair yard in order to improve the efficiency of operations, but would not result in an increase in operations at the site. As such, the project would result in a temporary and minor increase in vessel traffic during construction activities (for disposal of dredged materials and for pile driving barges or delivery of some construction materials), but would not increase waterside vessel traffic during operations. This minor temporary increase in vessels would not add a substantial number of new users to the San Diego Bay. In addition, boaters traveling to and from the project site would stay within the navigational channels designated by the District and would adhere to the provisions of the Harbor Safety Plan.
(c) Give the highest priority to the use of existing land space within harbors for port purposes, including, but not limited to, navigational facilities, shipping industries, and necessary support and access facilities.	**Consistent.** The proposed project would involve improvements to a service that supports District purposes, including naval and commercial shipping uses.
(d) Provide for other beneficial uses consistent with the public trust, including, but not limited to, recreation and wildlife habitat uses, to the extent feasible.	**Not applicable.** The proposed project involves maintenance, repair, and replacement of facilities necessary to the ship repair services provided at the project site and is not appropriate for recreation or wildlife habitat uses.
California Coastal Commission Sea Level Rise Policy Guidance	
Establish the sea level rise range for the proposed project.	**Consistent.** The end of the lease in 2034, or 14 years, was established for the SLR range and reflects the average of SLR projections for 2030 and 2040 provided in the CCC's guidance. Projections for 2050 and 2100 were also used to provide a view of coastal flood exposure should the lease be extended. Low and high SLR projections for 2034, 2050, and 2100 were derived from CCC projections and used for this analysis (see Section 4.8, *Sea Level Rise*). Additionally, a comparison of landside

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	elevation and the minimum waterside elevation to SLR and storm surge projections for the 2034, 2050, and 2100 timeframes was analyzed.
Determine how sea level rise impacts may constrain the project site.	**Consistent.** Geologic stability and erosion are not relevant because the project site is already protected by structural elements (e.g., riprap, bulkheads). Flooding and inundation were assessed by comparing the lowest landside and waterside elevations, which would be the sheet piling for the quay wall (Project Element 7) and the new Pride of San Diego wharf and associated ramp (Project Element 2), respectively, to sea-level rise projections. Storm surge was assessed by comparing the lowest landside and waterside elevations to a 100-year storm surge elevation on top of the sea-level rise projections. Wave run-up was not assessed because the project site is protected by San Diego Bay, and there is insufficient fetch for the development of wind-driven waves.
Determine how the project may impact coastal resources over time, considering sea level rise.	**Not applicable.** The project would not affect coastal resources over time. Furthermore, the project site would not be affected by mean SLR during the useful design life. Therefore, coastal resources will not be affected by regular inundation during the analysis period. The site may be affected by storm surge during the years of its useful life; however, inundation during storm surges would occur with or without the proposed project. Consequently, the proposed project would not exacerbate the potential for inundation during storm surges.
Identify project alternatives to both avoid resource impacts and minimize risks to the project.	**Consistent.** Implementation of the project would not exacerbate any existing and/or projected damage to the environment, including existing structures and sensitive resources, due to projected SLR. Mitigation is not required.
Finalize project design and submit permit application.	**Consistent.** These items will be completed after the CEQA process is complete, as is standard.
San Diego Integrated Natural Resources Management Plan	
Objective 4.3.1 Retain sufficient deep subtidal habitat to support safe navigation, good water quality, and physical and biological functioning in balance with the need for other habitat types in the bay.	**Consistent.** The proposed project would not interfere with deep tidal habitat, and the District would require BAE Systems to comply with the District's Harbor Safety Plan, which provides mariners with the District's policies regarding pollution prevention and protection of the region's

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	resources. In addition, the project site already contains a Storm Water Diversion System to eliminate or reduce stormwater discharge into the Bay in order to protect water quality (see Section 4.5, *Hydrology and Water Quality*).
Objective 4.4.1 Minimize the harmful ecological, economic, and human health impact of aquatic invasive species in San Diego Bay.	**Consistent.** BAE Systems is required to comply with the District's Harbor Safety Plan, which outlines ballast discharge regulations for vessels arriving from outside the Pacific Coast Region in order to minimize the introduction of harmful invasive species into the region's waters.
Objective 4.4.4 Maintain, enhance, and restore habitats on San Diego Bay aimed at providing for the health of resident and migratory populations of birds that rely on the bay to complete their life cycle. Foster broader public knowledge and appreciation of the functional, aesthetic, recreational, and economic value of the bird resources of the bay.	**Consistent.** Consistent with the Migratory Bird Treaty Act, the proposed project includes mitigation that requires avoiding construction activities during the nesting season for birds or conducting preconstruction nesting surveys (see Section 4.2, *Biological Resources*).
Objective 4.4.5 Maintain a healthy balance of marine mammal species inhabiting or visiting San Diego Bay.	**Consistent.** The proposed project would not result in any significant impacts on marine mammals. Mitigation measures will be required to ensure protection of marine mammals during waterside construction, including dredging, pile driving, etc. In addition, operational activities associated with the proposed project would result in less-than-significant impacts on marine mammals (see Section 4.2, *Biological Resources*).
Objective 5.2.2 Manage the maintenance of boats and ships in San Diego Bay in a manner that achieves significantly improved water and sediment quality, healthier marine organisms, and economic good sense.	**Consistent.** The proposed project includes improvements to the water- and landside facilities of the existing ship repair yard. Construction and operational activities have the potential to affect water quality. However, as required by the District's JRMP and its accompanying *BMP Design Manual*, BMPs would be implemented to minimize water quality impacts from these activities (see Section 4.5, *Hydrology and Water Quality*).

Section 4.7
Noise and Vibration

4.7.1 Overview

This section describes the existing conditions and applicable laws and regulations governing project-related noise and vibration. The section also discusses the proposed project's potential to increase noise and vibration in the project vicinity during construction and operation. The analysis in this section is based on the *BAE Systems Waterfront Improvement Project – Environmental Noise Report* prepared by ICF noise analysts, which is provided in Appendix F. Impacts related to noise and vibration were considered significant if the proposed project would (1) generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project, in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies; (2) generate excessive groundborne vibration or groundborne noise levels; or (3) for a project in 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, exacerbate the existing exposure of people residing or working in the project area to excessive noise levels.

This section focuses on potential impacts on surrounding people and properties; potential effects of noise on wildlife are addressed in Section 4.3, *Biological Resources*. As discussed in Section 4.7.6, *Project Impact Analysis*, all impacts related to noise and vibration would be less than significant.

4.7.2 Noise Fundamentals

This section provides an overview of key concepts and acoustical terms used in the analysis of environmental and community noise. More detailed information is provided in the referenced Environmental Noise Report (Appendix F). Noise is commonly defined as sound that is unwanted or that is objectionable because it is disturbing or annoying. Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and the obstructions or atmospheric factors, which affect the propagation path to the receptor, determine the sound level and the characteristics of the noise perceived by the receptor.

4.7.2.1 Frequency, Amplitude, and Decibels

Continuous sound can be described by *frequency* (pitch) and *amplitude* (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz, or thousands of Hz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

The amplitude of pressure waves generated by a sound source determines the loudness of that source. The amplitude of a sound is typically described in terms of the *sound pressure level*, which refers to the root-mean-square pressure of a sound wave and is measured in units called micropascals (µPa). Sound pressure levels for different kinds of noise environments can range from less than 100 to more than 100,000,000 µPa. Because of this large range of values, sound is rarely expressed in terms of µPa. Instead, a logarithmic scale is used to describe the sound pressure level (also referred to simply as the sound level) in terms of decibels, abbreviated dB.

Because decibels represent noise levels on a logarithmic scale, sound pressure levels cannot be added, subtracted, or averaged through ordinary arithmetic. On the dB scale, a doubling of sound energy corresponds to a 3 dB increase. In other words, when two identical sources are each producing sound of the same loudness, their combined sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one bulldozer produces a sound pressure level of 80 dB, two bulldozers would not produce a combined sound level of 160 dB. Rather, they would combine to produce 83 dB. The cumulative sound level of any number of sources can be determined using decibel addition. The same decibel addition is used for A-weighted decibels, described below. Similarly, the arithmetic mean (average) of a series of noise levels does not accurately represent the overall average noise level. Instead, the values must be averaged using a linear scale before converting the result back into a logarithmic (dB) noise level. This method is typically referred to as calculating the "energy average" of the noise levels.

4.7.2.2 Perception of Noise and A-Weighting

The dB scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound, and the loudness or human response is determined by characteristics of the human ear. Human hearing is limited in the range of audible frequencies as well as in the way it perceives the sound pressure level in that range. In general, people are most sensitive to the frequency range of 1,000 to 8,000 Hz and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels in various frequency bands are adjusted (or "weighted"), depending on human sensitivity to those frequencies. The resulting sound pressure level is expressed in A-weighted decibels, abbreviated dBA. The A-weighting scale approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments regarding the relative loudness or annoyance of a sound, their judgments correlate well with the A-weighted sound levels of those sounds. Table 4.7-1 describes typical A-weighted sound levels for various noise sources.

Table 4.7-1. Typical Noise Levels in the Environment

Common Outdoor Noise Source	Sound Level (dBA)	Common Indoor Noise Source
	— 110 —	Rock band
Jet flying at 1,000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower at 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher in next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: California Department of Transportation 2013.
dBA = A-weighted decibels.

4.7.2.3 Noise Descriptors

Because sound levels can vary markedly over a short period of time, various descriptors or noise "metrics" have been developed to quantify environmental and community noise. These metrics generally describe either the average character of the noise or the statistical behavior of the variations in the noise level. The metrics used in this report are described below.

Equivalent Sound Level (L_{eq}) is the most common metric used to describe short-term average noise levels. The L_{eq} describes the average acoustical energy content of noise for an identified period of time, commonly 1 hour.

Maximum Sound Level (L_{max}) refers to the maximum sound level that occurs during the noise measurement period. More specifically, L_{max} describes the root-mean-square sound level that corresponds to the loudest 1-second interval that occurs during the measurement. (The minimum sound level [L_{min}] is the corresponding metric that describes the minimum level during the noise measurement period.)

Community Noise Equivalent Level (CNEL) is a measure of the 24-hour average A-weighted noise level, which is also time-weighted to "penalize" noise that occurs during the evening and nighttime hours when noise is generally recognized to be more disturbing (because people are trying to rest, relax, and sleep during these times). Therefore, 5 dBA is added to the L_{eq} during the evening hours of 7:00 p.m. to 10:00 p.m.,[1] and 10 dBA is added to the L_{eq} during the nighttime hours of 10:00 p.m. to 7:00 a.m.[2] The energy average is then taken for the whole 24-hour day.

4.7.2.4 Sound Propagation

When sound propagates over a distance, it changes in both level and frequency content. The manner in which noise is reduced with distance depends on a number of important factors. The primary factors of interest for environmental noise include geometric spreading, ground absorption, atmospheric effects, and shielding (by natural or human-made features).

4.7.2.5 Human Response to Noise

Noise-sensitive receptors (also called "receivers") are locations where people reside or where the presence of unwanted sound may adversely affect the use of the land (see Section 4.7.2.5, *Noise-sensitive Land Uses*, below). The effects of noise on people can be divided into the following three categories:

- Subjective effects of annoyance, nuisance, or dissatisfaction;
- Interference with activities such as speech, sleep, learning, or working; and
- Physiological effects such as startling and hearing loss.

In most cases, effects from sounds typically found in the natural environment are limited to the first two categories, creating an annoyance or interfering with activities. Physiological effects and hearing loss would be more commonly associated with human-made noise, such as in an industrial or an occupational setting. No completely satisfactory method exists to measure the subjective effects of sound or the corresponding reactions of annoyance and dissatisfaction. This lack of a common standard arises primarily from the wide variation in individual thresholds of annoyance and habituation to sound. Therefore, an important way of determining a person's subjective reaction to a new sound is by comparing it to the existing baseline or "ambient" environment to which that person has adapted. Studies have shown that, under controlled conditions in an acoustics laboratory, a healthy human ear is able to discern changes in sound levels of 1 dBA. In the normal environment, the healthy human ear can detect changes of about 2 dBA; however, it is widely accepted that a doubling of sound energy, which results in a change of 3 dBA in the normal environment, is considered just noticeable to most people. A change of 5 dBA is readily perceptible, and a change of 10 dBA is perceived as being twice as loud. Accordingly, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) resulting in a 3 dBA increase in sound is generally barely detectable.

[1] A 5 dB noise increase is generally considered to be a readily perceptible change in the noise level for a listener.

[2] A 10 dB noise increase is generally perceived as a doubling of the noise level for a listener.

4.7.2.6 Noise-Sensitive Land Uses

Noise-sensitive land uses typically include, but are not necessarily limited to, residential uses, hospitals, nursing facilities, intermediate care facilities, child educational facilities, libraries, museums, and child care facilities (City of San Diego 2015). Based on their transient residential nature, hotels are considered to be noise-sensitive only during the evening and nighttime hours of 7:00 p.m. to 7:00 a.m. Parks, which are closed during nighttime hours, are considered to be noise sensitive only during their typical operational hours of 6:00 a.m. to 10:30 p.m. Schools, museums, and other institutional uses are also considered to be noise sensitive only during their standard hours of operation.

Another type of noise-sensitive receptor that can be affected by in-water construction (such as the proposed pile-driving activities) is aquatic wildlife. Underwater noise levels from pile driving were analyzed to assess potential impacts on fish and marine mammals. Additional discussion and the results of these analyses are provided in Section 4.3, *Biological Resources*.

4.7.3 Fundamentals of Environmental Vibration

This section provides an overview of key concepts and terms used in the analysis of environmental groundborne vibration. More detailed information is provided in the referenced Environmental Noise Report (Appendix F). Groundborne vibration is a small, rapidly fluctuating motion transmitted through the ground. The effects of groundborne vibrations are typically limited to nuisance or annoyance for people; however, at extreme vibration levels, damage to buildings may also occur.

In contrast to airborne sound, groundborne vibration is not a phenomenon that most people experience every day. The ambient groundborne vibration level in residential areas is usually much lower than the threshold of human perception (FTA 2018). Most perceptible indoor vibration is caused by sources within buildings, such as mechanical equipment while in operation, people moving, or doors slamming. Typical outdoor sources of perceptible groundborne vibration are heavy construction activity (such as blasting, pile driving, or earthmoving), steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is rarely perceptible, even in locations close to major roads. The strength of groundborne vibration from typical environmental sources diminishes (or attenuates) fairly rapidly over distance.

For the prediction of groundborne vibration, the fundamental model consists of a vibration source, a receptor, and the propagation path between the two. The power of the vibration source and the characteristics and geology of the intervening ground, which affect the propagation path to the receptor, determine the groundborne vibration level and the characteristics of the vibration perceived by the receptor.

4.7.3.1 Frequency and Amplitude

The frequency of a vibrating object describes how rapidly it is oscillating. The unit of measurement for the frequency of vibration is Hz (the same as used in the measurement of noise), which describes the number of cycles per second.

The amplitude of vibration can be measured in terms of displacement, velocity, or acceleration. Displacement describes the distance that a particle moves from its resting (or equilibrium) position as it oscillates and can be measured in inches. The amplitude of vibration velocity (the speed of the

movement) can be measured in inches per second (in/s). The amplitude of vibration acceleration (the rate of change of the speed) can be measured in inches per second per second (in/s^2).

4.7.3.2 Vibration Descriptors

As noted above, there are various ways to quantify groundborne vibration, based on its fundamental characteristics. Because vibration can vary markedly over a short period of time, various descriptors have been developed to quantify vibration. The descriptor used in this report is peak particle velocity (PPV), as described below.

Peak Particle Velocity is defined as the maximum instantaneous positive or negative peak amplitude of the vibration velocity. The unit of measurement for PPV is inches per second. Unlike many quantities used in the study of environmental acoustics, PPV is typically presented using linear values; it does not employ a dB scale. Because it is related to the stresses that are experienced by buildings, PPV is generally accepted as the most appropriate descriptor for evaluating the potential for building damage (both the Federal Transit Administration [FTA] and California Department of Transportation [Caltrans] recommend using PPV for this purpose). It is also used in many instances to evaluate the human response to groundborne vibration (Caltrans guidelines recommend using PPV for this purpose).

4.7.3.3 Vibration Propagation

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. High-frequency vibrations reduce much more rapidly than low frequencies. Low frequencies tend to dominate the spectrum at large distances from the source. The propagation of groundborne vibration is also influenced by geological factors such as soil conditions, depth to bedrock, soil strata, frost conditions, and water conditions.

4.7.3.4 Effects of Groundborne Vibration

Vibration can result in effects that range from annoyance to structural damage. Annoyance or disturbance for people may occur at vibration levels that are substantially below those that would pose a risk of damage to buildings. Each of these effects is discussed below.

Potential Building Damage

When groundborne vibration encounters a building, vibrational energy is transmitted to the structure, causing it to vibrate. If the vibration levels are high enough, building damage may occur. Depending on the type of building and the vibration levels, this damage could range from cosmetic architectural damage (e.g., cracked plaster, stucco, or tile) to more severe structural damage (e.g., cracked slabs, foundations, columns, beams, or wells). Buildings can typically withstand higher levels of vibration from transient sources than from continuous or frequent intermittent sources. Transient sources are those that create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment. Older and more fragile buildings, which may include important historical buildings, are of particular concern. Modern commercial and industrial buildings can generally withstand much higher vibration levels before damage becomes a problem.

Human Disturbance or Annoyance

Groundborne vibration can be annoying for people and cause serious concern for nearby neighbors of vibration sources, even when vibration is well below levels that could cause physical damage to structures. Groundborne vibration is almost exclusively a concern inside buildings and rarely perceived as a problem outdoors where the motion may be discernible but there is less adverse reaction without the effects associated with the shaking of a building.

When groundborne vibration waves encounter a building, vibrational energy is transmitted to the structure, causing building surfaces (walls, floors, and ceilings) to vibrate. This movement may be felt directly by building occupants. It may also generate a low-frequency rumbling noise as sound waves are radiated by the vibrating surfaces. At higher frequencies, building vibration can cause other audible effects, such as the rattling of windows, building fixtures, or items on shelves or hanging on walls. These audible effects due to groundborne vibration are referred to as *groundborne noise*. Any perceptible effect (vibration or groundborne noise) can lead to annoyance. The degree to which a person is annoyed depends on the activity they are participating in at the time of disturbance. For example, someone sleeping or reading will be more sensitive than someone who is engaged in any type of physical activity.

4.7.3.5 Vibration-Sensitive Land Uses

Because building damage would be considered a permanent negative effect at any building, regardless of land use, any type of building would typically be considered sensitive to vibration damage impacts.

Land uses that would be considered sensitive to human annoyance caused by vibration are generally the same as those that would be sensitive to noise and typically include residential uses, hospitals, nursing facilities, intermediate care facilities, child educational facilities, libraries, museums, and child care facilities. It is noted, however, that vibration effects are typically considered only inside occupied buildings and not at outside areas such as residential yards or open spaces. Based on their transient residential nature, hotels are considered to be sensitive to human annoyance effects from vibration only during the evening and nighttime hours of 7:00 p.m. to 7:00 a.m. Schools, museums, and other institutional uses are considered to be sensitive to human annoyance effects from vibration only during their standard hours of operation.

4.7.4 Existing Conditions

The study area considered in the analysis is quite large, extending from Coronado to the west to Barrio Logan to the east. As such, the existing noise environment and the dominant noise sources vary considerably. Existing noise levels are affected by contributions from a wide range of sources, including the following:

- Transportation sources, such as highway traffic, aircraft (civilian and military), watercraft (recreational, commercial, and military), and rail operations (passenger, freight, and trolley).
- Industrial activities, including ship building and repair, cargo handling and other marine terminal activity, and manufacturing operations.
- Local pedestrian traffic and park users.

- Typical neighborhood noise sources, such as barking dogs and landscaping activity.

All of the land uses immediately adjacent to the project site are industrial or commercial and would not be considered noise sensitive. The closest existing noise-sensitive receivers are more than 1,000 feet away. These include hotels and Coronado Tidelands Park to the west, on Coronado Island; Cesar Chavez Park to the northwest; Perkins Elementary School to the north; and homes to the north and northwest. Sensitive receivers to the east and south are even farther away because of the separation provided by commercial/industrial zones and San Diego Bay.

4.7.4.1 Noise Monitoring

To document existing ambient noise conditions, noise monitoring was conducted at five locations in the project vicinity between January 7 and 9, 2019. Long-term noise monitoring (24 hours or more) was conducted at three locations, designated LT1, LT2, and LT3. Short-term noise monitoring (20 minutes in duration) was conducted at two locations, designated ST1 and ST2. Long-term measurement sites were selected to represent land uses that are noise sensitive 24 hours per day (homes) or at nighttime (a hotel). Short-term measurement sites were selected to represent land uses with primarily daytime noise sensitivity (a park and a school). All measurement locations are indicated in Figure 4.7-1. The sound level meters used for both the long- and short-term noise monitoring were field calibrated, using a Larson Davis CAL200 acoustical calibrator, prior to each measurement to ensure accuracy; calibration was also rechecked at the conclusion of each measurement. All measurement microphones were fitted with a wind screen to reduce the effects of wind-related interference. All acoustical instruments are maintained to manufacturer specifications, in accordance with American National Standards Institute Standard S1.4-2014. Field noise survey sheets are provided in Appendix F.

Long-Term Noise Measurements

Long-term ambient noise measurements were conducted between January 7 and 9, 2019, at three locations. Measurements LT1 and LT2 were obtained using a Piccolo SLM-P3 Type 2 sound-level meter. Measurement LT3 was obtained using a Rion NL-21 Type 2 sound-level meter. Hourly noise data were collected continuously at each measurement site for approximately 41 to 46 hours. Daily noise levels, in terms of CNEL, were also calculated from the hourly sound level data. Table 4.7-2 summarizes the results of the long-term noise measurements. The table indicates the range of measured CNEL values and hourly average (L_{eq}) noise levels. The range of hourly L_{eq} values is reported separately for the daytime (7:00 a.m. to 7:00 p.m.) and evening/nighttime (7:00 p.m. to 7:00 a.m.) periods; the overall L_{eq} value for each time period is also reported. Each of the long-term noise measurement locations is briefly described below.

LT1 was at the northeast corner of Coronado Tidelands Park, approximately 90 feet west of San Diego Bay and 50 feet south of guest accommodations at the Coronado Island Marriott Resort and Spa.

LT2 was in the parking lot at the southwest corner of the Mercado Apartments at 2001 Newton Avenue. These apartments are the closest residential receptors north of the project site.

LT3 was in the yard of a single-family residence at 2644 Boston Avenue. This location was representative of the closest residential neighborhood northeast of the project site.

\\PDCCITRDSGIS2\Projects 4\Port of San Diego\BAE Systems Improv\Figures\Doc\EIR\Fig04 7 1 Noise Monitor.mxd Date: 9/17/2019 24991

Figure 4.7-1
Ambient Noise Monitoring Locations
BAE Systems Waterfront Improvement Project

Short-Term Noise Measurements

Short-term noise measurements were taken at two locations on Monday, January 7, and Wednesday, January 9, 2019. Measurements ST1 and ST2 were obtained using a Larson Davis LxT1 Type 1 sound-level meter. Each measurement lasted approximately 20 minutes and was conducted with the meter mounted on a tripod at a height of 5 feet above the ground. Noise metrics were recorded subsequent to the conclusion of each measurement. Data from the measurements are shown in Table 4.7-2. Each of the short-term noise measurement locations is briefly described below.

ST1 was near the southeast corner of the Cesar Chavez Park soccer field, approximately 105 feet northwest of the curb of Cesar E. Chavez Parkway.

ST2 was on the sidewalk adjacent to the southeast corner of Perkins Elementary School, near the intersection of Beardsley Street and Main Street.

Table 4.7-2. Summary of Noise Measurement Results

Site	Location	Date	Range of CNEL (dB)	Time of Day	Range of Hourly L_{eq} Values (average, dBA)
LT1	Coronado Tidelands Park	1/7/19–1/9/19	63.0–65.6	Daytime (7:00 a.m. to 7:00 p.m.)	54.7–62.3 (59.5)
				Evening/Nighttime (7:00 p.m. to 7:00 a.m.)	51.3–61.7 (57.8)
LT2	Mercado Apartments	1/7/19–1/9/19	68.5–69.4	Daytime (7:00 a.m. to 7:00 p.m.)	59.1–65.7 (62.7)
				Evening/Nighttime (7:00 p.m. to 7:00 a.m.)	56.6–66.1 (61.9)
LT3	2644 Boston Avenue	1/7/19–1/9/19	61.0–62.0	Daytime (7:00 a.m. to 7:00 p.m.)	53.2–60.9 (56.5)
				Evening/Nighttime (7:00 p.m. to 7:00 a.m.)	50.4–58.6 (54.5)
ST1	Cesar Chavez Park	1/7/19	N/A	2:47 p.m. to 3:07 p.m.	58.5
ST2	Perkins Elementary School	1/9/19	N/A	9:47 a.m. to 10:07 a.m.	61.2

Source: ICF field noise measurements (see Appendix F)
CNEL = community noise equivalent level; dB = decibels; L_{eq} = equivalent sound levels; dBA = A-weighted decibels.

4.7.5 Applicable Laws and Regulations

The District does not have its own noise or vibration standards and does not currently maintain formal impact thresholds for assessing potential impacts under CEQA. The sections below discuss various laws, regulations, and guidelines that may apply to the proposed project or otherwise be useful in developing thresholds of impact for the proposed project.

There are no federal noise regulations that apply directly to the proposed project.

4.7.5.1 State Regulations

California Department of Transportation

None of the local laws and regulations discussed below provide any quantitative criteria regarding groundborne noise and vibration. Although the proposed project would not be subject to Caltrans oversight, guidance published by the agency nonetheless provides groundborne vibration criteria that can be useful in establishing thresholds of impact. Caltrans' widely referenced *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020) provides guidance for two types of potential impact: (1) damage to structures and (2) annoyance to people. Guideline criteria for each are provided in Tables 4.7-3 and 4.7-4.

Table 4.7-3. Caltrans Guideline Vibration Damage Criteria

	Maximum PPV (in/s)	
Structure and Condition	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Caltrans 2020.

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.
PPV = peak particle velocity; in/s = inches per second.

Table 4.7-4. Caltrans Guideline Vibration Annoyance Criteria

	Maximum PPV (in/s)	
Human Response	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Source: Caltrans 2020.

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.
PPV = peak particle velocity; in/s = inches per second.

4.7.5.2 Local

As discussed in Chapter 3, *Project Description*, the proposed project is primarily a construction project, without substantial changes to facility operations. Therefore, noise and vibration levels from

project operations would not change substantially and are discussed qualitatively. The following local regulations review is therefore limited to those standards that are helpful in developing the specific thresholds used in this report to assess construction noise and vibration impacts. A description of additional local regulations (i.e., that were not used in the development of thresholds of impact) can be found in Appendix F.

City of San Diego Municipal Code Section 59.5.0401 (Noise Ordinance)

The City of San Diego (City) Noise Ordinance makes it unlawful for any person to cause noise by any means to the extent that the 1-hour L_{eq} exceeds the applicable limit given in Table 4.7-5 at any location in the City of San Diego on or beyond the boundaries of the property on which the noise is produced.

Table 4.7-5. City of San Diego Noise Limits

Land Use	Time of Day	1-hour L_{eq} (dBA)
Single-family residential	7:00 a.m. to 7:00 p.m.	50
	7:00 p.m. to 10:00 p.m.	45
	10:00 p.m. to 7:00 a.m.	40
Multi-family residential (up to a maximum density of 1/2,000)	7:00 a.m. to 7:00 p.m.	55
	7:00 p.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	45
All other residential	7:00 a.m. to 7:00 p.m.	60
	7:00 p.m. to 10:00 p.m.	55
	10:00 p.m. to 7:00 a.m.	50
Commercial	7:00 a.m. to 7:00 p.m.	65
	7:00 p.m. to 7:00 a.m.	60
Industrial or Agricultural	Anytime	75

Source: City of San Diego Municipal Code.

Note: The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts.

City of San Diego Municipal Code Section 59.5.0404 (Construction Noise)

The City Noise Ordinance also regulates construction noise levels. Specifically, construction that creates disturbing, excessive, or offensive noise is prohibited between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day; on legal holidays, as specified in Section 21.04 of the City Municipal Code, with the exception of Columbus Day and Washington's Birthday; and on Sundays, unless a permit is granted by the noise abatement and control administrator.

In granting a permit, the administrator must consider whether construction noise in the vicinity of the work site would be less objectionable at night because of different population densities or different neighboring activities; whether obstruction and interference with traffic, particularly on streets of major importance, would be less objectionable at night; whether the type of work to be performed would generate noise at a level that would cause significant disturbance in the vicinity of the work site; whether great economic hardship would occur if the work were spread over a longer period of time; and whether proposed night work is in the general public interest. Also considered are the character and nature of the neighborhood where the proposed work site is located. The

administrator shall prescribe the conditions, working times, types of construction equipment to be used, and permissible noise levels, as deemed to be required in the public interest.

Except under special circumstances related to emergency work, as detailed in the noise ordinance, construction activity that creates an average sound level greater than 75 dB during the 12-hour period from 7:00 a.m. to 7:00 p.m. at or beyond the property lines of any residentially zoned property is prohibited by ordinance.

City of San Diego CEQA Significance Determination Thresholds

The City's CEQA Significance Determination Thresholds outline the criteria and thresholds used by the City in determining whether project impacts would be significant (City of San Diego 2016). The District has not adopted these City significance thresholds; however, the thresholds related to traffic noise are used for the proposed project and are described below.

Interior and Exterior Noise Impacts from Traffic-Generated Noise

The City's traffic noise significance thresholds are reproduced below as Table 4.7-6.

Table 4.7-6. City of San Diego CEQA Significance Determination Thresholds, Traffic Noise

Structure or Proposed Use that Would Be Affected by Traffic Noise	Interior Space (CNEL)	Exterior Usable Space[1] (CNEL)	General Indication of Potential Significance
Single-family residences, detached	45 dB	65 dB	Structure or outdoor usable area[2] is < 50 feet from the center of the closest (outside) lane on a street with an existing or future ADT level of > 7,500
Multi-family residences, schools, libraries, hospitals, day care facilities, hotels, motels, parks, convalescent homes	Development Services Department ensures 45 dB, pursuant to Title 24	65 dB	
Offices, churches, businesses, professional uses	N/A	70 dB	Structure or outdoor usable area is < 50 feet from the center of the closest lane on a street with an existing or future ADT level of > 20,000
Commercial, retail, industrial, outdoor spectator sports uses	N/A	75 dB	Structure or outdoor usable area is < 50 feet from the center of the closest lane on a street with an existing or future ADT level of > 40,000

Source: City of San Diego 2016, Table K-2.

[1] If a project is currently at or exceeding the significance thresholds for traffic noise described above and the noise levels would result in less than a 3 dB increase, then the impact is not considered significant.

[2] Exterior usable areas do not include residential front yards or balconies, unless the areas are part of the required usable open space calculation for multi-family units.

CNEL = Community Noise Equivalent Level; dB = decibels; ADT = average daily traffic.

City of Coronado Municipal Code Section 41.10.010 (Noise Ordinance)

The noise ordinance makes it unlawful for any person to cause noise by any means to the extent that the 1-hour L_{eq} exceeds the applicable limit given in Table 4.7-7 at any location in the city of Coronado on or beyond the boundaries of the property on which the noise is produced.

Table 4.7-7. City of Coronado Noise Limits

Land Use Zone	Time of Day	1-Hour L_{eq} (dBA)
All R-1A; R-1B (Single-family residential)	7:00 a.m. to 7:00 p.m.	50
	7:00 p.m. to 10:00 p.m.	45
	10:00 p.m. to 7:00 a.m.	40
All R-3; R-4; R-PCD; and R-5 (Multi-family residential and planned community development residential)	7:00 a.m. to 7:00 p.m.	55
	7:00 p.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	45
Commercial (C), Commercial Recreation (C-R), Hotel/Motel (HM), Civic Use (C-U), Open Space (OS), and Parking Overlay (P-1)	7:00 a.m. to 10:00 p.m.	60
	10:00 p.m. to 7:00 a.m.	50

Source: City of Coronado Municipal Code.
Note: The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts.
L_{eq} = equivalent sound level; dBA = A-weighted decibels.

City of Coronado Municipal Code Sections 41.10.040 and 41.10.050 (Construction Noise)

The City of Coronado Municipal Code regulates both the permissible times for construction activities and the noise levels that such activities can generate. Section 41.10.040 provides a construction noise curfew, which prohibits construction between the hours of 7:00 p.m. and 7:00 a.m., or on legal holidays and Sundays, that would create a disturbing, excessive, or offensive noise (unless a noise control permit has been applied for and granted beforehand by the noise control officer). Section 41.10.050 provides construction noise limits that make it unlawful for any person to conduct any construction activity at or within the property line of any residentially zoned property that causes an average sound level greater than 75 dBA during a 1-hour period between the hours of 7:00 a.m. and 7:00 p.m. (unless a variance has been applied for and granted by the noise control officer.)

4.7.6 Project Impact Analysis

4.7.6.1 Methodology

Construction Noise

Construction-related noise was analyzed using data and modeling methodologies from the Federal Highway Administration's (FHWA's) Roadway Construction Noise Model (FHWA 2008), which predicts average noise levels at nearby receptors by analyzing the types of equipment, the distance

from source to receptor, usage factor,[3] and the presence or absence of intervening shielding between source and receptor. This methodology calculates composite average noise levels for the multiple pieces of equipment scheduled for each construction phase. The source-to-receptor distances used in the analyses were the acoustical average distances between the relevant construction area and each receptor. The acoustical average distance is used to represent noise sources that are mobile or distributed over an area, such as the project site; it is calculated by multiplying the shortest distance between the receiver and the noise source by the farthest distance, then taking the square root of the product. Table 4.7-8 provides noise levels for the construction equipment that is expected to be used by the proposed project; the noise levels are provided for a reference distance of 50 feet.

Noise levels for each phase of construction were analyzed at five receptors (R1 through R5) in the project vicinity. These represent the closest noise-sensitive receptors to the project site. Each receptor is in proximity to one of the long-term or short-term measurement locations illustrated in Figure 4.7-1. The corresponding noise measurement data are used to establish ambient noise levels for each receptor. The receptors, land uses, and corresponding ambient noise measurement locations are summarized in Table 4.7-9. The distance from each receptor to the nearest project boundary is also noted. Receptor R1 on Coronado Island is used to represent two different noise-sensitive land uses: Coronado Tidelands Park and the adjacent hotel (Coronado Island Marriott Resort and Spa). The remaining receptor locations are all in the City of San Diego. R2 represents the closest park (Cesar Chavez Park), R3 represents the closest school (Perkins Elementary), R4 represents the closest multi-family homes (the Mercado Apartments), and R5 represents the closest single-family homes (on Boston Avenue).

For pile driving or extraction activity, an attenuation rate of 6 dB per doubling of distance from the source was assumed for all receivers. This is generally expected to be a conservative assumption because it neglects any acoustical shielding or excess attenuation that may occur, such as that provided by buildings, topography, or ground conditions. This assumption was determined based on the elevated height of the noise source, which is typical of pile driving. An attenuation rate of 6 dB per doubling of distance was also assumed for all other construction activity affecting R1 because of the open water between the project site and Coronado Island. A rate of 6 dB per doubling of distance is representative for noise propagation across open water because it is based purely on geometric spreading and does not assume noise reduction due to any other factors including ground absorption, air absorption, or barrier effects. For all other receivers, noise from non-pile-driving or extraction activity was assumed to attenuate at a rate of 7.5 dB per doubling of distance. The excess attenuation (1.5 dB per doubling of distance) was selected to represent the combined effects of buildings, topography, and ground effects between the project site and each of the receivers.

To estimate increases over ambient noise levels due to construction activities, construction noise levels were compared to the corresponding measured noise levels. For locations where short-term ambient noise levels were measured, the ambient L_{eq} was used as the basis for comparison. For locations where long-term noise measurements were obtained, the average L_{eq} measured across all of the corresponding hours (i.e., daytime or nighttime) was used as the basis for comparison.

[3] Usage factor is the fraction of time the equipment is operating in its noisiest mode.

Table 4.7-8. Construction Equipment Noise Levels

Equipment Item	Maximum Noise Level (L_{max}) at 50 feet, dBA[1]	Usage Factor[1,2]	Average Noise Level (L_{eq}) at 50 feet, dBA
Backhoe	77.6	0.4	73.6
Crane	80.6	0.16	72.6
Dredge	81.0	0.3	75.8
Forklift	79.1	0.4	75.1
Generator	80.6	0.5	77.6
Impact pile driver	101.3	0.2	94.3
Loader	79.1	0.4	75.1
Material barge	82.0	0.3	76.8
Other construction equipment	79.1	0.4	75.1
Other material handling equipment	85.2	0.5	82.2
Scow/barge	82.0	0.3	76.8
Survey vessel	82.0	0.3	76.8
Tugboat	82.0	0.3	76.8
Vibratory pile driver/extractor	100.8	0.2	93.8
Welder	74.0	0.4	70.0

[1] Obtained or estimated from FHWA 2008 Roadway Construction Noise Model and Port of Long Beach 2009.

[2] Usage factor is the fraction of time the equipment is operating in its noisiest mode. L_{eq} is estimated from L_{max} using the following equation: $L_{eq} = L_{max} + 10 \times \log_{10}$ (usage factor).

L_{max} = maximum sound level; L_{eq} = equivalent sound level; dBA = A-weighted decibels.

Table 4.7-9. Summary Description of Analyzed Receiver Locations

Receiver	Represented Land Use(s)	Corresponding Ambient Noise Measurement	Location (City)	Distance to Nearest Project Boundary (feet)
R1	Coronado Tidelands Park Coronado Island Marriott Resort and Spa	LT1	Coronado	5,000
R2	Cesar Chavez Park	ST1	San Diego	1,700
R3	Perkins Elementary School	ST2	San Diego	2,550
R4	Mercado Apartments	LT2	San Diego	1,180
R5	Boston Avenue Homes	LT3	San Diego	1,500

Construction Vibration

Construction-related vibration was analyzed using data and modeling methodologies provided by Caltrans's *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020). This guidance manual provides typical vibration source levels for various types of construction equipment as well as methods for estimating the propagation of groundborne vibration over distance. Table 4.7-10 provides the PPV associated with the worst-case scenario for the construction equipment expected to be used by the proposed project; the levels are provided for a reference distance of 25 feet. Note that vibration-related equations from the Caltrans guidance manual were used to estimate the change in PPV levels over distance, as described in Appendix F.

Table 4.7-10. Construction Equipment Vibration Levels

Equipment Item	Reference PPV at 25 feet (in/s)[1]
Impact pile driver	0.65
Vibratory pile driver	0.65
Large bulldozer[2]	0.089

[1] Obtained from Caltrans 2020.

[2] Considered representative of other heavy earthmoving equipment, such as excavators, graders, backhoes, etc.
PPV = peak particle vibration; in/s = inches per second.

Operational Analysis

The general types of onsite operational activities (i.e., vessel service and repair) would remain the same as those that currently occur, and the overall intensity of the operations would not increase. In addition, the closest noise-sensitive receptors are 1,180 feet or more away from the project site. As a result, a quantitative analysis of operational noise and vibration levels is not necessary; operational effects are discussed qualitatively.

4.7.6.2 Thresholds of Significance

The following significance criteria are based on Appendix G of the State CEQA Guidelines and the various laws, regulations, and guidelines discussed in Section 4.7.5. These provide the basis for determining the significance of impacts from noise and vibration associated with implementation of the proposed project. The District has not adopted its own specific thresholds of impact for potential noise and vibration impacts; therefore, it uses, where appropriate, the applicable standards and guidelines of other agencies, such as the City of San Diego, City of Coronado, or Caltrans. The determination of whether a noise and vibration impact would be significant is based on the professional judgment of the District as Lead Agency and the recommendations of qualified personnel at ICF, all of which is based on the evidence in the administrative record.

Impacts are considered significant if the proposed project would result in any of the following:

1. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project, in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies. A significant impact would occur at any of the noise-sensitive receptors if:
    a. Daytime (7:00 a.m. to 7:00 p.m.) construction activity fails to comply with the construction noise standards provided by the municipal codes of the City of San Diego or the City of Coronado (City of San Diego Municipal Code Section 59.5.0404 or City of Coronado Municipal Code Sections 41.10.040 and 41.10.050); or
    b. Nighttime (7:00 p.m. to 7:00 a.m.) construction activity exceeds existing ambient noise levels and fails to comply with the applicable nighttime noise standards provided by the municipal codes of the City of San Diego or the City of Coronado (City of San Diego Municipal Code Section 59.5.0401 or City of Coronado Municipal Code Section 41.10.010), or exceeds existing ambient noise levels by 5 dBA (a readily perceptible change) or more, 12-hour L_{eq}; or

c. Project traffic generates a noise increase of 3 dB CNEL or more, to a level in excess of the impacts from traffic-generated noise criteria of the City of San Diego's CEQA Significance Determination Thresholds, or any noise increase of 5 dB CNEL or more; or

d. Noise from new onsite operational activity exceeds the exterior noise standards of the City of San Diego's noise ordinance (Municipal Code Section 59.5.0401) or the City of Coronado's noise ordinance (Municipal Code Section 41.10.010).

e. Noise from onsite operational activity increases ambient noise levels by 5 dBA or more (a readily perceptible change).

2. Generation of excessive groundborne vibration or groundborne noise levels. A significant impact would occur if construction or operation of the project exceeds Caltrans' guideline vibration criteria for damage to structures at any nearby buildings or annoyance to people (distinctly perceptible vibration) at any vibration-sensitive location.

3. For a project in 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?

4.7.6.3 Project Impacts and Mitigation Measures

Threshold 1: Implementation of the proposed project would not result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project, in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies.

Impact Discussion

Construction

Two types of short-term noise impacts could occur during project construction. First, construction workers' vehicles and haul trucks for transporting equipment and materials would incrementally increase noise levels on access roads. The second type of short-term noise impact would be related to noise generated during onsite construction. Construction is expected to start in January 2021 and be completed by October 2025.The exception would be dredging operations.

Construction Traffic

Although there would be a relatively high single-event noise level, which could cause an intermittent noise nuisance (e.g., passing trucks at 50 feet would generate up to 77 dBA), the effect on longer-term ambient noise levels (e.g., the daily CNEL used to assess traffic noise levels) would be small, especially given the industrial nature of the surrounding neighborhood and the relatively high proportion of heavy trucks that are already present on the primary access roadways. An analysis of the average daily traffic volumes on nearby roadways was conducted based on the project construction traffic memorandum (Appendix G1). The results of the analysis are summarized in Table 4.7-11 and indicate that average daily traffic volumes would increase by up to approximately 1.5 percent as a result of project construction traffic. A 1.5 percent daily traffic increase would

generate a noise increase of less than 0.1 dB CNEL.[4] This noise increase is well below the threshold of 3 dB CNEL and would be imperceptible. As a result, construction traffic noise impacts would be less than significant.

Table 4.7-11. Traffic Volume Increases Due to Project Construction

Road	Segment	Ex ADT	Ex + Const ADT	% Incr	NT 2020 ADT	NT 2020 + Const ADT	% Incr	NT 2022 ADT	NT 2022 + Const. ADT	% Incr
Harbor Dr	Sampson St–Schley St	12,050	12,226	1.46	17,471	17,647	1.01	18,560	18,670	0.59
	Schley St–28th St	11,626	11,802	1.51	17,047	17,223	1.03	18,109	18,219	0.61
28th St	National Ave–Boston Ave	22,112	22,256	0.65	23,104	23,248	0.62	24,544	24,634	0.37
	Boston Ave–Main St	19,563	19,739	0.90	20,650	20,826	0.85	21,937	22,047	0.50
	Main St–Harbor Dr	16,134	16,310	1.09	17,264	17,440	1.02	18,340	18,450	0.60

Ex = Existing; ADT = Average Daily Traffic; Const = Construction; Incr = Increase; NT = Near Term.

Onsite Construction

Project construction would be broken down into various project elements and phases, some of which would overlap. Construction is proposed to occur primarily between 7:00 a.m. and 7:00 p.m. Monday through Saturday, as permitted by the City's Municipal Code. As discussed in Chapter 3, dredging, but no other construction work, would continue to occur during the nighttime hours of 7:00 p.m. to 7:00 a.m. This work would consist of dredging associated with Project Element 1 (Pride of San Diego Drydock Dredging and Moorage Replacement), Project Element 4 (Pier 3 South Nearshore Dredging), and Project Element 6 (Pier 3 Lunchroom Wharf Replacement Realignment), which would occur 24 hours a day, 7 days a week for the duration of dredging activities. The details of the construction noise analyses are included in Appendix F. A summary of the results is provided in Tables 4.7-12 and 4.7-13 for daytime and nighttime construction activities, respectively.

The range of predicted construction noise levels over the entire course of project construction is reported in Tables 4.7-12 and 4.7-13. Furthermore, the results are reported separately for daytime construction with conventional construction equipment (i.e., no pile driving or pile extraction), daytime construction with pile driving or extraction equipment included (impact or vibratory), and nighttime construction. Nighttime construction would not include any pile driving or pile extraction. The results indicate that all construction noise impacts, relative to both local noise standards and temporary noise increases, as applicable, would be less than significant. As a result, no mitigation measures would be required for project construction noise impacts.

[4] The greatest percentage increase in traffic occurs on Harbor Drive between Schley Street and 28th Street. The resulting noise increase is calculated as: $10 \times \log (11{,}802 / 11{,}626) = 0.07$ dB.

Table 4.7-12. Predicted Daytime Construction Noise Levels

Receiver	Location	Measured Ambient L_{eq} (dBA)	Range of Construction Noise Levels, L_{eq} (dBA)	Municipal Code Standard Applied, L_{eq} (dBA)	Impact
Daytime Construction without Pile Driving and/or Pile Extraction					
R1	Coronado Tidelands Park	59.5	35.5 to 46.5	75[1]	LTS
	Coronado Island Marriott Resort and Spa	N/A – not considered noise-sensitive during daytime hours			
R2	Cesar Chavez Park	58.5	33 to 46.5	75[2]	LTS
R3	Perkins Elementary School	61.2	30.2 to 42.7	75[2]	LTS
R4	Mercado Apartments	62.7	35.6 to 49.7	75[2]	LTS
R5	Boston Avenue Homes	56.5	36.4 to 46.5	75[2]	LTS
Daytime Construction with Pile Driving and/or Pile Extraction					
R1	Coronado Tidelands Park	59.5	47.9 to 52.4	75[1]	LTS
	Coronado Island Marriott Resort and Spa	N/A – not considered noise-sensitive during daytime hours			
R2	Cesar Chavez Park	58.5	54.2 to 59.4	75[2]	LTS
R3	Perkins Elementary School	61.2	51.3 to 56.2	75[2]	LTS
R4	Mercado Apartments	62.7	54.5 to 61.0	75[2]	LTS
R5	Boston Avenue Homes	56.5	54.3 to 60.1	75[2]	LTS

[1] City of Coronado noise limit for construction during permissible daytime hours of 7:00 a.m. to 7:00 p.m. at any residentially zoned property.

[2] City of San Diego noise limit for construction during permissible daytime hours of 7:00 a.m. to 7:00 p.m. at any residentially zoned property.

LTS = less-than-significant impact; L_{eq} = equivalent sound level; dBA = A-weighted decibels.

Table 4.7-13. Predicted Nighttime Construction Noise Levels

Receiver	Location	Measured Ambient L_{eq} (dBA)	Range of Construction Noise Levels, L_{eq} (dBA)	Municipal Code Standard Applied[1]	Impact Relative to Local Standards	Range of Combined (Ambient plus Construction) Noise Levels, L_{eq} (dBA)	Range of Noise Level Increases, L_{eq} (dBA)	Impact Relative to Temporary Noise Increases
Nighttime Construction (Dredging Only)								
R1	Coronado Tidelands Park	57.8	38.6 to 38.6	50[2]	LTS	57.9 to 57.9	0.1	LTS
	Coronado Island Marriott Resort and Spa	57.8	38.6 to 38.6	50[3]	LTS	57.9 to 57.9	0.1	LTS
R2	Cesar Chavez Park	56.5	37.0 to 37.4	50[2]	LTS	56.5 to 56.6	0.0 to 0.1	LTS
R3	Perkins Elementary School	N/A – not considered noise-sensitive during nighttime hours						
R4	Mercado Apartments	61.9	38.4 to 39.8	60[4]	LTS	61.9	0.0	LTS
R5	Boston Avenue Homes	54.5	37.0 to 39.9	57.5[5]	LTS	54.6	0.1	LTS

[1] Total time period considered is 7:00 p.m. to 7:00 a.m. Nighttime (10:00 p.m. to 7:00 a.m.) municipal code standards are used because these are the most restrictive and applicable during the analyzed time period.

[2] City of Coronado noise limit for open space land use. In the absence of an established City of San Diego noise limit for parks, the City of Coronado noise limit for open space is applied to parks in San Diego.

[3] City of Coronado noise limit for hotel/motel land use.

[4] City of San Diego noise limit for boundary between multi-family residential use and industrial use zones (arithmetic average of 45 dBA and 75 dBA).

[5] City of San Diego noise limit for boundary between single-family residential use and industrial use zones (arithmetic average of 40 dBA and 75 dBA).

LTS = less-than-significant impact; L_{eq} = equivalent sound level; dBA = A-weighted decibels.

Operation

Operation of the BAE Systems facility generates noise that currently contributes to the ambient noise environment in the project vicinity. The primary source of noise is the heavy industrial activity related to ship repair that occurs on the site. Traffic noise is also generated in the surrounding community by workers while commuting to and from the site and trucks delivering parts and materials to be used at the site.

Once project construction is completed, the improvements would allow BAE Systems to increase operational efficiency and service newer and larger classes of vessels that cannot be accommodated under existing conditions. However, the changes would not lead to additional simultaneous vessel work or increase the number of people on the site. In fact, the size of the worst-case (i.e., largest) onsite vessel crew and labor force would decrease under the proposed project, as described in Table 3-5 in Chapter 3, Section 3.6, *Project Operations*. Consequently, the general nature and types of operational activities (i.e., vessel service and repair) at the project site would be the same as those that currently occur, and the overall intensity of the operations would not increase. This, combined with the distances to the nearest noise-sensitive receptors (1,180 feet or more), means that operational noise levels, including BAE Systems–related traffic noise in the surrounding community, would not change appreciably at the nearest receptors. The operational noise impacts would be less than significant.

Level of Significance Prior to Mitigation

Construction

Construction of the proposed project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of local noise standards. Impacts would be less than significant.

Operation

Operation of the proposed project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of local noise standards. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance after Mitigation

Impacts would be less than significant.

Threshold 2: Implementation of the proposed project would not result in the generation of excessive groundborne vibration or groundborne noise levels.

Impact Discussion

Construction

As discussed previously, groundborne vibration can cause two types of impact: (1) damage to structures and (2) annoyance to people. Damage to a structure can occur regardless of the use at a specific building; therefore, this potential impact is assessed at the closest buildings but is not assessed at any land uses that do not include buildings (such as parks). Annoyance to people is assessed only at land uses with vibration-sensitive buildings.

When pile drivers and heavy construction equipment operate on the site, they would generate groundborne vibration that could affect nearby receivers. All of the major vibration sources would be categorized as continuous/frequent intermittent sources. Given the industrial nature of the neighboring land uses, the closest offsite buildings are assumed to be industrial buildings, with a threshold for potential vibration damage of 0.5 in/s PPV (refer to Table 4.7-3). Table 4.7-14 summarizes the estimated maximum distances from each piece of equipment at which groundborne vibration impacts would exceed the threshold (see Appendix F for additional details).

Table 4.7-14. Impact Distances from Construction Equipment for Potential Vibration-related Building Damage

Construction Equipment Item	Maximum Impact Distance for 0.5 in/s PPV
Impact pile driver	32 feet
Vibratory pile driver/extractor	32 feet
Large bulldozer[1]	6 feet

[1] Considered representative of various heavy pieces of earthmoving equipment, such as excavators, graders, backhoes, etc.
in/s = inches per section; PPV = peak particle velocity.

There are no offsite buildings within 32 feet of the footprint for proposed pile driving activities or within 6 feet of the remainder of the project boundary where heavy construction equipment may operate. Therefore, potential building damage impacts from groundborne vibration associated with project construction would be less than significant, and no mitigation measures would be required.

Table 4.7-15 summarizes the estimated maximum distances from each piece of equipment at which groundborne vibration impacts would exceed the established “distinctly perceptible” threshold of 0.04 in/s PPV (refer to Table 4.7-4).

Table 4.7-15. Impact Distances from Construction Equipment for Potential Vibration Annoyance

Construction Equipment Item	Maximum Impact Distance for 0.04 in/s PPV (barely perceptible vibration)
Impact pile driver	316 feet
Vibratory pile driver/extractor	316 feet
Large bulldozer[1]	52 feet

[1] Considered representative of various heavy pieces of earthmoving equipment, such as excavators, graders, backhoes, etc.
in/sec = inches per second; PPV = peak particle velocity.

The closest sensitive receptors to the project site would be more than 1,000 feet away. Consequently, potential annoyance impacts from groundborne vibration associated with project construction would be less than significant, and no mitigation measures would be required.

Operation

Heavy equipment and machinery currently in use at the project site generate groundborne vibration levels that are localized and typically only perceptible at very close range or within the buildings where the equipment operates. Based on the distances to the closest offsite sensitive receptors (1,180 feet or more), operational vibration levels would not be perceptible at sensitive offsite locations. As described above for operational noise, the types of operations at the site would be the same with implementation of the proposed project. As a result, there would be no new vibration sources that would cause impacts at offsite receptors. The operational vibration impacts would be less than significant.

Level of Significance Prior to Mitigation

Implementation of the proposed project would not expose persons to or generate excessive groundborne vibration or groundborne noise levels. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance after Mitigation

Impacts would be less than significant.

Threshold 3: For a project in 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, implementation of the proposed project would not expose people residing or working in the project area to excessive noise levels?

Impact Discussion

The closest air facilities to the project site are San Diego International Airport (SDIA) and Naval Air Station (NAS) North Island. SDIA, approximately 3 miles from the project site, is a public airport with an adopted airport land use plan. NAS North Island, approximately 3.25 miles from the site, is a private airport without an adopted airport land use plan. Based on the noise contour maps for

both of these facilities (Ricondo & Associates 2014 and Onyx Group 2011, respectively), the project site is outside their designated noise contours (the minimum noise contour value is 60 CNEL dB). In addition, the proposed project would not change operations at SDIA or NAS North Island or otherwise affect the existing aircraft noise environment in the project vicinity. The proposed project would not create any new noise-sensitive receptors that could be affected by aircraft noise. Therefore, the proposed project would not expose people residing or working in the project area to excessive airport noise levels.

Level of Significance Prior to Mitigation

Implementation of the proposed project would not expose people residing or working in the project area to excessive noise levels from a private airstrip, public airport, or public use airport. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance after Mitigation

Impacts would be less than significant.

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Section 4.8
Sea-Level Rise

4.8.1 Overview

This section describes existing conditions and applicable laws and regulations pertaining to sea-level rise impacts, followed by an analysis to determine if the proposed project would exacerbate any existing and/or projected damage to the environment, including damage to existing structures, sensitive resources, and human health, due to predicted climate change effects, particularly sea-level rise, or be inconsistent with applicable sea-level rise policies of the California Coastal Act of 1976 (CCA) and other land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect from sea-level rise. The analysis determined that no significant sea-level rise impacts would occur through 2050 under the *medium-high* risk tolerance sea-level rise scenario, and no mitigation measures are required; however, best practices from the California Coastal Commission (CCC) recommend revisiting these conclusions over time (e.g., at the end of the proposed project lease period).

4.8.2 Existing Conditions

This section provides a discussion of the existing understanding of global climate change and its effects on sea level.

4.8.2.1 Impacts of Global Climate Change

Climate change is a complex phenomenon that has the potential to alter local climatic patterns and meteorology. Although modeling indicates that climate change will result in sea-level rise (both globally and regionally) as well as changes in climate and rainfall, among other effects, there remains uncertainty with regard to characterizing precise *local* climate characteristics and predicting precisely how various ecological and social systems will react to changes in the existing climate at the local level. Regardless of this uncertainty, it is widely understood that substantial climate change is expected to occur in the future, although the precise extent will take further research to define. Consequently, the entire San Diego region, including the project site and surrounding area, will be affected by changing climatic conditions.

Research efforts coordinated through the California Air Resources Board (CARB), the California Energy Commission (CEC), the California Environmental Protection Agency, the University of California system, and others are examining the specific changes to California's climate that will occur as the Earth's surface warms. Potential impacts include rising sea levels along the California coastline; extreme heat conditions; an increase in heat-related human deaths, infectious diseases, and respiratory problems caused by deteriorating air quality; reduced snow pack and streamflow in the Sierra Nevada, affecting winter recreation and water supplies; a potential increase in the severity of winter storms, affecting peak streamflows and causing flooding; changes in growing conditions that could affect California agriculture, causing variations in crop quality and yield; and changes in the distribution of plant and wildlife species due to changes in temperature, competition

from colonizing species, changes in hydrologic cycles, changes in sea levels, and other climate-related effects.

With respect to the San Diego region, the *San Diego Summary Report* produced under California's Fourth Climate Change Assessment provides a summary of potential climate change impacts in the region (Kalansky et al. 2018), which include the following:

- **Increased temperatures**: The San Diego region will very likely experience hotter and drier days and more frequent, more intense, and longer heat waves. Average annual temperatures are expected to increase by 5–10°F by the end of the century. In coastal regions, marine layer clouds can help mitigate temperature increases. However, the impact of clouds requires further research because current climate models do not represent them well (Kalansky et al. 2018).
- **More volatile precipitation:** Rainfall will continue to be highly variable, with wet and dry extremes intensifying. Droughts are expected to occur more often and be more severe, while individual precipitation events are expected to intensify. At the seasonal level, the region is expected to see wetter winters and drier springs (Kalansky et al. 2018).
- **Greater wildfire risk:** Drier autumns are expected to increase the risk of wildfires, particularly the risk of large, catastrophic wildfires driven by Santa Ana wind events (Kalansky et al. 2018).
- **Impacts on human health:** Climate change is expected to exacerbate public health impacts. Specifically, more intense heat waves, warmer temperatures, and wildfires are expected to exacerbate heat-related illness, adverse health impacts from wildfire smoke, and vector-borne diseases. Certain populations are particularly vulnerable to these health impacts, including those with preexisting or underlying health conditions, those with chronic illnesses (e.g., asthma), the elderly, and the uninsured (Kalansky et al. 2018).
- **Reductions in fresh water:** Climate change is expected to reduce the San Diego region's imported and local water supplies and increase water demand. By mid-century, two of the major imported water supplies are expected to decline. State Water Project imports are expected to drop by 10 percent or more, while Colorado River imports are expected to drop by 10 to 45 percent. Meanwhile, demand is projected to increase by 30 percent by 2040 (Kalansky et al. 2018).
- **Rising sea levels:** Projected sea-level rise, coastal erosion, and increasing storm surges may cause fragile sea cliffs to collapse, shrink beaches, and destroy coastal property and ecosystems. Along the San Diego County coast, sea levels are expected to rise by around 1 foot by mid-century and rise rapidly through the end of the century by around 3 feet. Higher sea levels, combined with high-tide events, are expected to lead to higher extreme water levels (Kalansky et al. 2018). More information on sea-level rise projections for the city of San Diego are provided below.
- **Impacts on habitats:** Climate change is a significant stressor to San Diego's natural lands, which are among the most biodiverse in the United States. Climate stressors—such as rising temperatures, a greater portion of rainfall falling as extreme precipitation, more frequent and intense droughts, and rising sea levels—may also stress habitats and native species, thereby harming biodiversity. For instance, as sea levels rise, wetlands migrate upstream and inland. However, in heavily urbanized areas such as San Diego, migration is limited by development, causing wetlands and the populations that rely on them to shrink (Kalansky et al. 2018).

Given the proposed project's location along the waterfront, sea-level rise, as an effect of climate change, is the primary concern and discussed in detail below.

Sea-Level Rise

Over the past century, mean global sea level has risen approximately 0.07 inch per year, accelerating to a rate of 0.12 inch per year since 1993 (Intergovernmental Panel on Climate Change 2013). From 1906 to 2017, the tide gage at San Diego suggests a rise of approximately 0.09 inch per year, approximately 32 percent higher than the global rate (National Oceanic and Atmospheric Administration [NOAA] 2018). In total, sea levels rose 0.71 feet in San Diego during the twentieth century (NOAA 2018).

A variety of factors affect local relative sea-level rise (i.e., the sea-level rise projections for a specific location rather than the global average sea-level rise projections), including vertical land movement, ocean dynamics, and changes in the Earth's gravitational and rotational fields (National Research Council [NRC] 2012). Through 2100, San Diego is projected to subside at a rate of 0.05 inch per year, and the glacial geostatic adjustment[1] is projected to cause the local relative sea level to increase by 0.02 inch per year (NRC 2012). These values are factored into the San Diego region sea-level rise projections.

Governor Schwarzenegger's Executive Order S-13-08, issued in November of 2008, directed state agencies to plan for sea-level rise and coastal impacts. In response to this, several iterations of sea-level rise guidance have been developed to help state agencies incorporate sea-level rise into project planning and decision-making. In late 2018, the CCC released sea-level rise policy guidance (CCC 2018), which draws on sea-level rise projections and other information from 2017 and 2018 Ocean Protection Council documents and provides recommendations for addressing sea-level rise in local coastal programs and coastal development permits.

Based on CCC guidance, the proposed project is evaluated against low, medium-high, and high risk-aversion scenarios regarding sea-level rise. Project site elevation and projections were analyzed for conditions in 2034 (the year when the lease is scheduled to expire), 2050 (to provide a view of projected exposure should the lease be extended beyond its current expiration date), and 2100. Table 4.8-1 provides a summary of this analysis.

Table 4.8-1. Sea-Level Rise Projections

	Sea-Level Rise Projections (feet)[1]		
Year	Low Risk Aversion	Medium-High Risk Aversion	Extreme Risk Aversion
2034[2]	0.8	1.1	1.5
2050	1.2	2.0	2.8
2100	3.6	7.0	10.2

[1] Based on projections for San Diego (CCC 2018).

[2.] Sea-level rise values reflect midpoint of projections for 2030 and 2040.

[1] The Earth's crust is still reaching a state of equilibrium after the melting of the glaciers at the end of the last ice age. This process is called glacial geostatic adjustment. Some locations that were compressed from the huge weight of the ice are still rebounding, while areas that were near but not covered with glaciers were pushed up during the ice age. These areas, including San Diego, are still subsiding.

Projected sea-level rise, as an effect of climate change, is expected to increase the geographic area that experiences coastal flooding along San Diego Bay. Coastal and low-lying areas, such as the project site, are particularly vulnerable to future sea-level rise. More specifically, sea-level rise is particularly a concern when considered in combination with future storm events and coastal flooding. A scenario with 100-year floodflows that coincide with high tides, taking into account sea-level rise over a 50- or 100-year horizon, would dramatically increase the risk of flooding in the project vicinity.

The San Diego Bay vulnerability assessment conducted by the International Council for Local Environmental Initiatives (ICLEI), Local Governments for Sustainability, found that the greatest concern related to sea-level rise is the increase in the frequency and intensity of flooding that the region experiences due to waves, storm surge, El Niño events, and very high tides. Furthermore, starting around mid-century, San Diego Bay may become more susceptible to regular inundation during daily high-tide events at certain locations. The most vulnerable sectors in the community include stormwater management, wastewater collection, shoreline park, and transportation facilities; commercial buildings; and ecosystems (ICLEI 2013). Working waterfronts specifically may experience intermittent flooding that disrupts operations by making areas inaccessible or unworkable temporarily and backing up stormwater infrastructure as well as damages to sensitive assets in flooded areas, such as electrical infrastructure or other facilities not equipped to be inundated by saltwater. In the longer-term permanent flooding may render areas and assets, such as piers and wharfs, unusable unless modified.

4.8.3 Applicable Laws and Regulations

This section summarizes the federal, state, and local regulations related to sea-level rise and climate change that are applicable to the proposed project.

4.8.3.1 Federal

Climate change is widely recognized as an imminent threat to the global climate, economy, and population. However, there is still no comprehensive, overarching federal law for addressing climate change–related effects specifically, such as sea-level rise.

4.8.3.2 State

California has adopted statewide legislation for addressing adaptation to climate change effects, namely sea-level rise. Summaries of key policies, regulations, and legislation at the state level that are relevant to the proposed project are provided below in chronological order.

Assembly Bill 691 – Proactively Planning for Sea-Level Rise Impacts (2013)

Assembly Bill (AB) 691 required the District to prepare and submit an assessment of how the District proposes to address the impacts of sea-level rise on tidelands to the California State Lands Commission (SLC) by no later than July 1, 2019. The bill states that addressing the impacts of sea-level rise shall be among the management priorities of the local trustee. In accordance with AB 691, the assessment was completed and submitted to the SLC. It includes the following:

- An assessment of the impact of sea-level rise on granted public trust lands, as described by certain documents.
- Maps showing the areas that may be affected by sea-level rise in 2030, 2050, and 2100. These maps shall include the potential impacts of 100-year storm events. The District may rely on appropriate maps generated by other entities.
- An estimate of the financial cost of the impact of sea-level rise on District public trust lands. The estimate shall consider, but not be limited to, the potential cost of repairs for damage, as well as the value of lost use associated with improvements and land, and the anticipated cost to prevent or mitigate potential damage.
- A description of how the District proposes to protect and preserve natural and human-made resources and facilities located on, or proposed to be located on, trust lands and operated in connection with the use of trust lands. The description shall include, but not be limited to, how wetlands restoration and habitat preservation would mitigate the impact of sea-level rise.

Assembly Bill 2516 – Planning for Sea-Level Rise Database

AB 2516 requires the Natural Resources Agency, in collaboration with the Ocean Protection Council, to create, update biannually, and post online a Planning for Sea-Level Rise database that describes the steps being taken throughout the state to prepare for, and adapt to, sea-level rise. The bill requires various public agencies and private entities to provide sea-level rise planning information, defined as studies, programs, modeling, mapping, cost-benefit analyses, vulnerability assessments, adaptation assessments, and local coastal programs developed for the purpose of addressing or preparing for sea-level rise, to the Natural Resources Agency and Ocean Protection Council for incorporation into the Planning for Sea-Level Rise database. The entities subject to AB 2516 include 13 state agencies as well as all ports, airports, and electric and natural gas utilities within the Coastal Zone and San Francisco Bay Area.

California Coastal Act

The CCA (Public Resources Code Sections 30000–30900) established the CCC to oversee future development along California's coastline. Chapter 8, Article 3, of the CCA requires ports, including the Port of San Diego, to develop a Port Master Plan (PMP) by which to conduct project reviews and issue individual coastal development permits or exclusions within their jurisdictions. Individual PMPs require review and certification by the CCC for conformity with the CCA, including any amendments to the certified PMP. Chapter 8 (Section 30715) also specifies which projects within a port are subject to Chapter 3 policies of the CCA (i.e., Coastal Resources Planning and Management Policies). Those policies provide guidance regarding public access to the coast, recreation, the marine environment, land resources, development, and sea-level rise.

The proposed project must be consistent with the CCA, including policies from Chapters 3 and 8, which require protection for certain coastal resources, some of which may be affected by sea-level rise. For example, sea-level rise increases the risk of flooding, coastal erosion, and saltwater intrusion into fresh water, including groundwater, and has the potential to threaten many resources that are integral to the California coast. These include coastal developments; coastal access and recreational areas; habitats such as wetlands, coastal bluffs, dunes, and beaches; water quality and water supplies; cultural resources; community character; and scenic quality.

Several CCA policies are applicable to sea-level rise as it relates to the protection of coastal resources, including 30210, 30211, 30220, 30234, 30235, 30236, and 30253. A discussion of the proposed project's consistency with these CCA policies is provided in Section 4.6, *Land Use and Planning*.

California Coastal Commission Sea-Level Rise Policy Guidance (2018)

To guide local governments and ports in addressing sea-level rise in the context of the CCA, the CCC issued sea-level rise policy guidance in 2015. The sea-level rise policy guidance provides a framework for addressing sea-level rise in PMPs and coastal development permits. The guidance provides principles for addressing sea-level rise in the Coastal Zone; an overview of the science behind sea-level rise, as well as a description of the potential consequences; and an outline of the steps for addressing sea-level rise (CCC 2015). This guidance was recently updated in November 2018 (i.e., a science update) (CCC 2018).

4.8.3.3 Regional

There are no regional regulations related to the proposed project that require consideration of or adaptation to climate change effects, including sea-level rise.

4.8.3.4 Local

There are no local regulations related to the proposed project that require consideration of or adaptation to climate change effects, including sea-level rise.

4.8.4 Project Impact Analysis

4.8.4.1 Methodology

The project site was evaluated for sea-level rise impacts associated with climate change using a state-recommended approach. A summary of the methodology is provided below.

Climate change analysis consists of a quantitative assessment of future sea-level rise and storm surge projections applicable to the elevation at the project site. The analyses begin with a review of California guidance and estimates of climate change impacts. For sea-level rise, historic and projected future rates of sea-level rise are reviewed. This analysis relies on projections developed by the Ocean Protection Council and adopted by the CCC in its updated sea-level rise policy guidance in November 2018. The analysis uses projections for three timeframes (see Table 4.8-3):

- 2034, to characterize exposure at the time that the project lease ends. These projections reflect the average of those provided in the CCC guidance for 2030 and 2040. The analysis uses this value because the CCC provides projections in 10-year increments, and the average of the 2030 and 2040 values most closely approximates those for 2034.
- 2050 and 2100, to characterize potential exposure between the end of the project lease and the end of the project life.

Table 4.8-2 summarizes the various project site structures and project elements that were considered for use in this analysis. This sea-level rise assessment was conducted using two elevations:

1. The lowest landside elevation, the sheet piling for the quay wall (Project Element 7) (approximately 7 feet above mean sea level [MSL]).[2] The sheet pilings at the waterfront are the first line of defense against rising seas. If the sheet pilings are breached, then water may be able to infiltrate portions of the project site.
2. The lowest waterside elevation, which is also the most common elevation across the structures (approximately 9 feet above present-day MSL). The new Pride of San Diego wharf and associated ramp (Project Element 2) would all be constructed to this elevation.

The two elevations were compared to a range of sea-level rise projections and timeframes on top of high tide (i.e., mean higher high water). This provides insight regarding the possibility of daily inundation at the project site. To assess the possibility of inundation during future storm events, the analysis added the historic 100-year storm surge (i.e., 1 percent annual return probability) elevation to the sea-level rise projections and compared this combined water level elevation to the selected elevations.

Table 4.8-2. Project Site Components and Elevations

Waterside or Landside	Project Site Components	Structure Type	Minimum Elevation (feet) (relative to MSL)	Maximum Elevation (feet) (relative to MSL)
Landside	Pier 1 and 3 Fenders (Project Element 3)	Sheet-pile wall	7.6	10.1
Landside	Quay Wall (Project Element 7)	Sheet-pile wall	7.1	7.1
Landside	Building 13, Ground Floor (Project Element 14)	Building	9.1	9.1
Landside	Pier 3 Break Room, Ground Floor (Project Element 6)	Wharf	10.1	10.1
Waterside	Pride of San Diego Drydock (Project Element 1)	Mooring dolphins	10.1	10.1
Waterside	New Pride of San Diego Wharf Ramp (Project Element 2)	Ramp	9.1	9.1
Waterside	New of Pride of San Diego Wharf (Project Element 2)	Wharf	9.1	10.1
Waterside	Pier 3 Mooring Dolphins (Project Element 5)	Mooring dolphins	10.1	10.1

MSL = mean sea level

[2] Note that mean sea level is approximately 2.94 feet above mean lower low water, based on values retrieved from https://tidesandcurrents.noaa.gov/datums.html?id=9410170.

4.8.4.2 Thresholds of Significance

CEQA does not direct agencies to analyze the environment's effects on a project but does require analysis when a project could exacerbate environmental hazards or conditions. As such, the analysis provided within this section focuses on the project's potential to exacerbate existing and projected future conditions associated with climate change (Threshold 1) and addresses the following question:

- Would the proposed project exacerbate any existing and/or projected damage to the environment, including existing structures, sensitive resources, and human health, due to predicted climate change effects, particularly sea-level rise?

The project site is within the Coastal Zone. Several CCA policies require coastal resources to be protected from sea-level rise and the impacts of climate change. Executive Order S-13-08 requires consideration of the potential impacts of sea-level rise on a proposed project when determining consistency with the CCA and the 2018 adopted sea-level rise policy guidance. The policy guidance provides an overview of the best available science on sea-level rise and a recommended methodology for addressing sea-level rise in CCC planning and regulatory actions (CCC 2018). As such, this section analyzes consistency with the sea-level rise guidance provided in land use plans, policies, and regulations (Threshold 2) by addressing the following question:

- Would the proposed project be inconsistent with the applicable sea-level rise policies of the CCA or other land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect from sea-level rise?

4.8.4.3 Project Impacts and Mitigation Measures

Threshold 1: Implementation of the proposed project <u>would not</u> exacerbate any existing and/or projected damage to the environment, including existing structures, sensitive resources, and human health, due to predicted climate change effects, particularly sea-level rise.

Impact Discussion

As discussed in Section 4.8.2.1, *Impacts of Global Climate Change*, several impacts on the environment are expected throughout California as a result of global climate change. The extent and timing of these effects are being refined as climate modeling tools become more robust. Regardless of the uncertainty in precise predictions, it is widely understood that climate change will occur in the future. Given the project site's location at the bayfront, the climate change issue of note is sea-level rise. Therefore, this analysis considers the extent to which the proposed project would exacerbate (i.e., worsen) any existing and/or projected damage to the environment, including existing structures, sensitive resources, and human health, due to sea-level rise.

Projected sea-level rise, as an effect of climate change, is expected to increase the number of areas that experience coastal flooding along San Diego Bay. Coastal and low-lying areas, such as the project site, are particularly vulnerable to future sea-level rise, especially in combination with future storm events and coastal flooding. When 100-year floodflows coincide with high tides, on top of future sea-level rise, the risk of flooding in the project vicinity increases.

The 2017 Ocean Protection Council (OPC) report entitled *Rising Seas in California* (Griggs et al. 2017), which was used in the OPC's 2018 report *State of California Sea-Level Rise Guidance* and the CCC's sea-level rise policy guidance (CCC 2018), projects sea-level rise in San Diego to be 0.8 to 1.5 feet by 2034, 1.2 to 2.8 feet by 2050, and 3.6 to 10.2 feet by 2100. Sea-level rise by 2034 (i.e., the end of the project lease) reflects the average of sea-level rise projections for 2030 and 2040. The sea-level rise projections provided here extend to 2050 and 2100 to provide a sense of how the project site might be affected should the lease be renewed and extended beyond the current 2034 expiration year. The sea-level rise projections for the project area are shown below in Table 4.8-3 and Table 4.8-4.

The lowest landside elevation would be that of the sheet piling for the quay wall (Project Element 7), which would be 7 feet above present-day MSL. On the landside portion of the proposed project, the sheet pilings would be the lowest of the first lines of defense against sea-level rise and storm surge. If the sheet pilings are breached, water may infiltrate portions of the project site. This infiltration would occur without the proposed project.

The lowest waterside elevation, which is also the most common elevation across the structures, would be approximately 9 feet above present-day MSL. The new Pride of San Diego wharf and associated ramp (Project Element 2) as well as the reconfigured electrical equipment at the Building 13 Wharf (Project Element 14) would all be at this elevation. If water levels reach or exceed an elevation of 9 feet above present-day MSL, these wharfs would be expected to be inundated and compromised, at least temporarily.

Tables 4.8-3 and 4.8-4 show the minimum landside elevation and the minimum waterside elevation compared to sea-level rise and storm surge projections for the 2034, 2050, and 2100 timeframes. Using data contained within these two tables, the following conclusions can be made:

Permanent Inundation

- **2034 through 2050**: As shown in Table 4.8-3 and Table 4.8-4, the lowest landside and waterside structures should remain above the upper end of the permanent sea-level rise projections through mid-century (2050).
- **2100**: By 2100, under the medium-high and high risk-aversion scenarios, permanent inundation may become a concern for both landside and waterside components of the project.

Storm Surge

- **2034**: When accounting for a 100-year storm surge event (temporary inundation), the lowest landside and waterside structures would remain protected until at least 2034, which is the end of the lease period.
- **2050**: The waterside elevations are not projected to experience inundation under any of the sea-level rise and storm surge scenarios during this timeframe. However, the lowest landside portions of the project may become exposed to storm surge under some scenarios.
    - The low risk-aversion projections indicate that storm surge events would not lead to inundation. This scenario is the upper end of the "likely range" and should be used in the design and construction of projects that would experience minimal consequences from inundation and have greater ability to adapt (CCC 2018).

  - The medium-high risk-aversion projections indicate that the storm surge water level would be approximately equal to the proposed elevation of the sheet pile walls. The medium-high risk-aversion scenario is intended for projects that would experience greater consequences from inundation and have limited ability to adapt (CCC 2018). It is the most appropriate risk-aversion scenario for the proposed project.
  - The extreme risk-aversion projections indicate that storm surge could lead to inundation at the lowest landside project areas. The extreme risk-aversion scenario is intended for projects that would experience substantial consequences from inundation and have little to no ability to adapt (CCC 2018).

- **2100**: By 2100, which is well after the end of the current lease (2034), the landside components of the proposed project would be exposed to a 100-year storm surge under all three sea-level rise scenarios. The waterside components of the proposed project would be exposed only under the medium-high and extreme risk-aversion scenarios.

Through the end of the project lease (2034), the site is not projected to experience flooding. Under the medium risk-aversion scenario, through 2050 the landside sheet pile walls would only be overtopped by an inch or two during a 100-year storm surge event. This flooding would occur even if the proposed project were not constructed, and the proposed project would not add new uses or other features that could exacerbate impacts. Consequently, the proposed project would not exacerbate the potential for inundation due to projected sea-level rise or storm surge. Given this finding, mitigation measures are not required.

The impacts of sea-level rise will be revisited during renewal of the existing lease once it expires in 2034, providing time for modifications that would protect against higher rates of sea-level rise, should those projected levels occur. This approach to monitoring sea-level rise and flooding impacts over time before committing to investments in protection strategies is consistent with the adaptive-pathways approach recommended by the CCC in its sea-level rise policy guidance.

Table 4.8-3. Sea-Level Rise Elevations and Projections Relative to a 7-foot Project Element (i.e., lowest landside elevation)

	Present-Day Tidal Datum[1]		Sea-Level Rise Projection[2]			Sheet-Piling Elevation Relative to Projection[3] – Permanent Sea-Level Rise			Sheet-Piling Elevation Relative to Projection[4] – Plus Storm Surge		
Year	Lowest Sheet-Piling Elevation above MSL	Mean Higher High-Water Elevation above MSL	Low Risk Aversion	Medium-High Risk Aversion	Extreme Risk Aversion	Low Risk Aversion	Medium-High Risk Aversion	Extreme Risk Aversion	Low Risk Aversion	Medium-High Risk Aversion	Extreme Risk Aversion
2034	7.1	2.8	0.8	1.1	1.5	3.5	3.2	2.8	1.1	0.8	0.4
2050	7.1	2.8	1.2	2.0	2.8	3.1	2.3	1.5	0.7	**-0.1**	**-0.9**
2100	7.1	2.8	3.6	7.0	10.2	0.7	**-2.7**	**-5.9**	**-1.7**	**-5.1**	**-8.3**

[1] Calculated mean higher high-water elevation above MSL based on the difference between mean higher high-water elevation (5.72 feet) and MSL (2.94 feet). Obtained from https://tidesandcurrents.noaa.gov/datums.html?id=9410170.

[2] Based on projections for San Diego. Obtained from https://documents.coastal.ca.gov/assets/slr/guidance/2018/0_Full_2018Adoptedsea-level riseGuidanceUpdate.pdf.

[3] Based on the difference between bulkhead elevation, mean high-water elevation above MSL, and sea-level rise projections. For example, the lower-end elevation for 2034 is calculated as follows: 7.06 – 2.78 – 0.8 = 3.5 feet.

[4] Based on the difference between permanent sea-level rise above mean higher high-water elevation and 100-year (1 percent return probability) surge events. For example, the lower-end elevation for 2034 is calculated as follows: 3.5 – 2.4 = 1.1 feet. Surge event obtained from http://tidesandcurrents.noaa.gov/est/curves.shtml?stnid=9410170.

MSL = mean sea level

Bold values reflect scenarios where water would overtop the sheet-piling.

Table 4.8-4. Sea-Level Rise Elevation and Projections Relative to a 9-foot Project Element (i.e., lowest waterside elevation)

	Present-Day Tidal Datum[1]		Sea-Level Rise Projection[2]			Sheet-Piling Elevation Relative to Projection[3] – Permanent Sea-Level Rise			Sheet-Piling Elevation Relative to Projection[4] – Plus Storm Surge		
Year	Lowest Sheet-Piling Elevation above MSL	Mean Higher High-Water Elevation above MSL	Low Risk Aversion	Medium-High Risk Aversion	Extreme Risk Aversion	Low Risk Aversion	Medium-High Risk Aversion	Extreme Risk Aversion	Low Risk Aversion	Medium-High Risk Aversion	Extreme Risk Aversion
2034	9.1	2.8	0.8	1.1	1.5	5.5	5.2	4.8	3.1	2.8	2.4
2050	9.1	2.8	1.2	2.0	2.8	5.1	4.3	3.5	2.7	1.9	1.1
2100	9.1	2.8	3.6	7.0	10.2	2.7	**-0.7**	**-3.9**	0.3	**-3.1**	**-6.3**

[1] Calculated mean higher high-water elevation above MSL based on the difference between mean higher high-water elevation (5.72 feet) and MSL (2.94 feet). Obtained from https://tidesandcurrents.noaa.gov/datums.html?id=9410170.

[2] Based on projections for San Diego. Obtained from https://documents.coastal.ca.gov/assets/slr/guidance/2018/0_Full_2018Adoptedsea-level riseGuidanceUpdate.pdf.

[3] Based on the difference between bulkhead elevation, mean high-water elevation above MSL, and sea-level rise projections. For example, the lower-end elevation for 2034 is calculated as follows: 9.06 – 2.78 – 0.8 = 5.5 feet.

[4] Based on the difference between permanent sea-level rise above mean higher high-water elevation and 100-year (1 percent return probability) surge events. For example, the lower-end elevation for 2034 is calculated as follows: 5.5 – 2.4 = 3.1 feet. Surge event obtained from http://tidesandcurrents.noaa.gov/est/curves.shtml?stnid=9410170.

MSL = mean sea level

Bold values reflect scenarios where water would overtop the sheet-piling.

Level of Significance Prior to Mitigation

Implementation of the proposed project would not exacerbate any existing and/or projected damage to the environment, including existing structures, sensitive resources, and human health, due to projected climate change effects, particularly sea-level rise.

Mitigation Measures

No mitigation is required. However, as discussed above, additional sea-level rise measures may be assessed at the lease renewal (2034).

Level of Significance after Mitigation

Impacts would be less than significant.

Threshold 2: Implementation of the proposed project would not be inconsistent with the applicable sea-level rise policies of the CCC or other land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect from sea-level rise.

Impact Discussion

An analysis of the proposed project's consistency with the CCA is provided in Section 4.6, while an analysis of the proposed project's consistency with the CCC's sea-level rise policy guidance is provided in Table 4.8-5, below. As shown, the proposed project would be consistent with all applicable sea-level rise policies. Therefore, the proposed project would not be inconsistent with the applicable sea-level rise policies of the CCC or other land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect from sea-level rise. Impacts would be less than significant.

Table 4.8-5. Project Consistency with Goals, Objectives, and Policies Related to Sea-Level Rise

Goal, Policy, Objective	Proposed Project Consistency
California Coastal Commission Sea-Level Rise Policy Guidance	
Establish the sea-level rise range for the proposed project.	**Consistent.** The year for the end of the lease, 2034, was established for the range of sea-level rise. It reflects the average of the sea-level rise projections for 2030 and 2040 provided in the CCC's guidance. Projections for 2050 and 2100 were also used to provide a view of coastal flood exposure should the lease be extended. Low and high sea-level rise projections for 2034, 2050, and 2100 were derived from CCC projections and used for this analysis. In addition, a comparison of landside elevation and the minimum waterside elevation to sea-level rise and storm surge projections for the 2034, 2050, and 2100 timeframes was analyzed.
Determine how sea-level rise impacts may constrain the project site.	**Consistent.** Geologic stability and erosion are not relevant because the project site is already protected by structural elements (e.g., riprap, bulkheads). Flooding and inundation were assessed by comparing the lowest landside and waterside elevations, which would be the sheet piling for the quay wall (Project Element 7) and the new Pride of San Diego wharf and associated ramp (Project

Goal, Policy, Objective	Proposed Project Consistency
	Element 2), respectively, to sea-level rise projections. Storm surge was assessed by comparing the lowest landside and waterside elevations to a 100-year storm surge elevation on top of the sea-level rise projections. Wave run-up was not assessed because the project site is protected by San Diego Bay, and there is insufficient fetch for the development of wind-driven waves.
Determine how the project may affect coastal resources over time, considering sea-level rise.	**Not applicable.** The project would not affect coastal resources over time. Furthermore, the project site would not be affected by mean sea-level rise during the useful design life of the various project elements. Therefore, coastal resources would not be affected by regular inundation during the analysis period. The site may be affected by storm surge during the years of its useful life; however, inundation during storm surges would occur with or without the proposed project. Consequently, the proposed project would not exacerbate the potential for inundation during storm surges.
Identify project alternatives to both avoid resource impacts and minimize risks to the project.	**Consistent.** Implementation of the project would not exacerbate existing and/or projected damage to the environment, including damage to existing structures and sensitive resources, due to projected sea-level rise. Mitigation is not required.
Finalize project design and submit permit application.	**Consistent.** To be completed after the CEQA process is complete, as is standard.

Level of Significance Prior to Mitigation

Implementation of the proposed project would be consistent with the applicable sea-level rise policies of the CCC or other land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect from sea-level rise. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance after Mitigation

Impacts would be less than significant

Section 4.9
Transportation, Circulation, and Parking

4.9.1 Overview

This section describes the existing conditions and applicable laws and regulations for transportation, circulation, and parking, followed by an analysis of the proposed project's potential to (1) conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities; (2) conflict or be inconsistent with State CEQA Guidelines Section 15064.3, subdivision (b); and (3) result in an inadequate parking supply. All other potential transportation, circulation, and parking issues were analyzed in Section XVI of the Initial Study/Environmental Checklist (see Appendix A) and determined to have no impact or less-than-significant impacts. The analysis and conclusions regarding these issues are summarized in Chapter 6, Section 6.4, *Effects Not Found to Be Significant*.

The information provided in this section is summarized from the *BAE Systems Waterfront Improvements Transportation Impact Study (TIS), Vehicle Miles Traveled – SB 743 Analysis,* dated May 2020 (Appendix G). Based on the analysis that follows, all impacts related to transportation, circulation, and parking would be less than significant. No mitigation is required.

4.9.2 Existing Conditions

4.9.2.1 Existing Roadway Corridors

Traffic associated with the proposed project would use the roadways and intersections surrounding the project site. These roadways and intersections are within the jurisdiction of the City of San Diego. There are two primary roadway corridors that provide access to the project site, each of which is described below. The descriptions provide a general understanding of the local roadway corridors and identify the existing setting for transportation.

Harbor Drive

Harbor Drive travels through downtown San Diego along its western and southern boundaries. Although Harbor Drive travels in a north/south orientation in some locations within downtown San Diego, near the project site it converts to a northwest/southeast orientation and links the project site to the Beardsley Street and 28th Street north/south corridors for freeway access.

Harbor Drive is a two-way road that is primarily four lanes wide with a raised median. Posted speed limits between Cesar Chavez Parkway and 32nd Street are 40 miles per hour (mph). Widths along Harbor Drive range from 85 to 110 feet. Parking is not allowed on either side of Harbor Drive between Beardsley Street and Sampson Street; however, parking is allowed on both sides southeast of Sampson Street. Pedestrian facilities and a Class II bicycle lane are present on each side of the roadway. Two transit stations, the Barrio Logan Trolley Station and the Harborside Trolley Station, serve the San Diego Trolley's Blue Line along Harbor Drive. In addition, Metropolitan Transit System

(MTS) Bus Route 929 provides bus service along this roadway and has one stop within the traffic study area at the intersection of Main Street and Sampson Street.

28th Street

Within the project study area, 28th Street is configured as:

- A four-lane raised median roadway between Harbor Drive and Main Street;
- A four-lane roadway with a continuous two-way, left-turn lane between Main Street and Boston Avenue; and
- A three-lane roadway (two northbound and one southbound) with a continuous two-way, left-turn lane between Boston Avenue and National Avenue.

Roadway width ranges from 64 to 76 feet, with a posted speed limit of 30 mph. Parking is allowed on both sides of the roadway between Harbor Drive and Main Street, but is prohibited between Main Street and National Avenue. Sidewalks are present on both sides of the roadway, but bicycle facilities are not. In addition, MTS Bus Route 12 provides bus service along this roadway and has one stop within the traffic study area at the intersection of 28th Street and National Avenue.

4.9.2.2 Vehicle Miles Traveled

Pursuant to Senate Bill (SB) 743, Public Resources Code (PRC) Section 21099, and State CEQA Guidelines Section 15064.3, automobile delay (as typically measured by level of service [LOS]) no longer constitutes a significant impact under CEQA. Therefore, vehicle miles traveled (VMT) is used to determine whether a project would result in significant transportation impact.

VMT is a metric for determining the amount and distance of automobile travel attributable to a project (State CEQA Guidelines Section 15064.3), and is intended to discourage suburban sprawl, reduce greenhouse gas emissions, and encourage the development of smart growth, complete streets, and multimodal transportation networks (ITE 2019). The Base Year Regional Average VMT for the San Diego region is a baseline calculation to represent existing conditions.[1] The Base Year Regional Average VMT/Employee is the measurement of vehicle-based person trips grouped and summed to the work location of individuals on the trip (a detailed description of this VMT metric is included in Section 4.9.4.2, *Thresholds of Significance*). The Base Year Regional Average VMT/Employee is 25.9 miles for the San Diego region (Appendix G).

4.9.2.3 Public Transportation Services

Regional public transportation serving the downtown San Diego area and surrounding communities includes the COASTER commuter train, the San Diego Trolley, and local bus lines. Planned public transportation services are based on the San Diego Association of Governments' (SANDAG's) adopted *San Diego Forward: The Regional Plan* (Regional Plan), which identifies planned transit improvements that enhance access in the San Diego downtown area and surrounding communities through the year 2050.

[1] The Base Year Regional Average for the San Diego Region is calculated using SANDAG's Series 13 Model, which relies on 2013 data.

COASTER Commuter Train

The North County Transit District (NCTD) owns and operates the COASTER commuter train, which first began service on February 27, 1995. The COASTER travels over a 41-mile route with eight stations along the San Diego coastline, extending between Oceanside and downtown San Diego. The COASTER operates more than 100 trains each week, carrying about 4,970 passengers each weekday, totaling 1.5 million trips annually (NCTD 2018). The closest COASTER station to the project site is at the Santa Fe Depot, approximately 2.4 miles walking distance to the north. COASTER riders (i.e., work commuters) can either transfer to the Blue Line Trolley at this location or walk/bike to the project site. Per SANDAG's Regional Plan, the COASTER commuter rail service is anticipated to be extended from its current terminus at Santa Fe Depot to a new bayside station by 2035, providing direct access to the San Diego Convention Center.

San Diego Trolley

The San Diego Trolley is a light rail passenger service operated by San Diego Trolley, Inc., which is owned by MTS. The San Diego Trolley system consists of four lines, including the University of California (UC) San Diego Blue, Orange, Sycuan Green, and SDG&E Silver Lines, with a total of 53 stations and 54.3 miles of rail (MTS 2016). The Blue Line currently runs at 7- to 8-minute headways during peak periods and 15-minute headways in off-peak periods. The Blue Line stops at the Barrio Logan and Harborside Stations, which are approximately 0.4-mile and 0.8-mile walking distance to the project site, respectively.

Local Bus Services

The following MTS bus routes also serve the project site.

- Route 12 stops at National Avenue and 26th Street, approximately 0.5-mile walking distance from the project site.
- Route 929 stops at Main Street and 26th Street, approximately 0.5-mile walking distance from the project site.

4.9.2.4 Pedestrian and Bicycle Facilities

Existing pedestrian facilities in the project area include sidewalks and crosswalks along Belt Street and Sampson Street. While pedestrians may utilize pedestrian facilities (e.g., sidewalks and crosswalks) that are part of the surrounding street system, access onto the project site is restricted to authorized personnel.

The Bayshore Bikeway path is a 24-mile bicycle facility that runs along the San Diego Bay. Bicycle facilities in the project study area consist of Class II Bicycle Lanes in each direction along Harbor Drive as a part of the Bayshore Bikeway facility. These bicycle lanes are designated and signed.

4.9.2.5 Parking Conditions

BAE Systems currently has an available parking capacity of approximately 1,586 spaces with an option of 200 additional parking spaces for employees, customers, and visitors (BAE Systems 2019). These parking spaces are available within existing parking lots or parking garages on and near to

the project site. Table 4.9-1 identifies the existing available parking capacity within each of the parking lots used by BAE Systems.

Table 4.9-1. Available Parking Capacity

Property Description	Parking Spaces	Occupant	Designation	Distance to Gate
Belt Street – Lot 1	107	Navy/SWRMC	Reserved	65 feet
Belt Street – Lot E	111	BAE Systems	BAE Systems Only	200 feet
Belt Street – Lot C	23	BAE Systems/ Visitors	Visitor/ADA	140 feet
Main Street – Lot 11	790	BAE Systems/Navy	Not Reserved	860 feet
Lot A (Executive Lot, North Side of Shipyard)	84	BAE Systems	BAE Systems Only	0 feet
In-Yard Lot (Adjacent to Lot A)	47	BAE Systems	BAE Systems Only	0 feet
Main Street – Lot 12	54	BAE Systems	BAE Systems Only	1,780 feet
Motorcycle Lot	30	BAE Systems	First Come, First Served	95 feet
Hilton Hotel/ Ace Parking Structure	300–500	BAE Systems	BAE Systems Only	1.4 miles[1]
Total	**1,586 – 1,786**			

Source: BAE Systems 2019

[1] A shuttle is provided to and from this parking facility.

ADA = Americans with Disabilities Act; SWRMC = Southwest Regional Maintenance Center.

4.9.3 Applicable Laws and Regulations

4.9.3.1 State

Senate Bill 743

Governor Jerry Brown signed SB 743 on September 27, 2013, which mandated a change in the way that public agencies evaluate transportation impacts of projects under CEQA, focusing on VMT rather than LOS and other delay-based metrics. SB 743 states that new methodologies under CEQA are needed for evaluating transportation impacts that are better able to promote the state's goals of reducing greenhouse gas emissions and traffic-related air pollution, promoting the development of a multimodal transportation system, and providing clean, efficient access to destinations. SB 743 indicates that measurements of transportation impacts may include VMT, VMT per capita, automobile trip generation rates, or automobile trips generated. Accordingly, SB 743 required the Governor's Office of Planning and Research (OPR) to amend the State CEQA Guidelines to reflect these changes.

State CEQA Guidelines Section 15064.3

Section 15064.3 of the State CEQA Guidelines was added as part of a comprehensive update to the guidelines that were adopted by the California Resources Agency in December 2018. Section 15064.3 describes specific considerations for evaluating a project's transportation impacts and identifies vehicle miles traveled as the most appropriate metric for determining impacts. Except for roadway capacity projects, Section 15064.3 stipulates that a project's effect on automobile delay does not constitute a significant environmental impact under CEQA. The specific criteria for analyzing transportation impacts are provided in Section 15064.3, subdivision (b) of the State CEQA Guidelines.

Technical Advisory on Evaluating Transportation Impacts in CEQA

In response to SB 743 and the addition of Section 15064.3 to the State CEQA Guidelines, the OPR adopted the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR Technical Advisory) in December 2018 to provide technical recommendations on methods for assessing VMT, thresholds of significance, and mitigation measures (OPR 2018). The recommendations in the OPR Technical Advisory are intended to provide guidance to agencies and the public for assessing VMT-related transportation impacts under CEQA. Details of the recommended thresholds of significance from the OPR Technical Advisory are provided in Section 4.9.4.2, below.

4.9.3.2 Regional

San Diego Association of Government's *San Diego Forward: The Regional Plan*

The Regional Plan was adopted by the SANDAG Board of Directors on October 9, 2015, to establish a long-range blueprint for the San Diego region's growth and development through the year 2050. The Regional Plan was developed in close partnership with the region's 18 cities and the County government, and aims to provide innovative mobility choices and planning to support a sustainable and healthy region, a vibrant economy, and an outstanding quality of life for all. The Regional Plan integrates the 2004 Regional Comprehensive Plan and the 2050 Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS) into one unified plan. By incorporating the SCS, the Regional Plan is in compliance with SB 375, which identifies how the region will address greenhouse gas emissions to meet State-mandated levels and focuses on land use planning and transportation issues in an attempt to develop sustainable growth patterns on a regional level.

California State Proposition 111, passed by voters in 1990, established a requirement that urbanized areas prepare and regularly update a Congestion Management Program (CMP). The requirements within the state CMP were developed to monitor the performance of the transportation system, develop programs to address near-term and long-term congestion, and better integrate transportation and land use planning. SANDAG provided regular updates for the state CMP from 1991 through 2008. In October 2009, the San Diego region elected to be exempt from the state CMP, and, since this decision, SANDAG has been abiding by 23 Code of Federal Regulations (CFR) 450.320 to ensure the region's continued compliance with the federal congestion management process. The Regional Plan is the region's long-range transportation plan and SCS, and meets the requirements of 23 CFR 450.320 by incorporating the following federal congestion management process: performance monitoring and measurement of the regional transportation system, multimodal alternatives and non-single occupant vehicle analysis, land use impact analysis, the provision of

congestion management tools, and integration with the regional transportation improvement program process.

Riding to 2050, the San Diego Regional Bike Plan

The San Diego Regional Bike Plan (SANDAG 2010) was developed to support the 2004 Regional Comprehensive Plan and the 2050 RTP in implementing the regional strategy for utilizing the bicycle as a valid form of everyday travel. The bike plan, as a part of the SCS mandated by SB 375, provides for a detailed Regional Bike Network, as well as the programs that are necessary to support it. Implementation of the Regional Bike Plan would help the region meet goals for reducing greenhouse gas emissions and improve mobility.

4.9.3.3 Local

The project site is within the land use jurisdiction and control of the District. However, because the streets and intersections serving the project site are within the City's jurisdiction, the following local laws, regulations, and plans were taken into account in the analysis of the proposed project's impacts on transportation and circulation.

City of San Diego Bicycle Master Plan

The City of San Diego Bicycle Master Plan Update (2013) provides a framework for making cycling a more practical and convenient transportation option for San Diegans with different riding purposes and at different skill levels. The Bicycle Master Plan is a 20-year policy document that guides the development and maintenance of San Diego's bicycle network. The bicycle network includes all roadways that bicyclists have the legal right to use, support facilities, and non-infrastructure programs. The plan includes direction for policymakers on the expansion of the existing bikeway network, connecting gaps, addressing constrained areas, improving intersections, providing for greater local and regional connectivity, and encouraging more residents to bicycle more often. The 2013 update builds on the 2002 version by updating bicycling needs by addressing changes to the bicycle network and overall infrastructure.

City of San Diego Pedestrian Master Plan

The Pedestrian Master Plan (City of San Diego 2006) provides guidelines to the City that will enhance neighborhood quality and mobility options through the facilitation of pedestrian improvement projects. The Pedestrian Master Plan both identifies and prioritizes pedestrian improvement projects through technical analysis and community input programs, which are typically grant-funded.

4.9.4 Project Impact Analysis

4.9.4.1 Methodology

Section 15064.3 of the State CEQA Guidelines describes specific considerations for evaluating a project's transportation impacts on transportation and identifies VMT as the most appropriate metric for determining the significance of impacts. Except for roadway capacity projects, Section

15064.3 stipulates that a project's effect on automobile delay does not constitute a significant environmental impact under CEQA. As such, to comply with SB 743, the transportation analysis only uses VMT to determine the significance of transportation and circulation impacts.

Potential transportation and circulation impacts associated with the proposed project are summarized below from Appendix G of this EIR. Methods used to determine impacts are informed by the OPR Technical Advisory. For more details on the methods used, please see Appendix G, Chapter 2, *Analysis Methodology*.

Construction

The proposed project is a maintenance, repair, and replacement project for waterfront infrastructure associated with mooring and operational facilities at BAE Systems' San Diego Ship Repair Yard. Construction of the various project elements is anticipated to begin in 2021, with Project Element 3 (Fender Systems Repair and Replacement) and Project Element 4 (Pier 3 South Nearshore Dredging), and last through 2025. State CEQA Guidelines Section 15064.3(b)(3) notes that a lead agency may analyze a project's VMT qualitatively if existing models or methods are not available to estimate the VMT for the particular project being considered. State CEQA Guidelines Section 15064.3(b)(3) further notes that a qualitative construction analysis is appropriate for many projects.

It is anticipated that construction workers would primarily be drawn from existing residents of the City of San Diego and surrounding area. As such, construction worker VMT associated with the proposed project would not be newly generated, but rather would be redistributed throughout the transportation network based on their travel to different work sites each day. Accordingly, construction worker VMT is merely a redistribution of VMT that would otherwise be generated at other construction sites throughout the region. Additionally, per OPR's Technical Advisory, SB 743's intent is to plan for "long term climate goals," so projects with temporary effects on VMT and the transportation system are not deemed to be significant.

Operation

Transportation Network VMT Metrics

Project-related VMT refers to the number of automobile trips and their associated travel distance that would be attributable to a project. For land use development projects that have trip-generating characteristics, like an employment trip, the OPR Technical Advisory recommends using VMT/Employee to determine if a project has a significant transportation-related impact.

VMT/Employee includes all vehicle-based person trips grouped and summed to the work location of individuals on the trip. This includes all trips, not just work-related trips. The VMT for each work location is then summed for all work locations in a particular census tract and then divided by the total number of employees of that census tract to arrive at the VMT/Employee. Detailed descriptions of the VMT methodology is provided in Appendix G of this EIR.

VMT Analysis Tool

The VMT analysis was completed using the SANDAG Series 13 Activity Based Model (ABM). The ABM is a travel demand forecasting model that incorporates census data and travel surveys to

inform the algorithms of the model's projections. The ABM uses a simulated population based on existing and projected demographics to match residents to employment and forecasts the daily travel on the regional transportation network. In addition, the model is able to track the daily travel of individuals in the simulated population, including origins, destinations, travel distances, and mode choices. The Series 13 ABM has four forecast scenarios: 2012, 2020, 2035, and 2050.

The SANDAG Series 13 ABM was calibrated and customized by the District, the San Diego International Airport (SDIA), and the City of San Diego to incorporate the land use and transportation network changes proposed within the area, based on a series of recently adopted or on-going planning efforts. These efforts include the proposed Port Master Plan Update, SDIA Master Plan, Midway-Pacific Highway Community Plan Update, Mission Valley Community Plan Update, Barrio Logan Community Plan Update, and the Downtown Mobility Plan. This was a comprehensive effort by all jurisdictions to provide consistency between the ongoing planning efforts within the area by providing a single transportation forecast model to build from.

To calculate both the VMT/Employee and the total VMT generated, the land use changes were coded into their respective Transportation Analysis Zones (TAZs), and transportation network changes were also coded throughout the Tidelands. Select Zone Assignments were then conducted for the TAZs to track origin and destination pairings, as well as the route choices for vehicular trips coming to and from the District's land uses. The total VMT generated within the planning district in which the proposed project is located was calculated by summing the total number of trips (all trip types) generated between the District land uses then multiplying by the route distances between them. VMT/Employee was calculated by summing the total VMT generated by employees and then dividing by the total number of jobs.

Model output results are presented in Appendix G of this EIR (Appendix A of the TIS). For additional details related to the methods used, please see Appendix G, Chapter 2.

4.9.4.2 Thresholds of Significance

The following significance criteria are based on Appendix G of the State CEQA Guidelines and provide the basis for determining the significance of impacts on existing transportation, circulation, and parking conditions associated with the proposed project. The determination of whether a transportation, circulation, and parking impact would be significant is based on the professional judgment of the District as Lead Agency supported by the recommendations of qualified personnel at Chen Ryan Associates and ICF, all of which is based on the evidence in the administrative record.

Impacts are considered significant if the proposed project would result in any of the following.

1. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.
2. Conflict or be inconsistent with State CEQA Guidelines Section 15064.3, subdivision (b).
3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
4. Result in inadequate emergency access.
5. Result in an inadequate parking supply.

As discussed in the Initial Study/Environmental Checklist, Section XVI (Appendix A), Thresholds 3 and 4 are not included in the analysis below, as it was determined that the proposed project would result in no impact or less-than-significant impacts related to increasing hazards due to geometric design features and inadequate emergency access. Those conclusions and the rationale that supports them are summarized in Chapter 6, *Additional Consequences of Project Implementation*. Therefore, only Thresholds 1, 2, and 5 are discussed in the impact analysis that follows.

Supplemental Thresholds

Transportation

Section 15064.3 of the State CEQA Guidelines describes specific considerations for evaluating a project's transportation impacts and identifies VMT as the most appropriate metric for determining impact significance.

Section 15064.3(4) of the State CEQA Guidelines states:

> A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled, and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section.

As previously mentioned, for land use development projects that have trip-generating characteristics like an employment trip, the OPR Technical Advisory recommends using VMT/Employee to determine if a project has a significant transportation related impact. The OPR Technical Advisory suggests that a project that generates a VMT/Employee greater than 85 percent of the regional VMT may indicate a significant transportation impact. Table 4.9-2 identifies the VMT significance thresholds used in this analysis.

Table 4.9-2. VMT Supplemental Thresholds

Metric	Commercial Uses VMT/Employee (miles/person)
Base Year (2012) Regional Average	25.9
Base Year (2012) Significance Threshold[1]	17.2
2050 Regional Average	21.2
2050 Significance Threshold[1]	18.0

Source: SANDAG Regional Transportation Model, July 2019.

[1]San Diego Regional Average × 85%.

Pedestrian, Bicycle, and Transit

Potential impacts on pedestrian, bicycle, and transit circulation would be considered significant if the proposed project would conflict with a program, plan, ordinance, or policy addressing these facilities, as outlined in Appendix G of the State CEQA Guidelines.

Parking Supply

A significant impact would occur if the proposed project would result in an insufficient parking supply during construction or operation.

4.9.4.3 Project Impacts and Mitigation Measures

Threshold 1: Implementation of the proposed project <u>would not</u> conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Impact Discussion

An impact on the circulation system, including transit, roadway, bicycle, and pedestrian facilities would occur if the proposed project would conflict with a program, plan, ordinance, or policy addressing these facilities. The project site is an operating ship repair yard with restricted access. There are no pedestrian, bicycle, or transit facilities within the project site; however, the Bayshore Bikeway traverses E. Harbor Drive approximately 0.10 mile from the project site. Additionally, existing light rail transit stops in the project vicinity include the Barrio Logan and Harborside stations. The proposed improvements would occur entirely within the boundaries of the existing ship repair yard. As such, no changes are proposed to the existing roadway, pedestrian, bicycle, and transit facilities outside of the project site that could result in impacts on the existing circulation system. Therefore, the proposed project would not conflict with the Regional Plan, the San Diego Regional Bike Plan, or the City's Pedestrian Master Plan and Bicycle Master Plan.

Level of Significance Prior to Mitigation

The proposed project would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Impacts would be less than significant.

Threshold 2: Implementation of the proposed project would not conflict or be inconsistent with State CEQA Guidelines Section 15064.3, subdivision (b).

Impact Discussion

Construction

Construction activities for the proposed project would primarily include pavement removal, demolition, grading and excavation, filling and compaction, and construction of buildings, as well as in-water construction work such as dredging and pile driving. It is anticipated that construction workers would primarily be drawn from existing residents of the City of San Diego and surrounding area. As such, construction worker VMT associated with the proposed project would not be newly generated, but rather would be redistributed throughout the transportation network based on their travel to different work sites each day. Accordingly, construction worker VMT is merely a redistribution of VMT that would otherwise be generated at other construction sites throughout the San Diego region. This redistribution is considered to be nominal and temporary.

Additionally, the goals of SB 743, as stated in the legislative text, include reducing greenhouse gas emissions and traffic-related air pollution, promoting the development of multimodal transportation systems, and providing clean, efficient access to destinations. The legislative text of SB 743 further states that it is the intent of the Legislature to balance the need for LOS standards for traffic with the need to build infill housing and mixed-use commercial developments within walking distance of mass transit facilities, downtowns, and town centers. Therefore, based on the legislative intent of SB 743, which focuses on long-term VMT reductions through smart growth and planning, the temporary generation of VMT from construction traffic is not expected to substantially increase VMT in the region such that it could contribute to long-term adverse environmental effects from increases in greenhouse gas and criteria pollutant emissions or hinder the promotion of multimodal transportation systems or implementation of clean, efficient access to destinations. Also, projects with temporary effects on VMT and the transportation system are not deemed to be significant. Therefore, the proposed project's construction-related VMT impacts would be less than significant.

Operation

To determine potential transportation-related impacts, the proposed project's VMT/Employee was first compared against the Base Year Regional Average threshold. Next, a Horizon Year 2050 analysis was conducted to identify any cumulative impacts that may occur with the full implementation of the forthcoming Port Master Plan Update, which is a reasonably foreseeable condition. It should be noted that the proposed project land uses are consistent with those contained in both the current Port Master Plan as well as the forthcoming Port Master Plan Update.

Table 4.9-3 compares the proposed project's VMT and the Base Year Regional Average, while Table 4.9-4 compares the proposed project's VMT and 2050 Regional Average. Consistent with the OPR Technical Advisory, the significance threshold for the proposed project's VMT/Employee is 15 percent VMT below the San Diego Regional Average VMT/Employee.

Table 4.9-3. Comparison of Proposed Project VMT to Base Year Regional Average

Metric	VMT/Employee (miles/person)
Base Year Regional Average	25.9
Base Year Significance Threshold[1]	22.0
Proposed Project	17.2
Proposed Project vs. Base Year Significance Threshold	-4.8
Significant Impact?	**No**

Source: Appendix G.

[1] San Diego Regional Average × 85% (i.e., 15% below regional average target for employment-based VMT).

As shown in Table 4.9-3, operation of the proposed project is anticipated to generate a VMT/Employee of 17.2 miles, which is 4.8 miles below the Base Year Regional Average significance threshold of 22.0 miles (i.e., 15 percent below the Base Year Regional Average). Therefore, operation of the proposed project would result in less-than-significant VMT impacts under Base Year conditions.

Table 4.9-4. Comparison of Proposed Project VMT to 2050 Regional Average

Metric	VMT/Employee (miles/person)
2050 Regional Average	21.2
2050 Significance Threshold[1]	18.0
Proposed Project	17.2
Proposed Project vs. 2050 Significance Threshold	-0.8
Significant Impact?	**No**

Source: Appendix G.

[1] San Diego Regional Average x 85% (i.e., 15% below regional average target for employment-based VMT).

Additionally, as shown in Table 4.9-4, the proposed project's operational VMT/Employee is 0.8 mile below the 2050 Regional Average significance threshold of 18.0 miles (i.e., 15 percent below the 2050 Regional Average). Therefore, operation of the proposed project would result in less-than-significant VMT impacts under 2050 conditions. Finally, although the proposed project's lease expires in 2034, the 2050 Regional Average is more conservative as it presents a lower VMT/Employee due to the planned transit and telecommuting features in the future. It is anticipated that the VMT/Employee threshold for year 2034 conditions would fall between the 2050 Regional Average threshold (18.0 VMT/Employee) and the Base Year Regional Average threshold (22.0 VMT/Employee). Therefore, as the proposed project's VMT/Employee is lower than both the 2050 and Base Year Regional Average thresholds, it can be assumed that it will be below the year 2034 threshold as well, resulting in a less-than-significant VMT impact under year 2034 conditions. Therefore, operation of the proposed project would result in a less-than-significant VMT impact.

Level of Significance Prior to Mitigation

The proposed project would not conflict or be inconsistent with State CEQA Guidelines Section 15064.3, subdivision (b). Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Impacts would be less than significant.

Threshold 5: Implementation of the proposed project would not result in inadequate parking supply.

Impact Discussion

Construction

BAE Systems currently has an available parking capacity of approximately 1,586 spaces, with an option of 200 additional parking spaces for employees, customers, and visitors. These parking spaces are available within existing parking lots or parking garages on and near the project site. At the peak of project construction, approximately 25 daily construction workers would access and park at the project site. Construction equipment laydown and parking would be provided onsite adjacent to the construction zones for each project element. The areas that would be designated for construction parking are shown on Figure 4.9-1. As shown, there are five locations, represented by orange boxes, that would be set aside for construction personnel parking. Due to the minimal number of daily construction workers during the peak of project construction, it is anticipated that construction parking could be accommodated at the designated parking areas onsite. However, there is a potential that some project elements may require the use of designated onsite parking areas for construction material and equipment laydown, which would remove these areas for construction worker parking. In these instances, construction workers may be required to park within the existing parking lots maintained by BAE Systems. In addition, construction personnel for project elements that involve in-water construction work may be required to park offsite and access floating equipment by crew boat.

As detailed in Chapter 3, *Project Description,* in the event of excess parking demand, BAE Systems has an existing agreement with the nearby Hilton San Diego Bayfront for additional overflow parking and a shuttle service to transport workers to the project site. As further described in Chapter 3, all construction workers who cannot be accommodated onsite and/or would need to park offsite would be required to park at the Hilton San Diego Bayfront, and all construction personnel would receive parking passes for the duration of the construction period for that project element(s). Once parked at the Hilton San Diego Bayfront, construction personnel would be required to use vanpools to and from the project site. Because this agreement is already in place and effective, the proposed project would not result in any construction-related impacts on parking supply. As such, construction of the proposed project would not result in an inadequate parking supply. Therefore, impacts would be less than significant, and no mitigation is required.

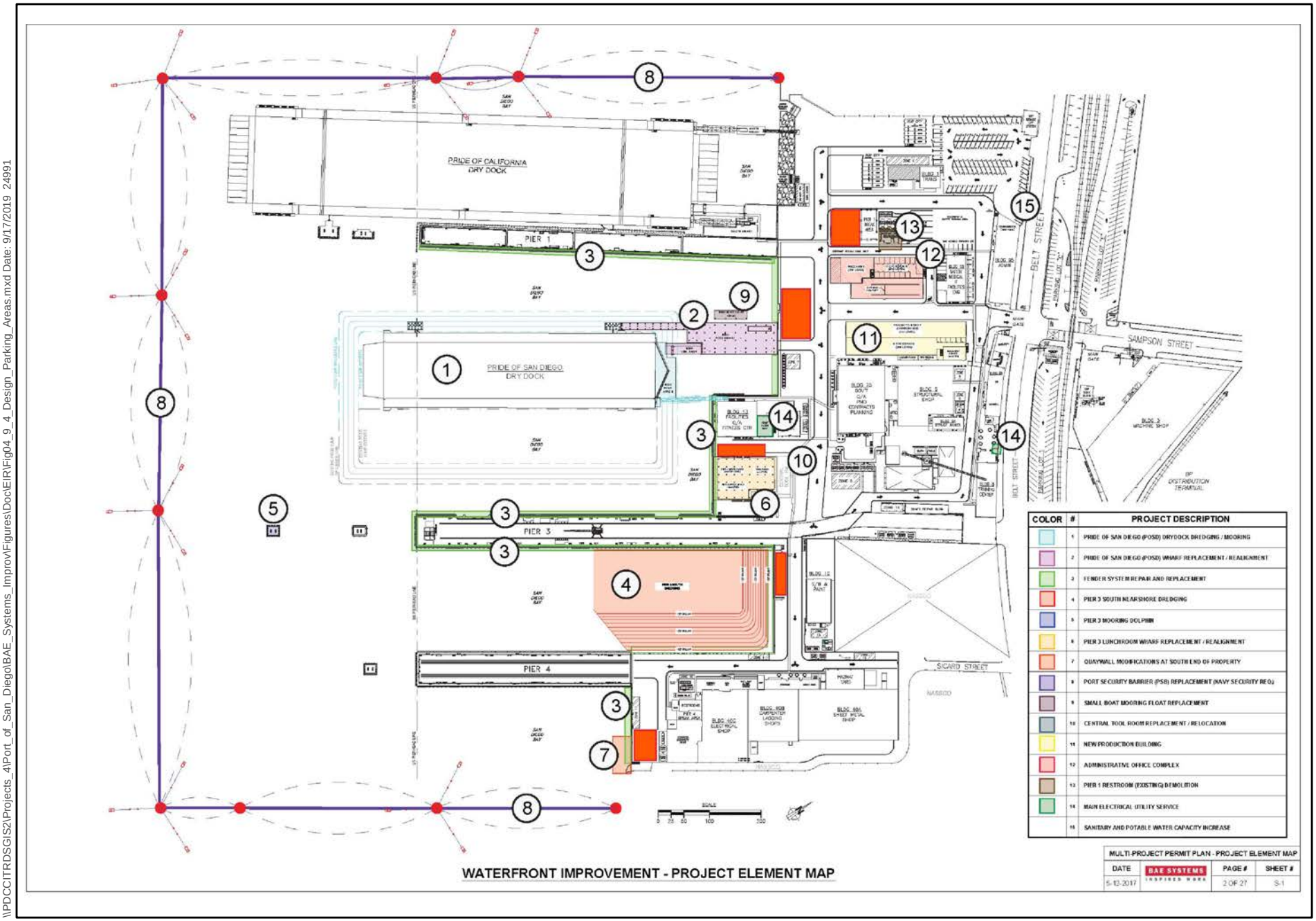

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Figure 4.9-1
Designated Construction Parking Areas
BAE Systems Waterfront Improvement Project

Operation

As explained in Chapter 3 and shown in Table 3-5, the number of individuals reporting to the BAE Systems ship repair yard across three 8-hour shifts depends on the mixture of vessel types and typically ranges from 1,572 to 2,216 individuals. These individuals consist of a mix of BAE personnel, Navy personnel, and customers. During project operations, none of the proposed project elements would increase the number of permanent employees on site. Project Elements 1 (Pride of San Diego Drydock Dredging and Moorage), 4 (Pier 3 Nearshore Dredging), and 5 (Pier 3 Mooring Dolphin) would allow BAE Systems to improve operational efficiency and servicing of newer and different classes of vessels. With the addition of a supplemental mooring dolphin and nearshore dredging at Pier 3, the ship repair yard would be able to moor larger naval and commercial vessels at the Pier 3 South berth.

Based on the changes to the mooring capacity at Pier 3, the total number of crew and laborers onsite could change depending on the specific ship mix at the site. For example, commercial vessels do not generally carry a large crew, while large naval vessels occasionally do. The specific ship mix that the facility could support is dependent upon the size of the vessel moored and its effects on adjacent berths. When a larger navy ship is moored at Pier 3 South, the potential berthing capacity of the site would be reduced by two vessels, resulting in a corresponding reduction in crew and labor compared to existing conditions. As such, because the proposed project would not add any new permanent employees and, at times, would reduce the overall number of crew and laborers at the ship repair yard compared to existing conditions, project operations would not result in an inadequate parking supply. Therefore, impacts would be less than significant, and no mitigation is required.

Level of Significance Prior to Mitigation

Implementation of the proposed project would not result in inadequate parking supply. Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Impacts would be less than significant.

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Chapter 5
Cumulative Impacts

5.1 Overview

According to Section 15130 of the State CEQA Guidelines, an EIR must discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable. As defined in Section 15355, a cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. *Cumulatively considerable* means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

This chapter considers the cumulative effects of past, present, and reasonably foreseeable future projects and the proposed project's contribution to these effects. Past projects are defined as those that were recently completed (typically in the last 5 years) and are now operational. Present projects are defined as those that are under construction but not yet operational. Reasonably foreseeable future projects are defined as those for which a development application has been submitted or credible information is available to suggest that project development is a probable outcome at the time the Notice of Preparation (NOP) was issued (March 7, 2019).

With the incorporation of mitigation measures, the proposed project would result in less than cumulatively considerable contributions to impacts from past, present, and reasonably foreseeable future projects for the following resource:

- Greenhouse Gas Emissions and Energy
- Hazards and Hazardous Materials
- Hydrology and Water Quality

The proposed project's contribution to all other cumulative impacts would not be cumulatively considerable.

Table 5-1 summarizes the significant cumulative impacts and mitigation measures discussed in Section 5.3, *Cumulative Impact Analysis*, below.

Table 5-1. Summary of Significant Cumulative Impacts and Mitigation Measures

Summary of Potentially Significant Impact(s)	Summary of Mitigation Measure(s)	Level of Significance After Mitigation	Rationale for Finding After Mitigation
Greenhouse Gas Emissions and Energy			
Impact-C-GHG-1: Inconsistency with District Climate Action Plan and Partial Consistency with Applicable GHG Reduction Plans, Policies, and Regulatory Programs	**MM-GHG-1:** Implement Diesel Emission-Reduction Measures During Project Construction **MM-GHG-2:** Comply with San Diego Unified Port District Climate Action Plan Measures **MM-GHG-3:** Use Modern Vessels and Dredgers	Less than Cumulatively Considerable	Mitigation would reduce the project's incremental contribution to cumulative impacts related to GHG emissions and reduction targets and plans.
Hazards and Hazardous Materials			
Impact-C-HAZ-1: Cumulatively Considerable Contribution to Waterside Exposure of Hazardous Materials in Sediment	**MM-HAZ-2:** Implement a Dredging Management Program **MM-HAZ-3:** Implement a (Waterside) Sediment Management Program **MM-HAZ-4:** Comply with Federal and State Permits **MM-HAZ-5:** Implement Post-Dredging and/or Post-Waterside Construction Remediation	Less than Cumulatively Considerable	Mitigation would reduce the project's incremental contribution to cumulative impacts related to the exposure of hazardous materials in sediment.
Hydrology and Water Quality			
Impact-C-HWQ-1: Cumulatively Considerable Contribution to Degradation of Water Quality from Waterside Sediment Contamination	**MM-HAZ-2:** Implement a Dredging Management Program **MM-HAZ-3:** Implement a (Waterside) Sediment Management Program **MM-HAZ-4:** Comply with Federal and State Permits **MM-HAZ-5:** Implement Post-Dredging and/or Post-Waterside Construction Remediation	Less than Cumulatively Considerable	Mitigation would reduce the project's incremental contribution to cumulative impacts related to the degradation of water quality from waterside sediment contamination.

Summary of Potentially Significant Impact(s)	Summary of Mitigation Measure(s)	Level of Significance After Mitigation	Rationale for Finding After Mitigation
Impact-C-HWQ-2: Cumulatively Considerable Contribution to Water Quality Impacts from the Removal of Creosote Piles	**MM-HWQ-1:** Remove and Dispose of Creosote Piles Properly	Less than Cumulatively Considerable	Mitigation would reduce the project's incremental contribution to cumulative impacts related to water quality impacts from the removal of creosote piles.

5.2 Cumulative Impact Analysis Methodology

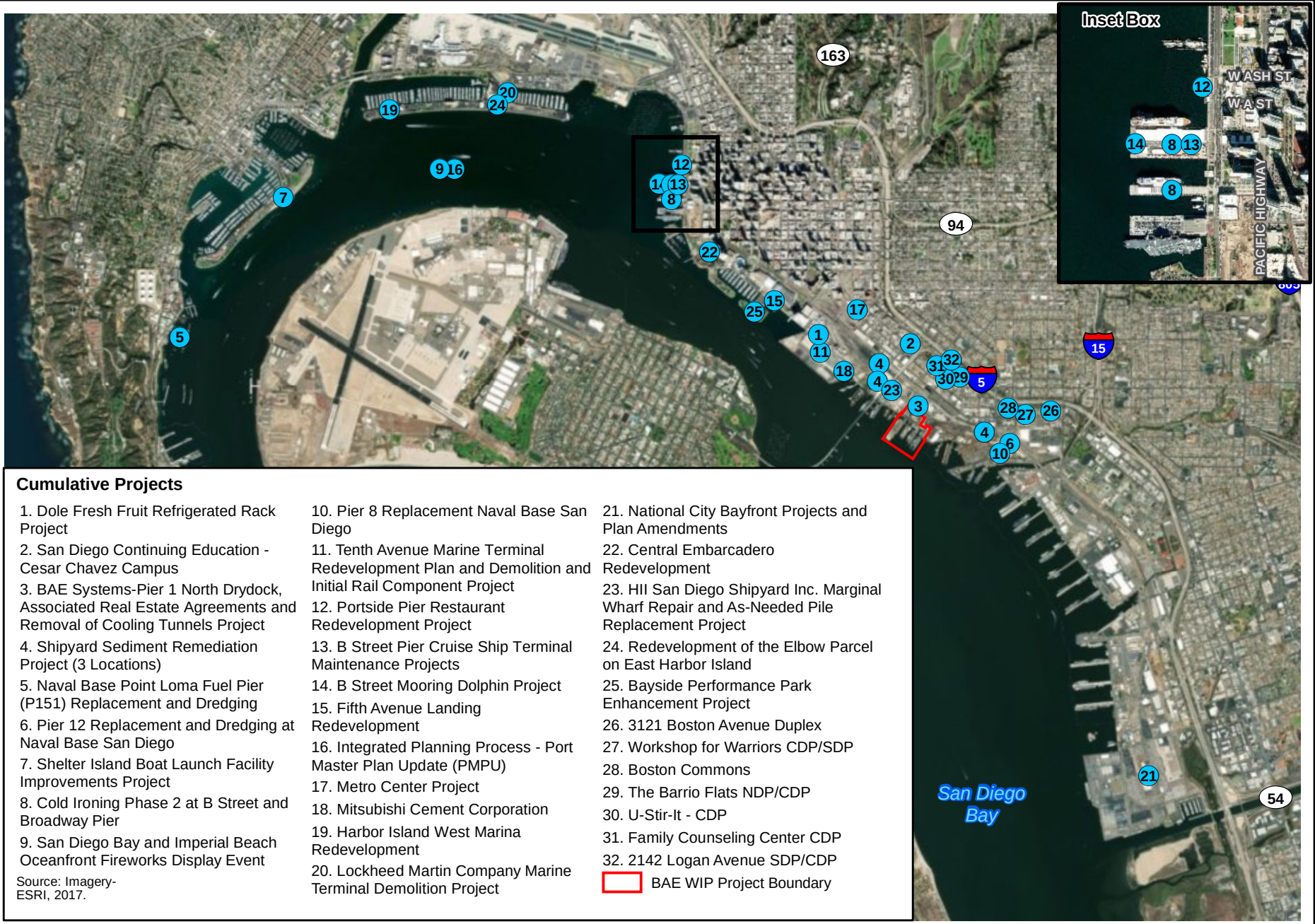
According to Section 15130(b) of the State CEQA Guidelines, cumulative impact analysis may be conducted using one of two methods: the List Method, which includes "a list of past, present, and probable activities producing related or cumulative impacts"; or the Plan Method, which uses "a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact." The cumulative analysis of near-term conditions for all issue areas uses the List Method.

The process of analyzing cumulative impacts first involves understanding the context of the cumulative conditions for each resource area. This involves determining the area of effect, or study area, within which past, present, and reasonably foreseeable future projects, along with the proposed project, have the potential to contribute to cumulative impacts. Generally, the geographic scope of the area affected by cumulative effects varies according to the issue area. The study area for each issue area is described further under the respective resource headings. An analysis of the significance of the cumulative effect from past, present, and reasonably foreseeable projects is conducted, which may be a qualitative analysis, or a deduction may be made based on relevant environmental documentation and studies. In the event a cumulative effect is identified, the proposed project's incremental contribution to that cumulative effect must be analyzed. The project's individual impacts are assessed in the context of the cumulative impacts from past, present, and reasonably foreseeable future projects to determine if the project impacts are "cumulatively considerable" based on the project's magnitude of contribution to the cumulative context or baseline. If it is determined that the proposed project's contribution to the cumulative effect is considerable, a cumulatively significant impact is identified, and mitigation is imposed.

5.2.1 Cumulative Projects List

The District has identified 32 cumulative projects for this analysis. The projects identified in the proposed project's cumulative study area have had applications submitted or have been approved, are under construction, or have recently been completed. The cumulative projects identified in the study area are listed in Table 5-2 (project numbering corresponds to numbers shown on Figure 5-1).

In addition, the District has been discussing general growth projections with the U.S. Navy related to the Navy's Pacific Rebalance of Assets/Pivot West Strategy. Specifically, the U.S. Navy anticipates a 46 percent increase in both naval vessels (24 vessels) and active duty military and dependents (15,880) between Fiscal Years 2015 and 2020 reporting to Naval Base San Diego. Naval Base San Diego is approximately 0.6 mile southeast of the proposed project. This potential increase in personnel reporting to the base in the general project vicinity is being disclosed for consideration by the decision-makers.



Cumulative Projects

1. Dole Fresh Fruit Refrigerated Rack Project
2. San Diego Continuing Education - Cesar Chavez Campus
3. BAE Systems-Pier 1 North Drydock, Associated Real Estate Agreements and Removal of Cooling Tunnels Project
4. Shipyard Sediment Remediation Project (3 Locations)
5. Naval Base Point Loma Fuel Pier (P151) Replacement and Dredging
6. Pier 12 Replacement and Dredging at Naval Base San Diego
7. Shelter Island Boat Launch Facility Improvements Project
8. Cold Ironing Phase 2 at B Street and Broadway Pier
9. San Diego Bay and Imperial Beach Oceanfront Fireworks Display Event
10. Pier 8 Replacement Naval Base San Diego
11. Tenth Avenue Marine Terminal Redevelopment Plan and Demolition and Initial Rail Component Project
12. Portside Pier Restaurant Redevelopment Project
13. B Street Pier Cruise Ship Terminal Maintenance Projects
14. B Street Mooring Dolphin Project
15. Fifth Avenue Landing Redevelopment
16. Integrated Planning Process - Port Master Plan Update (PMPU)
17. Metro Center Project
18. Mitsubishi Cement Corporation
19. Harbor Island West Marina Redevelopment
20. Lockheed Martin Company Marine Terminal Demolition Project
21. National City Bayfront Projects and Plan Amendments
22. Central Embarcadero Redevelopment
23. HII San Diego Shipyard Inc. Marginal Wharf Repair and As-Needed Pile Replacement Project
24. Redevelopment of the Elbow Parcel on East Harbor Island
25. Bayside Performance Park Enhancement Project
26. 3121 Boston Avenue Duplex
27. Workshop for Warriors CDP/SDP
28. Boston Commons
29. The Barrio Flats NDP/CDP
30. U-Stir-It - CDP
31. Family Counseling Center CDP
32. 2142 Logan Avenue SDP/CDP

BAE WIP Project Boundary

Source: Imagery-ESRI, 2017.

0 0.5 1 Miles

1 in = 1 miles

N

Figure 5-1
Cumulative Project Locations
BAE Waterfront Improvement Project

Table 5-2. Present and Reasonably Foreseeable Cumulative Projects

Project #	Name	Location	Description	Status
1	Dole Fresh Fruit Refrigerated Rack Project	850 Water Street, within the District's Tenth Avenue Marine Terminal	Involved the installation of five new refrigerated racks with an additional 94 electrical outlets, to increase outlets from 669 to 763. Improvements increased storage capacity within the existing footprint to accommodate up to three new larger ocean-going vessels.	Completed.
2	San Diego Continuing Education – Cesar Chavez Campus	Intersection of National Avenue and Cesar E. Chavez Parkway	New Cesar E. Chavez Campus is a 67,924-square-foot school facility with 22 classrooms to serve 720 students. The facility includes a multi-purpose room and administrative offices.	Completed.
3	BAE Systems-Pier 1 North Drydock, Associated Real Estate Agreements and Removal of Cooling Tunnels Project	2205 East Belt Street	Replacement of a wet berth with a new floating drydock and removal of subsurface cooling tunnels. Dredging activities were estimated to result in approximately 395,000 cubic yards of sediment.	Completed.
4	Shipyard Sediment Remediation Project	San Diego Bay between Sampson Street extension to the north and Schley Street to the south from the shoreline to the U.S. Pierhead Line to the west and a portion of British Aerospace Systems facility, San Diego, CA 92113	Consisted of the dredging of sediment adjacent to shipyards in the San Diego Bay, the dewatering and solidification of the dredged material on-shore, treatment of decanted water, and the transport of the removed material to an appropriate landfill for disposal.	Completed.
5	Naval Base Point Loma Fuel Pier (P151) Replacement and Dredging	Naval Station Point Loma and Alternative Bait Barge locations within state lands, San Diego, CA	Temporary Space and Naval Warfare Systems Center (SSC) marine mammal facilities at Naval Main and Anti-Submarine Warfare Command (NMAWC) and relocation of the program to NMAWC; demolished existing Naval Base Point Loma Fuel Pier in phases so as to leave pier operational throughout project; constructed 71,180-square-foot double-deck replacement pier and performed associated dredging; returned SSC marine mammal program to original location.	Completed.

Project #	Name	Location	Description	Status
6	Pier 12 Replacement and Dredging at Naval Base San Diego	Pier 12 at Naval Base San Diego	Demolition of an inadequate existing pier (Pier 12); dredging in berthing and approach areas for a new pier; dredged material disposal at an approved ocean disposal site and permitted upland landfill; construction of a new pier and associated pier utilities, including upgrades to the electrical infrastructure at the adjacent Pier 13; and reuse of demolition concrete to create fish enhancement structures (artificial reefs). The purpose of the project was to address the current and impending shortfall at Naval Base San Diego of pier infrastructure necessary to support modern Navy ship classes with deep draft-power intensive or power intensive requirements.	Completed.
7	Shelter Island Boat Launch Facility Improvements Project	2210 Shelter Island Drive, San Diego, CA 92106	Repair, maintenance, and replacement of the boat launch ramp, jetties (including public walkways), gangways, and floating docks, as well as minor improvements to the kayak launching area, restrooms, and parking.	Completed.
8	Cold Ironing Phase 2 at B Street and Broadway Pier	B Street Pier and Broadway Pier, 1140 and 1000 North Harbor Drive	Infrastructure components to provide shore power to existing terminal operations at the B Street and Broadway Piers (three berths) to reduce air pollutant emissions and greenhouse gas emissions while cruise ships are berthed. Initially, shore power will be available to one ship at a time; in subsequent years, two ships will be able to use shore power at the same time.	Currently in design and slated for future construction.
9	San Diego Bay and Imperial Beach Oceanfront Fireworks Display Events	Throughout District tidelands	Addition of an Ordinance to the Port District Code that established a program to regulate fireworks. Specifically, the program governs the existing and proposed new fireworks display events requiring a discretionary action by the District or operated by the District's tenants that occur within the San Diego Bay and Imperial Beach Oceanfront. Four new fireworks display events were anticipated to require a future discretionary action by the District, including three displays along the Chula Vista	EIR was certified and Ordinance was adopted on May 25, 2017.

Project #	Name	Location	Description	Status
			Bayfront and one display along the National City Bayfront.	
10	Pier 8 Replacement Naval Base San Diego	Pier 8 at Naval Base San Diego	Demolition of the inadequate existing Pier 8, construction of a replacement Pier 8, and provision of associated pier utilities. The purpose of the proposed action is to address the current and impending shortfall at Naval Base San Diego of pier infrastructure necessary to support modern Navy ship classes with deep-draft and power-intensive requirements.	Under construction.
11	Tenth Avenue Marine Terminal Redevelopment Plan and Demolition and Initial Rail Component Project	686 Switzer Street	Program- and project-level EIR analysis. The program component looks at Maximum Practical Capacity of three distinct cargo nodes (e.g., Refrigerated Container, Neo-bulk/Break Bulk, Dry Bulk) to the horizon year of 2035. Long-term infrastructure investments may include up to five gantry cranes, additional and consolidated dry bulk storage capacity, enhancements to the existing conveyor system, demolition of molasses tanks and Warehouse C, additional open storage space, and on-dock intermodal rail facilities. Project-level improvements would be completed by June 30, 2020, and involve demolition of two transit sheds, installation of a small gear-shack with restrooms and outdoor storage space, and on-terminal rail upgrades. Project improvements do not involve any in-water work; all program- and project-level improvements would be landside.	Under construction.
12	Portside Pier Restaurant Redevelopment Project	1360 North Harbor Drive	Redevelopment of an existing waterfront restaurant with a new facility, including new pilings, piers, decking, and structure. Development involves demolition of an existing restaurant and supporting structure (including 66 piles) and redevelopment with a new, two-story restaurant and supporting structure (on 53 piles). The new facility would be approximately 33,577 square feet and include three distinct dining establishments, a coffee and gelato	Under construction.

Project #	Name	Location	Description	Status
			shop, an expanded dock-and-dine for short-term boat berthing, and a public viewing deck. The project would involve an approximately 8,722-square-foot increase in building floor area and a 4,480-square-foot net increase in water coverage. Restaurant seating would be increased by 464 seats. A new public viewing deck with approximately 108 seats is proposed and the replacement dock and dine boat dock would allow an increase in boat slips from 2 to 12; however, 4 would be constructed initially.	
13	B Street Pier Cruise Ship Terminal Maintenance Projects	B Street Pier, 1140 North Harbor Drive	Projects on B Street Pier required to address routine maintenance requirements to improve safety, security, integrity, aesthetics, and comfort of this facility. Roof replacement, roll-up and rolling gate doors installation, fire system upgrades, ceiling and hangers cleaning and painting, mobile gangway and platform painting, and installation of photovoltaic system.	Completed.
14	B Street Mooring Dolphin Project	B Street Pier, 1140 North Harbor Drive	Proposal to install moorings off the end of B Street Pier to allow for larger cruise ship docking.	Draft EIR was circulated February 2013. The Final EIR has not yet been certified. Project on hold.
15	Fifth Avenue Landing Redevelopment	Southerly paper end of Fifth Avenue, between the back of the Convention Center and South Embarcadero Park, San Diego, CA 92101	Proposed development would include: two hotel structures; one 44-story, approximately 498-foot-tall, 850-room hotel tower; and one 5-story, approximately 82-foot-tall, 565-bed, lower-cost, visitor-serving hotel; a 263-space parking structure; retail; meeting space; ancillary guest amenities; an optional bridge connecting the hotel to the Convention Center; approximately 85,490 square feet of public access areas, with approximately 3,190 square feet at ground level and 82,300 square feet on a podium level; and expansion of the marina by an additional 57,696 square feet of dock space.	Draft EIR released December 2017. The Final EIR has not yet been certified.

Project #	Name	Location	Description	Status
			The project would maintain the existing 35-foot-wide bayfront promenade.	
16	Integrated Planning Process – Port Master Plan Update (PMPU)	Throughout District tidelands	Comprehensive Update of the Port Master Plan that is anticipated to include new topical sections, or elements, to provide Baywide guidance related to Land and Water Use, Coastal Access and Recreation, Mobility, Natural Resources, Safety and Resiliency, and Economic Development.	Planning Phase – Program EIR under preparation.
17	Metro Center Project	West side of National Avenue between Commercial and 16th Streets	Consists of 160,600 square feet of regional shopping center uses, 163,300 square feet of retail space, and a 152,000-square-foot lumber store.	Foreseeable project, not entitled.
18	Mitsubishi Cement Corporation	850 B. Water Street, within District's Tenth Avenue Marine Terminal	Involves improvements to Warehouse C at the Tenth Avenue Marine Terminal to import up to 500,000 metric tons of cement per year with an estimated 20,000 annual customer truck trips, for an average of less than 55 trucks per day during operations, with a maximum 192 trucks visiting the site per day.	Foreseeable project, not entitled. Final EIR currently in preparation.
19	Harbor Island West Marina Redevelopment	2040 Harbor Island Drive, San Diego, CA 92101	Involves demolition of 23,000 square feet of existing building and construction of 15,000 square feet of new office, deli, and retail, as well as reconfiguration of an existing marina. The project would construct a new 12-foot-wide public promenade and reduce the number of boat slips from 620 to 603.	Foreseeable project, not entitled. Draft Mitigated Negative Declaration (MND) currently in preparation.
20	Lockheed Martin Company Marine Terminal Demolition Project	1160 Harbor Island Drive, San Diego, CA 92101	Involves demolition of 5,500 square feet of building and removal of a pier and trolley rail.	Foreseeable project, not entitled. NOP release for Draft EIR anticipated in Fall 2019.
21	National City Bayfront Projects and Plan Amendments	Generally north of Sweetwater Channel, south of Civic Center Drive, east of National City Marine Terminal, and west of Paradise Marsh and Interstate 5, National City, CA 91950	Includes several landside and waterside improvements, including a recreational vehicle park, modular cabins, dry boat storage, hotels, an expanded marina, a rail connector track and storage track, road closures, Segment 5 of the Bayshore Bikeway, restaurants, and retail development. The project also includes corresponding amendments to the District's Port Master Plan and the City of National City's General Plan, Local Coastal Program,	Foreseeable project, not entitled. Draft EIR currently in preparation.

Project #	Name	Location	Description	Status
			Harbor District Specific Area Plan, Land Use Code, and Bicycle Master Plan.	
22	Central Embarcadero Redevelopment	Generally south of the USS Midway Museum and Harbor Drive, west of the Manchester Grand Hyatt and Kettner Boulevard, and north and east of San Diego Bay, San Diego, CA 92101	Includes redevelopment of approximately 40 acres of land and 30 acres of water. Project design is conceptual at this time, but currently includes an observation tower, boat slips, an aquarium, public park space, hotels, retail, office space, an educational center, and parking.	Foreseeable project, not entitled. Pending receipt of formal project application from applicant.
23	HII San Diego Shipyard Inc. Marginal Wharf Repair and As-Needed Pile Replacement Project	1995 Bay Front Street, San Diego, California	Involves two components consisting of demolition, reconstruction, and reconfiguration of piers and wharves. Component 1 is the replacement of three wharves that have severely deteriorated. Component 2 includes the demolition of one pier and the as-needed pile replacement of the remaining five piers.	MND adopted on April 9, 2019. Construction anticipated 2019.
24	Redevelopment of the Elbow Parcel on East Harbor Island	7-acre parcel of land north of the East Basin Industrial Subarea in the current PMP known as the Elbow Parcel	Involves an approximately 500-room hotel with other amenities including swimming pools, spas, gym, retail shops, open space event lawn, and a viewing deck.	Foreseeable project, not entitled.
25	Bayside Performance Park Enhancement Project	Embarcadero Marina Park South (EMPS)	Involves the replacement and enhancement of structures in EMPS and new facilities including the Bayside Performance Park, a new performance and event venue to hold up to 10,000 attendees and various other park improvements.	EIR certified on January 9, 2018. Construction anticipated to commence 2019/2020.
26	3121 Boston Avenue Duplex – Project 409094	3121 Boston Avenue	Includes a 2,535-square-foot residential duplex on a 7,704 square-foot site that contains an existing 1,892-square-foot residential duplex.	Unknown.
27	Workshop for Warriors CDP/SDP – Project 528711	2984, 2970, 2960, 2948, 2940 Main Street	Includes a 89,000-square-foot warehouse/ trade school/ roof deck and parking, within 1.28 acres.	Unknown.
28	Boston Commons – Project 176117	2893 Boston Avenue	Involves five affordable residential units for rent on a 0.24-acre site.	Unknown.
29	The Barrio Flats NDP/CDP – Project 541700	2257–2275 Logan Avenue	Involves the demolition of existing buildings and construction of a new 38,375-square-foot, four-story, mixed-use building that would include:	Unknown.

Project #	Name	Location	Description	Status
			24 residential units, 10 hotel rooms, and 5 retail spaces. The existing building on the 0.41-acre site would remain.	
30	U-Stir-It – CDP – Project 586276	2209 National Avenue	Involves the demolition of an existing commercial building within the 0.807-acre site, for the development of a new three-story 68,878-square-foot self-storage building over two levels, and 90,297 square feet of underground basement.	Unknown.
31	Family Counseling Center CDP – Project 490726	2130, 2134, and 2142 National Avenue	Involves the demolition of two single dwelling units and one commercial building located on three contiguous lots consisting of 0.34 acre. Includes the construction of a two-story family counseling center facility totaling 8,129 square feet.	Unknown.
32	2142 Logan Avenue SDP/CDP – Project 585277	2142 Logan Avenue	Involves a mixed-use building to include 11 artist studios, retail sales, offices, and gallery spaces within the 0.10-acre site.	Unknown.

5.3 Cumulative Impact Analysis

The discussion below evaluates the potential for the proposed project to contribute to a cumulative adverse impact on the environment. For each resource area, an introductory statement is made regarding what would amount to a significant cumulative impact for a particular resource area.

The analysis that follows considers two separate impacts: (1) the significance of the cumulative effect from past, present, and reasonably foreseeable projects; and (2) in the event a cumulative effect is identified, the proposed project's incremental contribution to that cumulative effect.

Based on the analysis provided in the Initial Study/Environmental Checklist (Appendix A), it was determined that the proposed project would not result in any impacts on aesthetics and visual resources, agriculture and forestry resources, cultural resources, geology and soils, mineral resources, population and housing, public services, recreation, tribal cultural resources, or utilities and service systems. According to Section 15130 (a)(1) of the State CEQA Guidelines, an EIR should not discuss impacts that do not result in part from the project evaluated in the EIR. Consequently, the proposed project would not have a potential to contribute to cumulative impacts related to these resources, and they are not discussed in the cumulative impact analysis below. Therefore, the cumulative analysis that follows addresses the incremental contribution of the proposed project to cumulative impacts associated with air quality and health risk; biological resources; greenhouse gas emissions and energy; hazards and hazardous materials; hydrology and water quality; land use and planning; noise and vibration; and transportation, circulation, and parking.

5.3.1 Air Quality and Health Risk

Potential cumulative air quality impacts would result when cumulative projects' emissions would combine to degrade air quality conditions below attainment levels for the San Diego Air Basin (SDAB), delay attainment of air quality standards, affect sensitive receptors, or subject surrounding areas to objectionable odors. The District has not established quantitative thresholds to determine whether a project's incremental contribution to emissions would be cumulatively considerable. The San Diego Air Pollution Control District (SDAPCD) does not provide specific quantitative thresholds for determining the significance of air quality impacts under CEQA. However, the SDAPCD specifies Air Quality Impact Analysis (AQIA) trigger levels for new or modified stationary sources in SDAPCD Rules 20.2 and 20.3. Additionally, the County of San Diego specifies screening level thresholds (SLTs) for cumulative air quality impacts, which are based on the SDAPCD Rules 20.1 and 20.3, and are used for the analysis of impacts related to emissions for proposed project construction and operations evaluated within the context of past, present, and reasonably foreseeable future projects. The substantial evidence for using the County's and SDAPCD's threshold levels for this project is contained within Section 4.1, *Air Quality and Health Risk*, under Section 4.1.4.2, *Thresholds of Significance*, of this Draft EIR.

5.3.1.1 Geographic Scope

The SDAB, which covers 4,260 square miles of Southern California and is contiguous with San Diego County, represents the cumulative geographic scope for air quality impacts related to consistency with air quality plans and air quality threshold levels because plans and thresholds are established at the air basin–wide level to attain air quality standards that are assigned for the entire air basin,

which in this case is the entire County. Cumulative impacts on sensitive receptors and odors are considered at a more localized level due to the more limited area of dispersion, and include the surrounding neighborhoods and areas close to the source of the emission and odor sources, respectively. Localized air quality conditions are influenced by a variety of sources, and guidance from several lead agencies, including the Bay Area Air Quality Management District (2017) and CARB (2005), recommend analyzing the effects of emissions from sources within 1,000 feet of proposed new emission sources or proposed new receptor locations.

5.3.1.2 Cumulative Effects

Past projects within the SDAB have involved the emissions of ozone precursors (reactive organic gases [ROG] or volatile organic compounds [VOC] and nitrogen oxides [NO_X]), particulate matter 10 microns or less in diameter (PM10), and particulate matter 2.5 microns or less in diameter (PM2.5), resulting in nonattainment status for 8-hour ozone under National Ambient Air Quality Standards (NAAQS) and nonattainment status for ozone, PM10, and PM2.5 under California Ambient Air Quality Standards (CAAQS). Therefore, the emissions of concern within the SDAB are ozone precursors (ROG and NO_X), PM10, and PM2.5.

The nonattainment status for the entire County is a consequence of past and present projects; the cumulative contribution of reasonably foreseeable future projects, such as those listed in Table 5-2, could result in continued nonattainment. The reasonably foreseeable future projects within 1,000 feet of the proposed project that could contribute cumulative impacts on localized air quality conditions generally include the following: Mitsubishi Cement Corporation project (Cumulative Project #18) and HII San Diego Shipyard Inc. Marginal Wharf Repair and As-Needed Pile Replacement Project (Cumulative Project #23). Construction of one or both of these projects would potentially overlap with the construction of the proposed project, which is scheduled to occur through 2025. However, because past and present projects have resulted in the current nonattainment status for ozone (ROG and NO_X), PM10, and PM2.5, and reasonably foreseeable future projects would continue to contribute to the nonattainment status and potentially affect sensitive receptors, impacts related to the cumulative contribution of nonattainment pollutants (ozone precursors, PM10, and PM2.5) and the exposure of sensitive receptors to substantial pollutant concentrations would be considered cumulatively significant.

5.3.1.3 Project Contribution

As discussed under Threshold 1 of Section 4.1, the project does not propose any new land uses and is therefore deemed consistent with the most recent Regional Air Quality Strategy (RAQS) and State Implementation Plan (SIP), which are designed to bring the SDAB into attainment status for state and federal ozone standards. Therefore, although there is a cumulative impact from past, present, and reasonably foreseeable future projects resulting in nonattainment status for some criteria pollutants in the air basin, the proposed project's incremental contribution to cumulative air emissions would not conflict with progress toward attainment of the air quality standards described in the RAQS and SIP.

As discussed under Threshold 2 of Section 4.1 and shown in Table 4.1-10, construction of the proposed project would contribute emissions to the cumulative condition. However, emissions would be below thresholds for all pollutants during concurrent construction activity. As discussed in Section 4.1, thresholds are designed to be health-protective and are thus both project level and cumulative in nature. Accordingly, while the effects from past, present, and reasonably foreseeable

future projects are considered cumulatively significant, the proposed project's incremental contribution from construction emissions would be less than cumulatively considerable.

As discussed under Threshold 2 of Section 4.1 and shown in Table 4.1-11, operational-related emissions would be below threshold levels for all pollutants. As with the construction phase, the effects from past, present, and reasonably foreseeable future projects are considered cumulatively significant, but the proposed project's incremental contribution from operational emissions would not result in a net increase in nonattainment pollutants as emissions would not exceed thresholds that are designed to assess both project level and cumulative effects. Consequently, the proposed project's incremental contribution to cumulative air quality impacts during its operational stage would be less than cumulatively considerable.

As discussed under Threshold 3 of Section 4.1, neither construction nor operation of the proposed project would expose sensitive receptor locations to substantial toxic air contaminant concentrations, including diesel particulate matter and asbestos-containing materials. Similarly, additional traffic created by the proposed project would not result in carbon monoxide concentrations in excess of the NAAQS or CAAQS. Odors emitted during construction and operation would likewise not result in nuisance odors that would violate SDAPCD Rule 51 (see Threshold 4 in Section 4.1). Accordingly, while the effects from past, present, and reasonably foreseeable future projects are considered cumulatively significant, the proposed project's incremental contribution to cumulative health risks and odor emissions would be less than cumulatively considerable.

5.3.1.4 Level of Significance Prior to Mitigation

The proposed project's contribution to a cumulative air quality impact would be less than cumulatively considerable.

5.3.1.5 Mitigation Measures

No mitigation is required.

5.3.1.6 Level of Significance After Mitigation

The proposed project's incremental contribution to cumulative air quality impacts would not be cumulatively considerable and would be less than significant.

5.3.2 Biological Resources

A significant cumulative impact on biological resources would occur if the proposed project would contribute to impacts related to sensitive plant or wildlife species, sensitive habitat/natural communities, federal and state protected wetlands, wildlife movement corridors, or conflicts with applicable local policies or ordinances or applicable adopted habitat conservation plans or natural community conservation plans.

5.3.2.1 Geographic Scope

The geographic scope for cumulative impacts on terrestrial biological resources includes the surrounding downtown area, embarcadero and waterfront, and Tenth Avenue Marine Terminal. The geographic scope for cumulative marine biological resources impacts is limited to areas adjacent to, or otherwise linked to, the San Diego Bay. Past, present, and reasonably foreseeable future projects

that could contribute to cumulative impacts on terrestrial biological resources include projects with grading, paving, landscaping, road, and building construction of undeveloped land or land containing habitat. Marine organisms could be directly affected by construction and/or operation activities in or along the water, including dredging, filling, pile-driving, and wharf demolition/construction. Untreated runoff from construction or operation activities on land into harbor waters via storm drains or sheet runoff also has the potential to contribute to cumulative impacts on marine biological resources.

5.3.2.2 Cumulative Effects

As shown in Table 5-2, the project site and surrounding areas within present-day downtown San Diego continue to see an increase in urban density and intensity from recent past and present projects, and reasonably foreseeable future projects appear to continue the area's urbanization along this portion of the San Diego Bay. The vast majority of sensitive habitat in downtown is no longer present. However, open water of the San Diego Bay could provide foraging habitat, and trees and even structures may provide nesting habitat for avian species. Present and future cumulative projects would be required to be consistent with the City's Multiple Species Conservation Program Subarea Plan (if within the City's jurisdiction) or the Port of San Diego's and U.S. Navy's Integrated Natural Resources Management Plan (if within the District's jurisdiction), which identify important sensitive species and habitats in San Diego and San Diego Bay. Moreover, present and future projects also would comply with requirements of the Migratory Bird Treaty Act (MBTA), which contains regulations for the take of any migratory birds, including feathers, nests, or eggs, and would require that present and future projects avoid and/or mitigate potential impacts on any nesting birds.

In addition, present and reasonably foreseeable future projects have the potential to further degrade water quality within San Diego Bay as well as existing marine habitat. However, specific federal, state, and local regulations are in place that would minimize continued degradation of water quality and existing marine habitat of San Diego Bay. These include the Clean Water Act (CWA) regulations that require compliance with water quality standards, including state and local water quality regulations and the District's Jurisdictional Runoff Management Plan (JRMP) and *BMP Design Manual* (for projects within the District's jurisdiction) and the City of San Diego's Storm Water Management and Discharge Control Ordinance, which identifies water quality best management practices (BMP) requirements (for projects within the City's jurisdiction). Under these regulations, projects over 1 acre in size are required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the NPDES Construction General Permit, while projects smaller than 1 acre are still required to comply with the City of San Diego's water quality regulations and the District's JRMP, depending on the jurisdiction within which the project would be located. The SWPPPs would identify short-term, project-specific BMPs for each project to minimize pollutants and/or sediments traveling via runoff, and long-term BMPs would be implemented based on the required Water Quality Control Plans using a combination of Site Design BMPs, Source Control BMPs, and Treatment Control BMPs. Implementation of both construction and operational BMPs would minimize harm to marine habitat from stormwater runoff.

Moreover, construction of present and future projects that involve in-water work such as pile driving have the potential to cause hydroacoustic impacts on fish, green sea turtle, and marine mammals as well as airborne noise impacts on marine mammal species. However, all present and future projects would be required to mitigate for these impacts, which could include mitigation measures such as surveying for the presence of marine special-status species, and monitoring

programs to reduce potential impacts during in-water construction. Monitoring would comply with the requirements defined by the National Oceanic Atmospheric Administration's Guidance for Developing a Marine Mammal Monitoring Plan (NOAA 2017).

Eleven of the cumulative projects listed in Table 5-2 propose in-water work, such as dredging, fill, or pile-driving. In addition, marinas, piers, and other structures currently exist throughout the San Diego Bay, and recreational, commercial, and industrial boating activities currently occur. These past, present, and reasonably foreseeable future projects have increased, and could continue to increase, the overwater coverage throughout the San Diego Bay, and could also affect the water quality of the Bay, disturb sensitive marine species during marina pile driving activities, and reduce eelgrass habitat. The increase in overwater coverage reduces the available open water habitat that is used for foraging by fish-eating avian species. Construction activities, accidental spills, bilge pump discharges, and other activities associated with recreational, commercial, and industrial boating uses can contaminate or reduce the clarity of the water in the Bay, which would inhibit the ability of fish-eating avian species such as California least tern and California brown pelican to identify prey for foraging. However, all present and future projects would be required to mitigate for these impacts, which could entail the implementation of mitigation measures based on an approved mitigation ratio, ensuring compliance with CWA Sections 401 and 404 and Rivers and Harbors Act Section 10, or implementing requirements such as bilge pump discharge limitations and spill control plans.

Therefore, cumulative effects on biological resources from past, present, and reasonably foreseeable future projects within the cumulative study area would not be significant.

5.3.2.3 Project Contribution

The proposed project consists of construction and operation activities in both terrestrial and marine environments. The landside project elements would not affect any federal or state protected wetlands, or environmentally sensitive area. The landside portion of the project site does not contain any natural habitat and is not within the City of San Diego Multi-Habitat Planning Area or a wildlife corridor, but does include potential nesting habitat in the existing canary island palm trees and existing human-made structures found within the project site. The proposed project would result in construction activities that have the potential to disturb or destroy nests protected by the MBTA or California Fish and Game Code (**Impact-BIO-2**). Mitigation required for the proposed project will ensure compliance with the MBTA and avoidance of impacts on nesting birds (**MM-BIO-2**).

As discussed under Thresholds 1 and 2 of Section 4.2, *Biological Resources*, the waterside project elements could affect sensitive species by potentially impairing water quality, which would inhibit foraging for the California least turn and the California brown pelican (**Impact-BIO-1**); disrupting or injuring green sea turtles and marine mammals due to increased noise during in-water pile driving activities (**Impact-BIO-3**); reducing open water habitat from shipyard operations (**Impact-BIO-4**); and impacting adjacent eelgrass habitat outside of the project site during construction (**Impact-BIO-5**). However, the proposed project requires the implementation of **MM-BIO-1**, **MM-BIO-3**, **MM-BIO-4**, and **MM-BIO-5** to reduce these project-level impacts to less-than-significant levels. Mitigation measure **MM-BIO-1** requires the implementation of construction measures in accordance with regulations, including CWA Sections 401 and 404, Rivers and Harbors Act Section 10, the National Pollutant Discharge Elimination System (NPDES) permit for the project, and Stormwater Management and Discharge Ordinance to ensure construction activities would reduce water quality

impairment impacts that could affect California least tern and California brown pelican foraging opportunities. Mitigation measure **MM-BIO-3** would require the implementation of a marine mammal and green sea turtle monitoring program to reduce potential impacts on these species due to in-water construction-related noise. Mitigation measure **MM-BIO-4** would require implementation of overwater coverage mitigation to compensate for the loss of open water habitat due to new overwater coverage within the Bay from certain project elements. Mitigation measure **MM-BIO-5** would require preconstruction and post-construction eelgrass surveys in accordance with the California Eelgrass Mitigation Policy (CEMP) and the installation of silt curtains to protect eelgrass present outside of the project site during construction. Additionally, present and reasonably foreseeable future projects would also be required to implement similar mitigation measures and to comply with CWA Sections 401 and 404, Rivers and Harbors Act Section 10, applicable NPDES and other permits, the Stormwater Management and Discharge Ordinance, and the California Eelgrass Mitigation Policy. Moreover, a cumulatively significant biological resources impact does not exist within the cumulative study area. Therefore, the contribution of the proposed project to cumulative biological resources impacts when combined with past, present, and reasonably foreseeable future projects would be less than cumulatively considerable.

5.3.2.4 Level of Significance Prior to Mitigation

The proposed project's contribution to a cumulative biological resources impact would not be cumulatively considerable.

5.3.2.5 Mitigation Measures

No mitigation is required.

5.3.2.6 Level of Significance After Mitigation

The proposed project's incremental contribution to cumulative biological resource impacts would not be cumulatively considerable and would be less than significant.

5.3.3 Greenhouse Gas Emissions and Energy

There would be the potential for a cumulatively considerable greenhouse gas (GHG)-related impact if the project would be inconsistent with the District's Climate Action Plan (CAP); non-compliant with regulatory programs outlined in the Scoping Plan and adopted by the California Air Resources Board (CARB) or other California agencies to reduce GHG emissions in 2020; inconsistent with the post-2020 reduction targets set forth through California Executive Order (EO) S-03-05 and Senate Bill (SB) 32; or non-compliant with plans, policies, and regulations promulgated to reduce GHG emissions post-2020. Finally, there would be the potential for a cumulatively considerable energy use–related impact if the project would contribute to a cumulatively significant impact related to the wasteful, inefficient, and unnecessary usage of energy, either directly or indirectly.

5.3.3.1 Geographic Scope

The geographic scope for cumulative GHG emission impacts is global. Because climate change is the result of cumulative global emissions, no single project, when taken in isolation, can cause climate change—a single project's emissions are insufficient to change the radiative balance of the atmosphere. GHGs are emitted by innumerable sources worldwide, and therefore, cumulative GHG

emissions that contribute to global climate change will have a significant cumulative impact on the natural environment as well as on human development and activity. The global increase in GHG emissions that has occurred and will occur in the future is the result of the actions and choices of individuals, businesses, local governments, states, and nations. The GHG analysis within Section 4.3, *Greenhouse Gas Emissions and Energy*, is inherently a cumulative analysis. However, a summary of the discussion is provided below. Energy use is a regional issue, and the geographic scope includes the service area of San Diego Gas and Electric (SDG&E).

5.3.3.2 Cumulative Effects

Past, present, and reasonably foreseeable future projects throughout the region, state, nation, and world, including, but not limited to those projects listed in Table 5-2, have contributed to, and will continue to contribute to, the cumulative impacts of GHG emissions. As with the proposed project, all the projects in Table 5-2, along with all other projects within the county, region, and state, would be required to comply with all applicable federal, state, and local policies and regulations regarding GHG emission reductions (e.g., Assembly Bill [AB] 32, Pavley 1, Advanced Clean Cars, Renewables Portfolio Standard, SB 350). However, changes from past, present, and reasonably foreseeable future projects have contributed to, and will continue to contribute to, a cumulatively significant impact in the project vicinity.

5.3.3.3 Project Contribution

As discussed under Threshold 2 of Section 4.3, the proposed project would contribute GHG emissions to the cumulative condition. As shown in Tables 4.3-6 and 4.3-7 in Section 4.3, equipment and vehicles used during construction (e.g., on-road motor vehicles, vessels, and heavy equipment) and operations (e.g., portable equipment and tugs) would result in a net increase in GHG emissions over existing conditions. As shown in Tables 4.3-8 through 4.3-11 in Section 4.3, the proposed project would not be consistent with the CAP because it would not implement all of the applicable reduction measures, and the project would have partial consistency with the applicable policies and regulatory programs through 2030 before mitigation (**Impact-C-GHG-1**). With implementation of **MM-GHG-1** through **MM-GHG-3,** the proposed project would be consistent with the CAP, Scoping Plan, and other near-term (2020–2030) GHG reduction policies and plans. Therefore, after mitigation, the proposed project would not result in cumulatively considerable impacts related to near-term (i.e., 2020–2030) GHG emissions because it would not impede achievement of near-term state reduction targets.

As discussed under Threshold 3 of Section 4.3, implementation of the proposed project would also not result in the wasteful, inefficient, and unnecessary consumption of energy, nor would project construction or operation conflict with or obstruct any applicable renewable energy or energy efficiency plans. As such, the proposed project's contribution to cumulative impacts on energy would not be cumulatively considerable.

5.3.3.4 Level of Significance Prior to Mitigation

The proposed project's incremental contribution to cumulative impacts related to GHGs would be cumulatively considerable prior to mitigation. The following potential cumulatively considerable impact has been identified:

Impact-C-GHG-1: Inconsistency with District Climate Action Plan and Partial Consistency with Applicable GHG Reduction Plans, Policies, and Regulatory Programs. The proposed project would partially comply with plans, policies, and regulatory programs outlined in the District's CAP, the Scoping Plan, and other plans, policies, and regulatory programs adopted by CARB for the purpose of reducing the emissions of GHGs.

5.3.3.5 Mitigation Measures

For **Impact-C-GHG-1**:

Implement **MM-GHG-1: Implement Diesel Emissions Reduction Measures During Project Construction,** as described in Section 4.3.

Implement **MM-GHG-2: Comply with San Diego Unified Port District Climate Action Plan Measures,** as described in Section 4.3.

Implement **MM-GHG-3: Use Modern Vessels and Dredgers,** as described in Section 4.3.

5.3.3.6 Level of Significance After Mitigation

After mitigation, the proposed project's incremental contribution to cumulative impacts related to GHG emissions and reduction targets and plans would be less than cumulatively considerable.

5.3.4 Hazards and Hazardous Materials

A significant cumulative impact on hazards and hazardous materials would result if the proposed project were to contribute to impacts related to 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; or related to being located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.

Because the proposed project would have no impacts related to the following issues, it would also have no cumulative impacts related to these issues: transport, use, or disposal of hazardous materials; involve hazardous emissions or materials within one-quarter mile of an existing or proposed school; be located within an airport land use plan or within two miles of a public airport or public use airport; interfere with an adopted emergency response or evacuation plan; or expose people or structures to wildland fires.

5.3.4.1 Geographic Scope

The hazards and hazardous materials geographic scope consists of the areas that could be affected by proposed project activities as well as areas affected by other projects whose activities could directly or indirectly affect the proposed activities on the project site. In general, projects occurring within 0.12 mile of the project site (and in the case of active release sites, within 0.25 mile) were considered in this analysis due to the localized nature of potential impacts associated with the release of hazardous materials into the environment on the landside. On the waterside, the geographic scope consists of the whole San Diego Bay, due to the extent of contamination throughout the Bay, and the variable nature of water- and sediment-based contamination.

5.3.4.2 Cumulative Effects

As discussed in Section 4.4, *Hazards and Hazardous Materials*, record searches using Environmental Data Resources and other historic records were conducted. The results indicate that there are multiple sites within 0.12 mile (and in some cases within 0.25 mile) of the project site that involve the handling of hazardous materials.

Landside

There were three sites wherein unauthorized releases were recorded within 0.12 mile of the project site, and several sites within 0.25 mile. Simply the presence of sites (with a history of releases) within the cumulative study area is not sufficient to determine if a significant cumulative impact is present. Evidence must suggest that the contamination has resulted in a cumulative condition to which other projects are contributing. This was not evident during the database research because existing contamination was caused by site-specific incidents at individual sites and not exacerbated by multiple sites. Therefore, impacts from past cumulative projects are not cumulatively significant.

Present and reasonably foreseeable future projects within the cumulative study area could disrupt or result in the exposure of hazardous materials that are typically used during construction activities. For projects having the potential to disrupt or result in the exposure of hazardous materials, mitigation measures would be required during construction to reduce potential impacts to a level below significance. These projects, like the proposed project, are required to comply with all federal, state, and local policies regarding hazards and hazardous materials, as the ones described in Section 4.4.3, *Applicable Laws and Regulations*, which would reduce potential releases of hazardous materials into the environment. Because all cumulative projects listed in Table 5-2 with potential to expose hazardous materials during construction in the vicinity of the project site would be subject to federal, state, and local hazardous materials laws, including those described in Section 4.4.3, cumulative effects related to hazardous materials from past, present, and reasonably foreseeable future projects would be less than cumulatively significant.

Waterside

The San Diego Bay has a history of water and sediment contamination. Several Cleanup and Abatement Orders and Investigative Orders have been issued by the Regional Water Quality Control Board (RWQCB) for the characterization and remediation of contaminated sediment throughout the Bay. Several cumulative projects listed in Table 5-2 are located along the Bay and involve in-water work that could have the potential to disturb existing contaminated sediment and release it to the environment. All past, present, and reasonably foreseeable cumulative projects would be required to comply with applicable federal, state, and local regulations; be required to obtain the requisite permits for in-water construction; and be required to comply with the stipulations of the applicable Cleanup and Abatement Orders issued by the RWQCB. However, because some types of cumulative projects, such as pier replacement, require extensive in-water work, it is possible cumulative projects would contribute to the exacerbation of hazardous conditions in the Bay related to sediment contamination. Therefore, cumulative effects related to the release of hazardous materials to the environment from past, present, and reasonably foreseeable future projects within the cumulative study area are significant.

5.3.4.3 Project Contribution

Analysis of information contained in the Environmental Data Resources report, along with other environmental studies conducted at the project site (i.e., *Final Cleanup and Abatement Completion Report, San Diego Shipyard Sediment Site,* Anchor QEA 2016) identified the presence of landside soil contamination that could be exacerbated by proposed project activities (**Impact-HAZ-1**). Project-level mitigation (**MM-HAZ-1**) is required to reduce **Impact-HAZ-1** to less-than-significant levels by ensuring the proper handling and disposal of contaminated soil during landside construction activities. This would ensure the proposed project would not accidentally expose existing landside contamination areas, and would minimize effects in the event an unanticipated upset condition does occur. Because a cumulatively significant landside hazard and hazardous materials impact does not exist, the proposed project's incremental contribution to landside hazard and hazardous materials impacts would not be cumulatively considerable.

On the waterside portion, the proposed project would include in-water construction activities that could disturb contaminated sediment and release it into the environment, thereby exacerbating the risk of exposure of hazardous materials. Proposed dredging at the project site would include areas with known sediment contamination that has not been completely removed but has been covered with sand or gravelly sand. The proposed dredging would effectively remove contaminated sediment from some of these areas, which would potentially avoid disturbing and releasing contaminated sediments from in-water construction activities (i.e., pile installation, wharf replacement, etc.). However, these dredging activities may also result in the disturbance of existing sand or gravelly sand covers such that underlying contaminated sediment is exposed to the environment. Due to the mobile nature of sediment in the Bay, and the extent of known and suspected historical contamination in the Bay, it is possible extensive in-water work proposed as part of the project would result in a cumulatively considerable contribution to the cumulative hazardous materials impacts when combined with past, present, and reasonably foreseeable future projects (**Impact-C-HAZ-1**). However, implementation of project-level mitigation measures **MM-HAZ-2** through **MM-HAZ-5** would reduce potential cumulative impacts associated with in-water sediment contamination to a less-than-significant level.

Mitigation measure **MM-HAZ-2** would require the implementation of a Dredging Management Program to ensure the proper dredging methods and safety measures to protect workers and the environment during dredging activities. Implementation of **MM-HAZ-2** would also require post-dredging sediment sampling and testing. Sediment sampling and testing would determine the impact of dredging activities on areas of known contamination and a report containing the results would be provided to the RWQCB for review and approval, and to the District for concurrence.

Mitigation measure **MM-HAZ-3** would require the implementation of a Waterside Sediment Management Program prior to and throughout any in-water construction. The Waterside Sediment Management Program would include a Sampling and Analysis Plan, Marine Sediment Characterization Report, and Contaminated Sediment Management Plan for sampling, characterizing, and managing contaminated sediment during pile removal, pile driving, and other in-water construction activities, and would require implementation of measures specific to in-water activities to mitigate potential cross-contamination of marine sediment during in-water construction that would disturb potentially contaminated sediment.

MM-HAZ-4 would ensure the proposed project would obtain and comply with all federal and state permits required for in-water construction activities. Compliance with the applicable regulations,

permits, and Cleanup and Abatement Orders that have been issued for the project area, as well as the mitigation measures identified above would minimize the potential risk associated with the accidental release or exposure of hazardous materials to the environment during construction activities.

Mitigation measure **MM-HAZ-5** would be implemented after completion of dredging activity or in-water construction work, and would ensure that if sampling results identify concentrations of contaminants of concern (COCs) that exceed those set forth in the CAO R9-2012-0024, the project proponent will propose remediation consistent with CAO R9-2012-0024 (or other levels as prescribed by the RWQCB), subject to approval by the RWQCB, and any other agencies with jurisdiction over the site contamination, and concurrence by the District. Thus, implementation of **MM-HAZ-5** would ensure remediation would occur to maintain acceptable levels of COCs as set forth by the CAO R9-2012-0024, or the RWQCB, at the project site. As such, the project's limited contribution to the cumulatively significant effects of past, present, and reasonably foreseeable future projects would not be cumulatively considerable after mitigation.

In addition to the potential of encountering contaminated soils and sediments from past activities, construction of the project would require use of construction-related hazardous materials, including cleaners, fuel, solvents, paints, oils, and grease. It is possible that any of these substances could be released during construction and maintenance activities in small quantities. However, compliance with federal, state, and local regulations described in Section 4.7.3 would minimize any impacts. Consequently, the proposed project is not expected to create a significant hazard to the public or the environment through upset and accident conditions because no new acutely hazardous materials would be introduced at the project site.

In summary, due to the nature of in-water work and the history of sediment contamination in the Bay, the dredging and in-water work proposed as part of the project could contribute to the cumulatively considerable impact of existing contamination in the Bay (**Impact-C-HAZ-1**). The proposed project would not result in new hazardous materials, substances, or wastes; however, the in-water construction activities of the proposed project could disturb existing contaminated sediment. The implementation of **MM-HAZ-2** through **MM-HAZ-5** would minimize disturbance of existing contaminated sediment in the Bay and would require remediation if the proposed project resulted in elevated contamination levels in the project site. Implementation of these mitigation measures would reduce the project's cumulatively considerable impact to less than significant.

5.3.4.4 Level of Significance Prior to Mitigation

The proposed project's incremental contribution to cumulative hazard and hazardous materials impacts would be cumulatively considerable. The following potential cumulatively considerable impact has been identified:

Impact-C-HAZ-1: Cumulatively Considerable Contribution to Waterside Exposure of Hazardous Materials in Sediment. Due to the mobile nature of sediment in the Bay, and the extent of known and suspected historical contamination in the Bay, there is a potential that extensive in-water work proposed as part of the project would result in a cumulatively considerable contribution to the cumulative hazardous materials impacts when combined with past, present and reasonably foreseeable future projects.

5.3.4.5 Mitigation Measures

For **Impact-C-HAZ-1:**

Implement **MM-HAZ-2: Implement a Dredging Management Program**, as described in Section 4.4.

Implement **MM-HAZ-3: Implement a (Waterside) Sediment Management Program**, as described in Section 4.4.

Implement **MM-HAZ-4: Comply with Federal and State Permits**, as described in Section 4.4.

Implement **MM-HAZ-5: Implement Post-Dredging and/or Post-Waterside Construction Remediation**, as described in Section 4.4.

5.3.4.6 Level of Significance After Mitigation

After mitigation, the proposed project's incremental contribution to cumulative hazard and hazardous materials impacts would not be cumulatively considerable and would be less than significant.

5.3.5 Hydrology and Water Quality

A significant cumulative impact on hydrology and water quality would result if the proposed project were to contribute to impacts related to water quality standard violations, depletion of groundwater supplies or interference with recharge, alterations to drainage patterns leading to erosion or flooding, increased runoff in excess of available capacity, substantial additional sources of polluted runoff, the placement of structures within a 100-year flood hazard area that would impede or redirect flood flows, and/or exposure of people or structures to flooding risk from inundations by seiche or tsunami. These are evaluated within the context of past, present, and reasonably foreseeable future projects. The proposed project is not anticipated to result in impacts related to depletion of groundwater supplies or interference with recharge; alterations to drainage patterns leading to erosion or flooding; placement of structures within a 100-year flood hazard area; and/or the exposure of people or structures to flooding risk from inundations by dam and/or levee failure, seiche, or tsunami. As such, cumulative impacts related to these issues are not evaluated.

5.3.5.1 Geographic Scope

The geographic scope of analysis for cumulative impacts on hydrology and water quality includes the receiving waters of the San Diego Bay, which includes a number of the projects listed in Table 5-2. Given the project site is located on the downstream end of the watershed, the project site's cumulative contributions would be limited to the Bay waters.

5.3.5.2 Cumulative Effects

Many of the directly adjacent projects listed in Table 5-2 are located on the landside of the Bay and would not involve in-water construction activities. The projects that would involve at least 1 acre of grading during construction would be required to comply with the NPDES Construction General Permit, which requires preparation of a Stormwater Pollution Prevention Plan (SWPPP) by a Qualified SWPPP Developer and implementation of BMPs by a Qualified SWPPP Practitioner to ensure runoff from individual projects meet current water quality standards. For projects under

1 acre, the Municipal Permit requires minimum BMPs at all construction and grading projects. The implementation of BMPs for all construction sites is required to ensure a reduction of potential pollutants from the project sites to the maximum extent practicable and to effectively prohibit non-stormwater discharges from construction sites to the Municipal Separate Storm Sewer System or directly to the San Diego Bay. Therefore, cumulative effects from past, present, and reasonably foreseeable projects on landside water quality and hydrology would not be significant.

Waterside

Past projects have contributed pollutants to the San Diego Bay, as evidenced by the CWA Section 303(d) List of Water Quality Limited Segments Requiring Total Maximum Daily Loads. The entire San Diego Bay is a listed impaired water body for polychlorinated biphenyls (PCBs), polynuclear aromatic hydrocarbons (PAHs), and mercury. Portions of the Bay shoreline are listed as impaired for benthic community effects, sediment toxicity, heavy metals, PAHs, and PCBs. This is primarily due to historic uses of the Bay and the surrounding area, as well as current uses. Current and reasonably foreseeable future projects may involve activities that could exacerbate existing impacts on the water quality of the Bay, including disturbing contaminated sediment that is released into the water column. Current and reasonably foreseeable future projects could also contribute pollutants such as oil and grease, suspended solids, metals, gasoline, pesticides, and pathogens into the stormwater conveyance system and receiving waters. In addition to typical development projects, the San Diego Bay and Imperial Beach Oceanfront Fireworks Display Events project includes operational in-water activities, such as the discharge of fireworks from barges, that contribute pollutants to San Diego Bay.

Present and reasonably foreseeable future projects would be subject to Clean Water Act regulations that require compliance with water quality standards, including state and local water quality regulations and the District's JRMP and local *BMP Design Manual* (for projects within the District's jurisdiction) and the City of San Diego's Storm Water Management and Discharge Control Ordinance, which identifies water quality BMP requirements (for projects within the City's jurisdiction). For projects in the City, the Storm Water Management and Discharge Control Ordinance requires implementation of measures to reduce the risk of non-stormwater discharges and pollutant discharges through the use of BMPs. In addition, projects affecting waters of the U.S. would also need to comply with CWA Section 404 and 401 regulations, requiring implementation of additional BMPs to protect water quality during construction. Furthermore, current and future fireworks display events associated with the San Diego Bay and Imperial Beach Oceanfront Fireworks Display Events project are governed by the San Diego RWQCB's General Permit for Public Display of Fireworks, as well as the ordinance that was adopted by the Board of Port Commissioners as part of the project. However, because the San Diego Bay is currently an impaired water body and has been for some time, the cumulative effects of past, present, and reasonably foreseeable future projects on water quality are significant.

5.3.5.3 Project Contribution

A cumulatively significant impact on hydrology and water quality presently exists because of San Diego Bay's status as an impaired water body and the potential for present and future projects to further degrade water quality with the addition of similar pollutants as those already impairing the Bay.

The proposed project would involve land-disturbing activities that would expose soils; however, the proposed project would not be required to comply with the Construction General Permit because it would disturb less than 1 acre of land during construction. The proposed project would be required to comply with the Municipal Permit and the District's JRMP, which identifies construction BMPs that would be implemented in order to protect stormwater runoff. The District's JRMP requires preparation of a Construction BMP Plan. Construction BMPs, identified in the Construction BMP Plan, would be required to be implemented throughout the various construction phases to protect water quality and would reduce impacts on water quality during construction. Pursuant to the District's JRMP, post-construction BMPs are required for all projects falling under the Municipal Permit. Post-construction BMPs are a subset of BMPs that include structural and nonstructural controls that detain, retain, filter, or educate to prevent the release of pollutants to surface waters during operation. District Code, Article 10 (Stormwater Management and Discharge Ordinance) also specifically requires pollutant control BMPs for all priority development projects (PDPs). The proposed project would be considered a PDP and would be required to implement pollutant control BMPs. Additionally, the project proponent would prepare a project-specific Stormwater Quality Management Plan (SWQMP) for approval by the District that identifies low-impact development (LID) features (site design and source control BMPs) and pollutant control BMPs to reduce the discharge of pollutants to the maximum extent practicable. Therefore, the proposed project would implement BMPs consistent with the District's JRMP, the *BMP Design Manual,* District Code Article 10, and the SWQMP to ensure that water quality standards or wastewater discharge requirements are not violated and impacts on water quality would be less than significant during construction and operation. Consequently, construction and operation of the landside project elements would not result in a cumulatively considerable impact related to the violation of water quality standards and wastewater discharge requirements.

Additionally, any open excavation occurring associated with utilities or soil removal for foundation preparation may serve to capture stormwater and impede its flow if unprotected; however, BMPs would be in place to divert runoff away from the construction site and toward proper drainage locations. As a result, the proposed project would not 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. The proposed project's contribution to polluted runoff would not be cumulatively considerable.

Similar to existing conditions, some project components located on the landside portion of the project site are within the Federal Emergency Management Agency (FEMA) 100-year floodplain. During construction activities associated with implementation of the proposed project, construction equipment would be mobile and could move to higher ground if needed. Thus, the temporary presence of the construction-related equipment would not represent a permanent change to the floodplain, and would not impede or redirect flood flows. All structures proposed within Flood Zone AE must be designed to ensure that the floor elevation is raised at least 1 foot above the floodplain elevation and meets the structural requirements of FEMA to avoid any damage to persons or structures as a result of a 100-year flood. Given the project's location over San Diego Bay, the project site is unlikely to flood due to capacity of the waterway and is more vulnerable to tidal waters that are pushed inland by coastal storms. Therefore, because the construction and operation of the proposed project would not exacerbate the flooding potential of the project site or the effects of flooding on the existing environment, impacts would be less than significant. The proposed project's incremental contribution to flooding would not be cumulatively considerable.

Construction of the in-water project elements would result in short-term water quality impacts associated with the removal and replacement of pile structures, fender systems, anchor, and sinker weights, as well as dredging activities due to increased turbidity and the resuspension of toxic chemicals from the sediment in the water column. In addition, in-water construction could disturb potentially contaminated sediments associated with San Diego RWQCB Investigative Order No. R9-2017-0083, resulting in significant disruption of sediments that could release contaminants to the water column. The disturbance of potentially contaminated sediments that would become suspended in the water column, resulting in the release of hazardous pollutants and the degradation of water quality would be considered a cumulatively considerable impact (**Impact-C-HWQ-1**). The proposed project would be required to obtain from the U.S. Army Corps of Engineers (USACE) a CWA Section 404 and Rivers and Harbors Act Section 10 permit for the placement of piles, mooring dolphins, and other structures in navigable waters, and a corresponding CWA Section 401 Water Quality Certification from the RWQCB. These permits would require the implementation of construction BMPs that would minimize the discharge of materials; control debris; provide spill containment and cleanup equipment; minimize resuspension, spillage, and displaced sediment during dredging operations; contain suspended sediments with double silt curtains; monitor water quality; and otherwise reduce impacts on water quality. While the proposed project is required to comply with all regulatory requirements, those requirements*-/ are further enforced through **MM-HAZ-4,** which requires the project proponent to obtain all federal and state permits required for in-water construction activities and demonstrate to the District compliance with all permit conditions during in-water construction.

In addition to the required regulatory permits (as enforced through **MM-HAZ-4**), implementation of **MM-HAZ-2**, **MM-HAZ-3**, and **MM-HAZ-5** would reduce **Impact-C-HWQ-1** to less-than-significant levels because measures such as monitoring, sampling, and BMPs (e.g., double silt curtains) would be implemented during in-water construction activities for the proposed project (see description of **MM-HAZ-2** and **MM-HAZ-3** in Section 5.3.4.3). In addition, **MM-HAZ-5** would require the remediation of in-water construction or dredging areas if sampling results show that concentrations of COCs exceed those set forth in CAO R9-2012-0024 (or other levels as prescribed by the RWQCB), subject to approval by the RWQCB, and any other agencies with jurisdiction over the site contamination, and concurrence by the District. Implementation of **MM-HAZ-2**, **MM-HAZ-3,** and **MM-HAZ-5** would minimize potential impacts associated with sediment contamination during in-water construction activities, including dredging and pile installation/removal located within areas with contaminated sediment. Therefore, the implementation of **MM-HAZ-2** through **MM-HAZ-5** would reduce the potential cumulatively considerable impact on water quality due to the suspension of contaminated sediments in the water column (**Impact-C-HWQ-1**) to less than significant; thus, the proposed project would not result in a cumulatively considerable contribution to the cumulative impact after mitigation.

The removal of creosote-treated piles may result in the resuspension of sediments that have been contaminated due to the leeching of creosote, which could result in a cumulatively considerable water quality impact when combined with past, present, and reasonably foreseeable future projects (**Impact-C-HWQ-2**). Implementation of **MM-HWQ-1** would require the proper disposal methods for creosote-treated piles, which would reduce potential cumulative impacts from creosote leeching into the water to less than significant.

5.3.5.4 Level of Significance Prior to Mitigation

The proposed project's incremental contribution to cumulative hydrology and water quality impacts would be cumulatively considerable. The following potential cumulatively considerable impacts have been identified:

Impact-C-HWQ-1: Cumulatively Considerable Contribution to Degradation of Water Quality from Waterside Sediment Contamination. The disturbance of potentially contaminated sediments that would become suspended in the water column, resulting in the release of hazardous pollutants and the degradation of water quality, would be considered a cumulatively considerable impact.

Impact-C-HWQ-2: Cumulatively Considerable Contribution to Water Quality Impacts from the Removal of Creosote Piles. The removal of creosote-treated piles may result in the resuspension of sediments that have been contaminated due to the leeching of creosote, which could result in a cumulatively considerable water quality impact when combined with past, present, and reasonably foreseeable future projects.

5.3.5.5 Mitigation Measures

For **Impact-C-HWQ-1**:

Implement **MM-HAZ-2: Implement a Dredging Management Program**, as described in Section 4.4.

Implement **MM-HAZ-3: Implement a (Waterside) Sediment Management Program**, as described in Section 4.4.

Implement **MM-HAZ-4: Comply with Federal and State Permits**, as described in Section 4.4.

Implement **MM-HAZ-5: Implement Post-Dredging and/or Post-Waterside Construction Remediation**, as described in Section 4.4.

For **Impact-C-HWQ-2:**

Implement **MM-HWQ-1: Remove and Dispose of Creosote Piles Properly**, as described in Section 4.5, *Hydrology and Water Quality*.

5.3.5.6 Level of Significance After Mitigation

After mitigation, the proposed project's incremental contribution to cumulative hydrology and water quality impacts would not be cumulatively considerable and would be less than significant.

5.3.6 Land Use and Planning

Cumulative effects from past, present, and reasonably foreseeable future projects are determined by whether there are cumulative inconsistencies with the applicable land use plans that have resulted or will result in significant physical impacts on the environment or by the physical division of established communities from cumulative projects. A significant cumulative impact would occur if the proposed project would contribute to either of these conditions.

5.3.6.1 Geographic Scope

The geographic scope of analysis for cumulative land use and planning impacts to which the proposed project may contribute includes the jurisdiction of the PMP, the adjacent neighborhood of Barrio Logan, and the projects identified in Table 5-2.

5.3.6.2 Cumulative Effects

Past projects within the surrounding area have been subject to local regulations governing land use decisions and have resulted in the development of a highly industrialized area west of East Harbor Drive. Throughout the development of past projects, the surrounding area has generally maintained its street grid system, and development has not resulted in the division of a neighborhood. The District's PMP, as amended, has been certified by the California Coastal Commission (CCC), and all past development projects within District boundaries have been approved pursuant to the adopted PMP, ensuring review and general conformity with the coastal zone management program. Since adoption and certification of the current PMP, there have been cases where PMP amendments were required to implement various development projects. However, these amendments have undergone environmental review and District approval, and have been certified by the California Coastal Commission. As a result, impacts from past projects have not been cumulatively significant.

In addition, construction and operation associated with recently approved and developed projects have demonstrated consistency with the San Diego Downtown Community Plan and the Barrio Logan Community Plan (which are the guiding land use policy document for the surrounding area, and are the documents used to calculate projections in the SIP and RAQS), and the same can be expected of reasonably foreseeable future projects. As such, because the street system in the surrounding area is established, none of the current or reasonably foreseeable future projects propose changes to the circulation system, and current cumulative projects and reasonably foreseeable future projects in the surrounding area would be required to demonstrate consistency with the San Diego Downtown Community Plan and Barrio Logan Community Plan, it is not expected that these projects would physically divide the established downtown neighborhood.

Consequently, there are no present or reasonably foreseeable future development projects within the project site's cumulative geographic scope that would physically divide an established community or result in a land use inconsistency that could result in significant environmental impacts; therefore, cumulative effects from past, present, and reasonably foreseeable future projects would not be significant.

5.3.6.3 Project Contribution

As discussed in Section 4.6, *Land Use and Planning*, the proposed land use changes would not result in uses that would be incompatible with existing PMP land uses on site and in the vicinity. In addition, the project would be largely consistent with all applicable policies in the governing land use documents and would result in less-than-significant impacts related to consistency with plans and policies adopted for the purposes of avoiding or mitigating an environmental effect.

As noted above, a cumulatively significant land use impact does not exist, and the proposed project would not result in an impact such that a cumulatively significant impact would be created. The proposed project's contribution to inconsistencies with land use and planning policies would be less than cumulatively considerable.

5.3.6.4 Level of Significance Prior to Mitigation

The proposed project's incremental contribution to cumulative land use and planning impacts would not be cumulatively considerable.

5.3.6.5 Mitigation Measures

No mitigation is required.

5.3.6.6 Level of Significance After Mitigation

The proposed project's incremental contribution to cumulative land use and planning impacts would not be cumulatively considerable and therefore would be less than significant.

5.3.7 Noise and Vibration

A significant cumulative impact on noise and vibration would result if the proposed project were to contribute to impacts related to exceedances of noise standards, groundborne vibration, or ambient noise levels when evaluated within the context of past, present, and reasonably foreseeable future projects. At the project level, there were determined to be no impacts related to air traffic noise; as such, cumulative impacts related to air traffic noise are not evaluated.

5.3.7.1 Geographic Scope

The geographic scope of analysis for cumulative noise impacts (construction and operations) is the area within 2,000 feet of the project site.

5.3.7.2 Cumulative Effects

Construction

Very few of the related projects listed in Table 5-2 are within 2,000 feet of the proposed project site. The distance to the other projects, along with the shielding provided by intervening buildings, would substantially reduce construction noise from these projects so that they would not generate any cumulative impacts in the immediate vicinity of the proposed project site. Most of the nearby related projects (i.e., within 2,000 feet) are already constructed, and, as such, their construction activity could not overlap with that of the proposed project, including the BAE Systems Pier 1 North Drydock (#3) and the Shipyard Remediation Project (#4). Construction related to the HII San Diego Shipyard Inc. Marginal Wharf Repair and As-Needed Pile Replacement Project (#23) is anticipated to extend into 2023 and could, therefore, overlap with construction of the proposed project.

The MND prepared for the HII San Diego Shipyard project (District 2019) indicates that its noise and vibration impacts on surrounding land uses would be less than significant and that the project would be in compliance with the City's Noise Abatement and Control Ordinance. Because the proposed project would also have less-than-significant construction impacts, with noise levels at least 14 decibels (dB) below the applicable City noise standard (refer to Table 4.7-12), the two projects would not generate combined noise levels in excess of established thresholds. The next nearest related project with potentially ongoing construction work (the Tenth Avenue Marine Terminal Redevelopment Plan and Demolition and Initial Rail Component Project [#11]) is outside the geographic scope for cumulative noise impacts as it is separated from the project site by

a distance of approximately 2,500 feet and, as a result, would not be expected to generate a cumulative impact if construction were to occur simultaneously at both locations.

The remaining project within the geographical scope for analysis is the Port Master Plan Update (#16), which is a planning document that could result in water and land use designation changes within the District's jurisdiction in the project area. However, no specific related projects have been identified as of the preparation of this EIR, and it would be highly speculative to assume any specific construction activities or schedules for unknown future development occurring under implementation of the Port Master Plan Update. As a result, there would be no significant cumulative construction noise or vibration impacts.

None of the nearby related projects include on-going in-water construction, so there would be no cumulative noise impacts on fish and marine mammals.

Operation

Traffic

As detailed in Chapter 3*, Project Description*, there would be a net decrease in crew and labor at BAE Systems, and, therefore, the project site and surrounding roadway network would experience an incremental decrease in vehicular trips associated with the proposed project during the long-term operational conditions. As noted above, only four related projects are within the 2,000-foot geographical scope for the cumulative noise analysis. Two of these projects are complete and are now operational (#3, #4) and one project (#23) is essentially a maintenance, improvement, and replacement project for existing facilities that would generate negligible long-term traffic. The fourth involves the Port Master Plan Update, which could lead to future changes in local traffic; however, the nature of such changes is purely speculative at this time. As such, no substantial cumulative increases in overall traffic in the project vicinity are anticipated, and the cumulative effect related to traffic noise would not be significant.

Onsite Operations

As described above, the proposed project and the related cumulative projects within the geographic scope of cumulative analysis consist primarily of maintenance, improvement, and replacement projects for existing facilities used for heavy industrial activity related to ship repair. Any future projects occurring subsequent to the Port Master Plan Update would be consistent with the water-dependent industrial uses that currently exist in the area. As a result, operational noise and vibration levels from these projects would be similar in character and level to the existing noise conditions and would not be expected to cause significant changes in the existing environment. Therefore, cumulative effects from past, present, and reasonably foreseeable future projects would not be significant.

5.3.7.3 Project Contribution

Construction

Construction of the proposed project would result in less-than-significant impacts relative to local noise standards and temporary noise increases, as well as established thresholds for groundborne vibration. As noted above, a cumulatively significant noise impact does not exist, and the proposed project would not result in an impact such that a cumulatively significant impact would be created.

The proposed project's contribution to noise and vibration would be less than cumulatively considerable.

Operation

Traffic

Because the proposed project is expected to result in fewer operational vehicular trips under project conditions than existing conditions, noise levels related to vehicular traffic would be less than significant. In addition, a cumulatively significant traffic noise impact does not exist, and the proposed project would not result in an impact such that cumulatively significant impact would be created. As a result, the proposed project's contribution would be less than cumulatively considerable.

Onsite Operations

Operation of the proposed project would result in less-than-significant impacts relative to local noise standards and permanent noise increases, and would not introduce substantial new sources of groundborne vibration. As noted above, a cumulatively significant noise impact does not exist, and the proposed project would not result in an impact such that a cumulatively significant impact would be created. The proposed project's contribution to noise would be less than cumulatively considerable.

5.3.7.4 Level of Significance Prior to Mitigation

The proposed project's incremental contribution to noise and vibration impacts would not be cumulatively considerable.

5.3.7.5 Mitigation Measures

No mitigation is required.

5.3.7.6 Level of Significance After Mitigation

The proposed project's incremental contribution to cumulative noise and vibration impacts would not be cumulatively considerable and therefore would be less than significant.

5.3.8 Sea-Level Rise

A cumulatively considerable sea-level rise impact would occur if the proposed project would exacerbate projected future conditions associated with sea-level rise and climate change when combined with past, present, and reasonably foreseeable future projects. A cumulatively considerable sea-level rise impact would also occur if the proposed project, when evaluated within the context of past, present, and reasonably foreseeable future projects, would be inconsistent with the applicable sea-level rise policies of the CCC or other land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect from sea-level rise, resulting in a cumulatively considerable physical impact on the environment.

5.3.8.1 Geographic Scope

The geographic scope of analysis for cumulative sea-level rise impacts includes the past, present, and reasonably foreseeable future projects identified in Table 5-2 situated along the entirety of the San Diego Bayfront.

5.3.8.2 Cumulative Effects

Projected sea-level rise is expected to increase the number of areas that experience coastal flooding along San Diego Bay. Coastal and low-lying areas are particularly vulnerable to future sea-level rise, especially in combination with future storm events and coastal flooding. Several plans, policies, guidance, and regulations related to sea-level rise have been adopted and/or passed at the state level, the most notable being AB 691 and the CCC Sea Level Rise Policy Guidance. Past, present, and reasonably foreseeable future projects within the geographic scope for cumulative sea-level rise impacts and on public trust lands would be subject to AB 691, which required the District to prepare a sea-level rise impact assessment identifying how it will protect and preserve existing and proposed built environment resources and facilities. The incorporation of adaptation strategies would ensure that past projects within the geographic scope would not exacerbate the effects of sea-level rise. Additionally, because present and reasonably foreseeable future projects within the geographic scope are all within the Coastal Zone, they would be required to demonstrate consistency with the CCC Sea Level Rise Policy Guidance. This guidance provides a framework for addressing sea-level rise in PMPs and coastal development permits and the principles for addressing sea-level rise in the Coastal Zone. Because the past, present, and reasonably foreseeable future projects within the geographic scope would be required to comply with all applicable state plans, policies, and regulations related to sea-level rise (e.g., AB 691, AB 2516, California Coastal Act), cumulative effects related to sea-level rise would not be significant.

5.3.8.3 Project Contribution

As discussed under Threshold 1 of Section 4.8, *Sea-Level Rise*, the proposed project would not exacerbate any existing and/or projected damage to the environment, including existing structures, sensitive resources, and human health, due to predicted climate change effects, particularly sea-level rise. Due to its coastal location, the project site is particularly vulnerable to future sea-level rise and storm surge events. When 100-year floodflows coincide with high tides, on top of future sea-level rise, the risk of flooding in the project vicinity increases. From 2034 through 2050, the lowest landside and waterside structures should remain above the upper end of the permanent sea-level rise projections through mid-century (2050). By 2100, under the medium-high and high risk-aversion scenarios, permanent inundation may become a concern for both landside and waterside components of the project. When accounting for a 100-year storm surge event (temporary inundation), the lowest landside and waterside structures would remain protected until at least 2034, which is the end of the lease period. The waterside elevations are not projected to experience inundation under any of the sea-level rise and storm surge scenarios during the 2050 timeframe. Although the lowest landside portions of the project may become exposed to storm surge under some scenarios during the 2050 timeframe, this would only occur under the extreme risk-aversion scenario.

As discussed further in Section 4.8, under the medium risk-aversion scenario, through 2050 the landside sheet pile walls at the project site would only be overtopped by an inch or two during a 100-year storm surge event. By 2100, which is well after the end of the current lease (2034), the

landside components of the proposed project would be exposed to a 100-year storm surge under all three sea-level rise scenarios. The waterside components of the proposed project would be exposed only under the medium-high and extreme risk-aversion scenarios. This flooding would occur even if the proposed project was not constructed. Consequently, the proposed project would not exacerbate the potential for inundation due to projected sea-level rise or storm surge. Given this finding, mitigation measures are not required. However, the impacts of sea-level rise will be revisited during renewal of the existing lease once it expires in 2034, providing time for modifications that would protect against higher rates of sea-level rise, should those projected levels occur. This approach to monitoring sea-level rise and flooding impacts over time before committing to investments in protection strategies is consistent with the adaptive-pathways approach recommended by the CCC in its Sea Level Rise Policy Guidance.

As discussed under Threshold 2 and shown in Table 4.8-5 of Section 4.8, the proposed project would be consistent with all applicable sea-level rise policies. Therefore, the proposed project would not be inconsistent with the applicable sea-level rise policies of the CCC or other land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect from sea-level rise. As noted above, a cumulative sea-level rise effect from past, present, and reasonably foreseeable future projects does not exist. Therefore, the proposed project's contribution to cumulative sea-level rise impacts would not be cumulatively considerable.

5.3.8.4 Level of Significance Prior to Mitigation

The proposed project's incremental contribution to sea-level rise impacts would not be cumulatively considerable.

5.3.8.5 Mitigation Measures

No mitigation is required.

5.3.8.6 Level of Significance After Mitigation

The proposed project's incremental contribution to cumulative sea-level rise impacts would not be cumulatively considerable and therefore would be less than significant.

5.3.9 Transportation, Circulation, and Parking

Based on the changes to the State CEQA Guidelines initiated by the passage of SB 743, a project's impact on transportation is measured by the amount of vehicle miles traveled (VMT) that would be generated. By its nature, VMT is inherently a cumulative issue, as it is not likely that any single project would be large enough to prevent the region or state from meeting its VMT reduction targets, which correlate to the state's GHG reduction targets. Rather, a project's individual VMT contributes to cumulative VMT impacts.

Cumulative impacts on transportation, circulation, and parking could also occur if the proposed project, when combined with past, present, and probable future projects, would conflict with applicable programs, plans, ordinances or policies addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Lastly, a cumulative parking impact could occur when these cumulative projects combine with the proposed project to result in an insufficient parking supply.

The proposed project is not anticipated to result in impacts related to substantial increases in hazards due to geometric design features or incompatible uses, or inadequate emergency access. As such, cumulative impacts related to these issues are not evaluated.

5.3.9.1 Geographic Scope

The geographic scope for cumulative VMT impacts includes the entire San Diego region. As such, the VMT analysis within Section 4.9, *Transportation, Circulation, and Parking,* is inherently a cumulative analysis. However, a summary of the discussion is provided below. The geographic scope of cumulative analysis for all transportation, circulation, and parking impacts includes all past, present, and probable future projects identified near the project site and along the San Diego Bay waterfront that have affected, or would have the potential to affect, the same transit, roadway, bicycle, pedestrian, and parking facilities as the proposed project.

5.3.9.2 Cumulative Effects

Consistency with Applicable Programs, Plans, Ordinances, or Policies Addressing the Circulation System

Cumulative effects on the circulation system, including transit, roadway, pedestrian, and bicycle facilities could occur if past, present, and probable future projects would conflict with a program, plan, ordinance, or policy addressing these facilities. Past projects identified in Table 5-2 would have been required to demonstrate consistency with any program, plan, ordinance, or policy addressing the circulation system. Reasonably foreseeable future projects such as National City Bayfront Projects and Plan Amendments (Cumulative Project #21) would include implementation of Segment 5 of the Bayshore Bikeway, which is a bicycle facility identified in applicable plans, including the San Diego Regional Bike Plan and National City Bicycle Master Plan. Other present and probable future projects within the cumulative study area would be required to demonstrate consistency with programs, plans, ordinances, and policies related to transit, roadway, pedestrian, and bicycle facilities. Therefore, cumulative effects from past, present, and probable future projects would not be significant.

Vehicle Miles Traveled

The generation of VMT, which is a function of the number and distance of vehicle trips, is largely a cumulative impact by nature. VMT from past, present, and probable future projects have contributed to, and will continue to contribute to, cumulative VMT impacts as well as similarly cumulative secondary physical environmental effects such as increased GHG emissions. The VMT analysis was completed using the San Diego Association of Governments' (SANDAG's) Series 13 Activity Based Model (ABM), a travel demand forecasting model that incorporates census data and travel surveys to inform the algorithms of the model's projections. Series 13 ABM has four forecast scenarios: 2012, 2020, 2035, and 2050. Generally, the 2050 Regional Average includes past and present cumulative projects that were either constructed, in progress, or in the planning phases when the SANDAG Series 13 ABM was completed. As such, while these projects have been accounted for in the 2050 Regional Average VMT calculations, some present as well as probable future projects have not. The 2050 Regional Average VMT/Employee for the San Diego region is 22.2 miles per person. It should be noted that the 2050 Regional Average is the most conservative cumulative forecast scenario, as it presents a lower VMT/Employee due to the planned transit and

telecommuting features in the future. Therefore, the analysis relies on the 2050 Regional Average for determining the significance of cumulative VMT impacts associated with the proposed project.

Cumulative present and probable future projects would be required to comply with SB 743 during project-specific environmental review. However, although compliance is required, it is not guaranteed each present and probable future project would be able to achieve a 15% reduction (or other applicable thresholds used by the relevant Lead Agency) below regional average VMT. Mitigation may reduce VMT for a project, but still may not reduce potential impacts to a less-than-significant level. Projects that cannot reach the VMT reduction goal of 15% below the regional average would contribute to increased VMT in the region, which would contribute to the prevention of the state and region reaching the established GHG reduction targets. Therefore, present and probable future projects in the region could result in a cumulatively significant VMT impact.

Parking

Due to the industrial setting of the project vicinity, and the nature of most of the cumulative projects as industrial improvement or redevelopment projects, none of the past, present, or reasonably foreseeable projects listed in Table 5-2 include components that would result in inadequate parking within the cumulative study area. Construction activities of cumulative projects may temporarily reduce parking availability, and other cumulative projects such as the San Diego Bay and Imperial Beach Oceanfront Fireworks Display Events project would also result in temporary loss of parking during fireworks display events. However, any temporary loss of parking would not amount to a cumulative parking impact. Therefore, cumulative effects from past, present, and probable future projects would not be significant.

5.3.9.3 Project Contribution

As noted above, past, present, and probable future projects identified in Table 5-2 have not resulted in cumulative effects related to inconsistencies with programs, plans, ordinances, and policies addressing the circulation system, including transit, roadway, pedestrian, and bicycle facilities; or inadequate parking supply. Therefore, the proposed project would not have the potential to contribute to cumulative impacts related to these issues.

As discussed in Section 4.9, construction worker VMT is not anticipated to be newly generated, rather it would be drawn from existing workers in the City of San Diego area, and would be redistributed through the transportation network based on their travel to different work sites each day. The temporary generation of VMT from construction traffic is not expected to substantially increase VMT in the region such that it could contribute to long-term adverse environmental effects from greenhouse gas and criteria pollutant emissions or hinder the promotion of multimodal transportation systems. Therefore, VMT generated by construction of the proposed project is not anticipated to contribute to the cumulatively considerable VMT impact.

Additionally, as discussed in Section 4.9, operation of the proposed project is anticipated to generate a VMT/Employee of 17.2 miles, which is 0.8 mile below the 2050 Regional Average significance threshold of 18.0 miles (i.e., 15% below the 2050 Regional Average). Therefore, operation of the proposed project would not result in a cumulatively considerable contribution to cumulative VMT impacts.

5.3.9.4 Level of Significance Prior to Mitigation

The proposed project's incremental contribution to cumulative transportation, circulation, and parking impacts would not be cumulatively considerable.

5.3.9.5 Mitigation Measures

No mitigation is required.

5.3.9.6 Level of Significance After Mitigation

The proposed project's incremental contribution to cumulative transportation, circulation, and parking impacts would not be cumulatively considerable and therefore would be less than significant.

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Chapter 6
Additional Consequences of Project Implementation

6.1 Introduction

This chapter addresses the potential for additional consequences related to implementation of the proposed project, pursuant to State CEQA Guidelines Sections 15126.2(e)[1] and 15128. Specifically, this chapter (1) discusses the growth-inducing impacts of the proposed project, which pertain to the ways in which the proposed project could promote either direct or indirect growth, and (2) identifies the environmental effects of the project that were determined to be not significant during the initial environmental review process.

6.2 Growth-Inducing Impacts

State CEQA Guidelines Section 15126.2(e) requires that an EIR discuss the ways in which a proposed project could directly or indirectly foster economic development, population growth, or additional housing and how that growth could affect the surrounding environment. Direct growth inducement would result if a project were to, for example, involve construction of new housing. Indirect growth might occur if a project were to establish substantial new permanent employment opportunities that would stimulate the need for additional housing, utilities, and public services. Similarly, a project would indirectly induce growth if it were to remove an obstacle to additional development, such as a constraint on a required public service or utility. A project proposing to expand water supply capabilities in an area where limited water supply has historically restrained growth would be considered growth inducing.

This section discusses the characteristics and consequences of the proposed project that may encourage or facilitate activities that could significantly affect the environment, either individually or cumulatively. However, the following analysis does not assume that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment (State CEQA Guidelines 15126.2(e)). Rather, Chapters 4 and 5 discuss the adverse impacts on resources, including any impacts that would be caused by cumulative conditions.

6.2.1 Foster Economic Growth

One criterion by which growth inducement can be measured involves economic growth. The proposed project would allow BAE Systems to remain competitive in the ship-building marketplace and continue to meet demands of its customers. As such, it would result in economic benefits to the

[1] The requirements of State CEQA Guidelines Section 15126.2(a) and (c) are met in Chapter 4, *Environmental Analysis*, and Chapter 5, *Cumulative Impacts*, under each resource discussion. Additionally, the requirements of State CEQA Guidelines Section 15126.2(b) are met in Section 4.3, *Greenhouse Gas Emissions and Energy*. Lastly, the proposed project does not meet any of the criteria in State CEQA Guidelines Section 15127 requiring a discussion of significant irreversible environmental changes under Section 15126.2(c).

region. However, growth inducement would be driven primarily by job growth, which is discussed below.

In the short term, the proposed project would induce economic growth by introducing temporary employment opportunities, which would be associated with construction of the project. The proposed project could result in up to a maximum of approximately 149 temporary jobs throughout the duration of project construction (see Table 3-1). In addition to direct short-term employment, these workers would very likely patronize businesses in the project area and in the larger San Diego region, resulting in indirect economic benefits as well.

In the long term, operation of the project would not induce economic growth because there would be an overall decrease in long-term employment opportunities. As discussed further in Chapter 3, *Project Description*, the changes to mooring capacity at Pier 3 South could result in changes to the number of vessel crew and laborers on site depending on the number and type of vessels being serviced at the site. Although the number of laborers on site would fluctuate depending on the specific ship mix, it would not increase compared to existing conditions. When a larger vessel such as an Amphibious Assault Ship (LHD) is moored at Pier 3 South, the total number of laborers on site would decrease anywhere from 223 to 516 (see Table 3-5). This is an insignificant decrease compared to the projected number of jobs in the overall area of influence by 2050 (i.e., approximately 1.911 million) (SANDAG 2013). As such, the proposed project would create new short-term employment opportunities but would potentially decrease the total number of permanent jobs, and therefore would not ultimately be growth inducing as a result of new jobs.

6.2.2 Foster Population Growth

The proposed project does not call for the construction of housing, which is prohibited on District property under the Public Trust Doctrine, nor would it increase the city's population in a manner that would necessitate the construction of additional housing. As described in Section 6.2.1, construction of the proposed project would provide approximately 149 new temporary jobs, with employees anticipated to be drawn from existing residents of the city and surrounding area. Furthermore, the proposed project would potentially decrease the total number of permanent jobs depending on the number and types of vessels being serviced at the site. Therefore, the project would not result in the construction of additional housing, either directly or indirectly, and, as such, would not be growth inducing as a result of new housing.

6.2.3 Removal of Obstacles to Population Growth

As stated above, a project could indirectly induce growth if it were to remove a constraint on a required public service or utility. A project could also indirectly induce growth if it were to establish a precedent-setting action (e.g., an innovation, a change in zoning, a general plan amendment approval). The proposed project would not require a Port Master Plan amendment or infrastructure upgrades beyond the boundaries of the project site and, therefore, would not result in the removal of obstacles to growth.

6.3 Effects Not Found to Be Significant

Pursuant to State CEQA Guidelines Section 15063, the District prepared an Initial Study that determined that effects related to aesthetics, agriculture and forestry resources, cultural resources, geology and soils, mineral resources, population and housing, public services, recreation, and tribal cultural resources would not be significant. In accordance with State CEQA Guidelines Section 15128, a brief explanation indicating the reasons why the effects on these resources would not be significant is provided under each subheading below.

6.3.1 Aesthetics

6.3.1.1 Adverse Effect on a Scenic Vista

The visual character of the project site and surrounding area is defined by industrial uses, proximity to the San Diego-Coronado Bay Bridge and Coronado, and the commercial and residential uses in the adjacent Barrio Logan community. Views of the project site from the surrounding areas include large ships, working piers, berths, security fencing, lighting, and drydocks. Planning District 4, where the project site is located, does not contain any vista areas, as designated by the PMP. Designated vistas in District 6 (Coronado Bayfront) have partial but mostly obstructed views of the project site. The project site represents a small portion of the viewshed from Coronado. Furthermore, the character of the project site is compatible with that of the naval shipyards immediately to the southeast. Therefore, existing views from Coronado would not change substantially with implementation of the proposed project, and impacts on scenic vistas would be less than significant.

6.3.1.2 Scenic Resources along a State Scenic Highway

The San Diego-Coronado Bay Bridge (State Route 75 [SR-75]), located just north of the project site, is a State Scenic Highway. Long-distance views of downtown San Diego from the San Diego-Coronado Bay Bridge are dominated by a mix of high-rise residential, commercial, and urban developments. The view of the project site appears in the foreground, surrounded by industrial uses, including ships, silos, warehouses, and heavy industrial machinery. There are no trees, rock outcroppings, or other scenic resources along SR-75. The project would include visual changes, including additional mooring dolphins, quay wall modifications, and replacement structures. None of these changes are anticipated to damage scenic resources along SR-75 because none have been identified. Therefore, impacts on designated scenic highways would be less than significant.

6.3.1.3 Degradation of Existing Visual Character or Quality

The project site is in an area of the District that is developed entirely with industrial and maritime uses. The proposed project components would be similar in color, size, bulk, and scale to existing structures at the project site and in the surrounding area. The proposed project would have less-than-significant impacts on the visual character and quality of the surrounding area.

6.3.1.4 Light and Glare

The proposed project would upgrade existing facilities at the project site. This includes replacing existing lighting with LED lighting to increase energy efficiency. However, this would not change the hours of operation or substantially increase nighttime lighting. In addition, no structures with highly reflective materials are proposed; therefore, no additional glare would occur. Furthermore, none of the operational changes associated with the proposed project would generate new sources of substantial lighting or glare. Therefore, lighting and glare-related impacts from the proposed project would be less than significant.

6.3.2 Agriculture and Forestry Resources

6.3.2.1 Important Farmland

The project site is entirely within the District. According to the California Department of Conservation (DOC) 2016 San Diego County Important Farmland Map, the project site is classified as "Urban and Built-Up Land" and "Other Land," classifications that do not contain agricultural uses or areas that have been designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (DOC 2016). Construction of the proposed project would not affect Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, and there is no potential for any actions to convert farmland resources to nonagricultural uses. No impact would occur.

6.3.2.2 Williamson Act Contracts or Agricultural Zoning

The project site is not zoned for agricultural use, nor is there a Williamson Act contract for the site (DOC 2013). Therefore, the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and no impact would occur.

6.3.2.3 Conflict with Forestland Zoning

The project site is classified as "Urban and Built-Up Land" and not zoned as forestland, timberland, or timberland zoned Timberland Production (DOC 2016). No land that has been zoned as forestland or timberland exists within the boundaries of the project site. No impact would occur.

6.3.2.4 Conversion of Forestland to Non-Forest Use

No land that has been zoned as forestland or timberland exists within the boundaries of the project site. Approval of the proposed project would not result in a loss of forestland or the conversion of forestland to other uses. No impact would occur.

6.3.2.5 Conversion of Farmland to Non-Agricultural Use

Implementation of the proposed project would have no impact on agriculture and/or forestry resources. No agricultural land, forestland, or timberland exists on or in the vicinity of the project site. The proposed project would not involve changes to the existing environment that, because of their location or nature, would result in the conversion of farmland to nonagricultural use or forestland to non-forest use. No impact would occur.

6.3.3 Cultural Resources

6.3.3.1 Historical Resource

To qualify as historical resources under CEQA, buildings or structures need to have historical significance as well as historical integrity with respect to their period of significance. Although buildings or structures that are less than 50 years old sometimes qualify as historical resources under CEQA when they are exceptionally significant, this is rare. The overwhelming majority of historical resources are at least 50 years old. Although several buildings and structures that would be physically altered by the proposed project at the BAE Systems San Diego Ship Repair Yard include elements that are 50 years old or older, those buildings and structures have been subject to substantial alteration. Limited portions of Pier 3 are more than 50 years of age. However, historic aerial photographs show that this pier was dramatically altered in the 1980s. Pier 1, which was a fairly narrow structure in the early 1990s, was altered after 2000 to create a much wider structure. In addition, the production building is an amalgamation of dissimilar structures that have been joined together over time, both prior to and during the last 50 years (NETR 2018). These built resources do not maintain historical integrity with respect to a discernable period of potential significance from more than 50 years ago. For these reasons, the proposed project would not result in an impact on any built resource with potential to qualify as a historical resource. Therefore, no impact would occur.

6.3.3.2 Archaeological Resource

The entire project area consists of constructed fill or water. Analysis of historic maps shows that the historic shoreline in 1857 was east of the project area; therefore, no native soil is present in the project area. A record search was conducted on April 25, 2017, by the South Coastal Information Center located on the San Diego State University campus. The record search revealed that no archaeological resources are present within the project area. Therefore, because the record search was negative and no native soils are present in the project area that could contain an intact archaeological deposit, no impact would occur.

6.3.3.3 Paleontological Resource

The landside portion of the project site is underlain by modern fill, below which is the Bay Point formation. The Bay Point formation is assigned a high resource sensitivity rating in the City of San Diego CEQA Significance Determination Thresholds. Pursuant to City Municipal Code Chapter 14, Article 2, Division 11, Grading Regulations, any proposed excavation or other ground-disturbing activities in a paleontologically sensitive area needs to comply with City Municipal Code Section 142.0151, which requires paleontological resource monitoring when grading involves 1,000 cubic yards or greater and extends 10 feet or deeper within a highly sensitive formation. The City's grading regulations stipulate the treatment for any paleontological resources that are discovered during grading activities. This minimizes potential disturbances of paleontological resources. Compliance with the City's grading regulations would reduce potential impacts on paleontological resources to less than significant.

The waterside portion of the project site is made up of Holocene deposits, which are underlain by a thin layer of younger Quaternary terrace deposits, followed by older Quaternary deposits. The

change between Holocene deposits and younger Quaternary terrace deposits ranges from -16 to -20 feet mean lower low water (MLLW). The change between younger and older Quaternary deposits occurs around -65 feet MLLW. Waterside project activities would consist of dredging to a depth of -70 feet. Waterside project-related activities would not reach geologic formations of high paleontological sensitivity; therefore, they would not destroy a unique paleontological resource, and impacts would be less than significant.

6.3.3.4 Human Remains

No evidence in the historical record indicates that human remains were buried on the site. It is highly unlikely that human remains would be encountered during construction of the proposed project because the project site consists of imported fill and water. However, if human remains should be discovered during construction, which is unlikely, they would be treated in accordance with existing laws and regulations, notably Public Resources Code (PRC) Section 5097 and Health and Safety Code Section 7050.5, ensuring that impacts would be less than significant.

6.3.4 Geology and Soils

6.3.4.1 Rupture of a Known Earthquake Fault

According to the City's Seismic Safety Study, Geologic Hazards and Faults, Sheet 13, the project site is not within an active Alquist-Priolo Earthquake Fault Zone (City of San Diego 2008a). As such, project construction would have no potential to exacerbate rupture of a known earthquake fault, and impacts would be less than significant.

6.3.4.2 Strong Seismic Ground Shaking

The project site is not within an active Alquist-Priolo Earthquake Fault Zone. However, the San Diego region is subject to earthquakes, which can result in strong seismic ground shaking. As such, the project site could be exposed to strong seismic ground shaking in the future. At question, however, is not whether the project site would experience strong seismic ground shaking but, rather, whether project construction and operation would exacerbate such effects on future users at the site. Because the proposed project would have no potential to result in any increased chance of strong seismic ground shaking (i.e., increase the risk of an earthquake), no impact would occur.

6.3.4.3 Liquefaction and Other Seismically Related Ground Failure

The project site is underlain by relatively loose, unconsolidated bay deposits and fill materials. The potential for liquefaction at the project site is high because of the area's shallow groundwater table and the low density of the underlying sandy subsurface materials. In addition, the City's Seismic Safety Study, Geologic Hazards and Faults, Sheet 13, maps the project site as being in an area with high potential for liquefaction.

Three key components are required for liquefaction: (1) liquefaction-susceptible soils, (2) groundwater, and (3) strong ground shaking, such as that caused by an earthquake. The geotechnical report prepared for the *BAE Pier 1 North Drydock Project EIR* (Terra Costa Consulting Group 2015) notes that the recent bay deposits are considered liquefiable. However, the geotechnical

report indicates that the subsurface soils within the Holocene, the younger Quaternary terrace deposits, and the older Quaternary terrace deposits are generally non-liquefiable. There are several isolated pockets of soils that might liquefy, but because of the general heterogeneous nature of the Quaternary terrace deposits, the impact associated with these layers is considered less than significant. Moreover, the design and construction of the proposed project would be required to comply with all seismic safety development requirements, including Title 24 standards contained within the current California Building Code. Because the proposed project would be engineered to eliminate the liquefaction hazard and would not exacerbate the potential for liquefaction to occur, impacts associated with liquefaction or other seismically related ground failure would be less than significant.

6.3.4.4 Landslides

Landslide activity generally occurs in areas that lack vegetation and have steep slopes (typically, with grades of 30 percent or more). The project site is situated on fill areas that are flat and completely developed. In addition, the project site was not mapped as within a landslide hazard zone in the City's Seismic Safety Study (City of San Diego 2008a). No portion of the project site would be susceptible to landslides. As such, the proposed project would not exacerbate the potential for landslides to occur at the site or in the surrounding area. Therefore, no impacts would occur.

6.3.4.5 Soil Erosion or Loss of Topsoil

None of the actions associated with the proposed project would disrupt any native soil or topsoil. In addition, consistent with the District's Jurisdictional Runoff Management Program (JRMP) (pursuant to State Water Resources Control Board Order No. R9-2013-0001, as amended by Order No. R9-2015-0001 and R9-2015-0100 [NPDES Permit #CAS0109266, Municipal Permit]), the proposed project would be designed in accordance with best management practices (BMPs), consistent with the District's *BMP Design Manual*, which requires the use of low-impact development BMPs as well as source-control and treatment-control BMPs (District 2018). As such, soil erosion is not anticipated to occur as a result of construction at the project site, and no impact would occur.

6.3.4.6 Unstable Geologic Units or Soil

Refer to Sections 6.3.4.3 and 6.3.4.4, respectively, for a discussion of potential impacts associated with liquefaction and landslides. Because the proposed project would be engineered to eliminate liquefaction hazards and would not exacerbate the potential for liquefaction to occur, impacts associated with liquefaction or other seismically related ground failure would be less than significant. Because of these onsite conditions and compliance with the applicable regulations, the proposed project would not exacerbate existing unstable conditions, and the impact would be less than significant.

6.3.4.7 Expansive Soil

Expansive soils are fine-grained soils (generally high-plasticity clays) that can undergo a significant increase in volume with an increase in water content as well as a significant decrease in volume with a decrease in water content. Changes in the water content of highly expansive soils can result in severe distress for structures constructed on or against the soils. Underlying soils found on the site

are partially composed of clays and, as such, could be subject to expansion. The Huerhuero-Urban land complex (2 to 9 percent slope) has high shrink-swell behavior, Urban land has variable shrink-swell behavior, and tidal flats have high shrink-swell behavior (USDA 1973). Should any soil failure occur, risks to life or property associated with the proposed project may increase because of the construction of new structures. Construction of the proposed project would be subject to applicable standards of the current California Building Code (California Code of Regulations Title 24), and expansive soils would be removed and replaced with engineered soil. The project site is underlain by Urban land, which is identified as having a variable shrink-swell potential (USDA 1973). Because of the developed nature of the project site, it is likely that expansive soils have been removed during previous development of the site. Therefore, construction of the proposed project would not result in substantial risks to life or property from being located on expansive soils. Impacts would be less than significant.

6.3.4.8 Septic Systems

No septic tanks or alternative wastewater disposal systems are proposed; therefore, no impact would occur.

6.3.5 Hazards and Hazardous Materials

6.3.5.1 Routine Transport, Use, or Disposal of Hazardous Materials

The proposed project would use heavy equipment to dredge sediments and would require demolition activities for several project elements, including Project Elements 1 (Pride of San Diego Drydock Dredging and Moorage), 4 (Pier 3 South Nearshore Dredging), 10 (Central Tool Room Demolition and Reconstruction), 11 (New Production Building), 12 (Administration Office Building), and 13 (Pier 1 Restroom Renovation and/or Demolition). Construction-related hazardous materials would be used during project construction, including fuel, solvents, paints, oils, and grease. In addition, in-water construction activities would include the removal of contaminated sediments, some of which would be transported to an approved upland disposal site capable of accepting contaminated sediment. The proposed project would be required to comply with federal, state, and local regulations for the routine transport, use, and disposal of any hazardous materials during landside and waterside construction activities. These regulations include the Resource Conservation and Recovery Act (RCRA); U.S. Department of Transportation (DOT) Hazardous Materials Regulations (Code of Federal Regulations [CFR] Title 49); California Health and Safety Code; and San Diego County Code, Title 6, Division 8, in combination with construction BMPs that would be implemented during project construction. Any accidental release of these materials due to spills or leaks would be cleaned up in the normal course of business, consistent with the above-mentioned regulations. Once construction is completed, operations would remain similar to existing conditions and the routine transport, use, and disposal of any hazardous materials would continue to occur in compliance with the above-mentioned federal, state, and local regulations. Therefore, impacts associated with the potential to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials would be less than significant.

6.3.5.2 Hazards within One-Quarter Mile of a School

No existing public schools have been identified within one-quarter mile of the project site. The closest public school to the project site is Perkins Elementary School, approximately 0.6 mile to the northwest across SR-75. As such, project construction and operation would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. Therefore, impacts would be less than significant.

6.3.5.3 Airport Land Use Plan

The project site is approximately 3 miles south of San Diego International Airport (SDIA) and 3.25 miles east of Naval Air Station (NAS) North Island. The project site is not within any accident potential zones for SDIA; however, it is within Review Area 2 of the SDIA Airport Influence Area, per the Airport Land Use Compatibility Plan (ALUCP) (SDIA 2014). The proposed project structures are similar in height as other structures in the project area. The San Diego County Regional Airport Authority is currently preparing the ALUCP for NAS North Island; therefore, it was not available for review. In accordance with Federal Aviation Regulations, Part 77, the Federal Aviation Administration (FAA) would be notified at least 45 days prior to construction because of the proximity of the site to a navigation facility. There are no other airports in the vicinity of the project site that could be affected by the proposed project.

6.3.5.4 Emergency Response or Evacuation Plan

Emergency response and evacuation is the responsibility of the police and fire service providers serving the project site. The proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase efficiency of operations. These improvements would allow for newer and larger classes of vessels to be moored and repaired on site; however, these changes are not expected to significantly alter existing site use. Additionally, all of the proposed landside improvements would occur entirely within BAE Systems' leasehold and would not extend off site, where they would potentially interfere with emergency response. As such, proposed project construction or operation would not impair implementation of or physically interfere with an approved emergency response plan.

The proposed project would be required to comply with applicable requirements set forth by the County of San Diego Office of Emergency Services (OES) Operational Area Emergency Plan, San Diego Harbor Police Department (HPD), City of San Diego Police Department (SDPD), and City of San Diego Fire-Rescue Department (SDFD). The County of San Diego OES coordinates emergency response at the local level in the event of a disaster, including fires. This emergency response coordination is facilitated by the Operational Area Emergency Operations Center and responding agencies to the project site, which include the SDPD, SDFD and HPD. Because the proposed project would not result in any changes to access in the surrounding area, impacts would be less than significant.

6.3.5.5 Wildfire

The City of San Diego is subject to both wildland and urban fires due to its climate, topography, and native vegetation (City of San Diego 2015). The extended drought characteristic of the region's

Mediterranean climate and increasingly severe dry periods associated with global warming result in large areas of dry native vegetation that provide fuel for wildland fires. State law requires that all local jurisdictions identify very high fire hazard severity zones (VHFHSZ) within their areas of responsibility (California Government Code Section 51175–51189). Inclusion within these zones is based on vegetation density, slope severity, and other relevant factors that contribute to fire severity.

According to the VHFHSZ Maps prepared by the City in collaboration with the California Department of Forestry and Fire Protection, the project site is not within or adjacent to wildland fire hazard area (City of San Diego 2009). The project site is located on San Diego Bay, near downtown San Diego, and is covered with impermeable surfaces. There are no wildlands or heavily vegetated areas in proximity to the project site, and, as such, replacement of aging structures, improvement to existing infrastructure, and increased efficiency of operations would not exacerbate the potential to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Therefore, no impacts would occur.

6.3.6 Hydrology and Water Quality

6.3.6.1 Groundwater

Because of the proposed project's proximity to the Bay, groundwater at the project site is saline from saltwater intrusion, and, therefore, it is not used as a groundwater supply source or for recharge. Consequently, the proposed project would not impact the groundwater table level or recharge activities. Impacts related to lowering a groundwater table and interfering with groundwater recharge would be less than significant.

6.3.7 Land Use and Planning

6.3.7.1 Physically Divide an Established Community

The proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase efficiency of operations within an existing ship repair yard on San Diego Bay. The proposed project would not expand the physical landside boundaries of the ship repair yard or develop areas outside of its current landside boundaries and expand into any adjacent communities. All the landside improvements would occur entirely within BAE Systems' leasehold. Therefore, the proposed project would not physically divide an established community, and no impacts would occur.

6.3.8 Mineral Resources

6.3.8.1 Known Mineral Resource

The project site is underlain by artificial fill material; no commercial mining operations exist on the project site or in the immediate vicinity. The project site and the surrounding area are not designated or zoned as land with available mineral resources. In addition, the project site does not contain aggregate resources and is not in a mineral resource zone that contains important

resources. In accordance with guidelines established by the State Mining and Geology Board, mineral deposits in western San Diego County have been classified as Mineral Resource Zones (MRZs). According to the Conservation Element of the City's General Plan (City of San Diego 2008b), the project site is mapped within the MRZ-1 classification, which signifies areas where adequate information indicates that no significant mineral deposits are present or where it is judged that there is little likelihood for their presence (City of San Diego 2016a). Therefore, the proposed project would not result in a loss of known mineral resources, and no impact would occur.

6.3.8.2 Important Mineral Resource

The project site is underlain by artificial fill material. The PMP does not identify any mineral resources in the area or designated plans for mineral resource extraction. The project site and the surrounding area do not contain locally important mineral resources. Therefore, implementation of the proposed project would not result in the loss of availability of a locally important mineral resource recovery site, and no impact would occur.

6.3.9 Population and Housing

6.3.9.1 Population Growth

The proposed project would not construct homes or commercial uses or extend roads or other infrastructure that could induce substantial population growth. Construction activities would result in the generation of temporary construction jobs. However, the additional jobs are expected to be filled by people who currently live in the San Diego region. The jobs would not result in relocation of any population. In addition, none of the operational changes associated with the proposed project, which are targeted toward improving operational efficiency, would create new jobs. Therefore, the proposed project would not directly or indirectly induce substantial population growth through the creation of new homes or businesses in the San Diego region. Impacts would be less than significant.

6.3.9.2 Displacement of Housing

The project site is a working ship repair yard on San Diego Bay and does not include residential housing. As such, no housing would be displaced with implementation of the proposed project. Therefore, no impact would occur.

6.3.9.3 Displacement of People

The project site is a working ship repair yard on San Diego Bay and does not contain any permanent residents. The proposed project involves replacement of aging structures, improvement of existing infrastructure, increased space utilization, and increased operational efficiency. Implementation of the proposed project would not displace people or require the construction of replacement housing elsewhere. Therefore, no impact would occur.

6.3.10 Public Resources

6.3.10.1 Fire Protection

The project site is served by the SDFD, along with the San Diego HPD for fireboat operations. The proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase operational efficiency. Construction activities and operational changes associated with the proposed project would not generate new or increased demands on fire protection. Therefore, the proposed project would not result in increased demand that would require new or physically altered fire protection facilities; impacts would be less than significant.

6.3.10.2 Police Protection

The San Diego HPD and/or SDPD provide police protection services at the project site. The proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase operational efficiency. Construction activities and operational changes associated with the proposed project would not generate new or increased demands on police protection. Therefore, the proposed project would not result in increased demand that would require new or physically altered police protection facilities; impacts would be less than significant.

6.3.10.3 Schools

Physical impacts on school facilities and services are typically associated with population in-migration and growth, which increase the demand for schools and result in the need for new or expanded facilities, the construction of which may result in physical impacts on the environment. As discussed above under Section 6.3.9.1, the proposed project would have a less-than-significant effect on population growth. Jobs generated during construction of the proposed project would be filled by the local workforce, and no new jobs would be generated during project operations. Therefore, the proposed project would not result in increased demand that would require the need for new or physically altered school facilities; no impact would occur.

6.3.10.4 Parks

The project site is in an area of predominantly industrial and maritime uses. No park facilities are within or immediately adjacent to the project site that would be physically affected. As discussed above under Section 6.3.9.1, the proposed project would have a less-than-significant effect on population growth. Jobs generated during construction of the proposed project would be filled by the local workforce, and no new jobs would be generated during project operations. Therefore, the proposed project would not result in increased demand requiring the need for new or physically altered park facilities, and any related impact would be less than significant.

6.3.10.5 Other Public Facilities

The proposed project would not result in adverse impacts on other public facilities. As discussed above, physical impacts on public services are usually associated with in-migration and population growth, which increase demand for public services and facilities. The proposed project would not increase the local population. Although additional employees are anticipated during construction,

they are not expected to increase the use of existing public services and facilities to the extent that new or expanded facilities would be necessary. Therefore, the proposed project would not result in increased demand that would require the need for new or physically altered public facilities. No impact would occur.

6.3.11 Recreation

6.3.11.1 Increased Use of Parks or Other Recreational Facilities

An increase in the use of existing parks and recreational facilities typically results from an increase in the number of housing units or residents in an area. The proposed project would not result in an increase in the number of housing units or residents in the project vicinity. As discussed above under Section 6.3.10.4, the project site is in an area of predominantly industrial and maritime uses, and no park facilities are within or immediately adjacent to the project site. Although additional employees are anticipated during construction, they are not expected to use existing neighborhood or regional parks heavily or any other recreational facilities. In addition, none of the operational changes associated with the proposed project would create new jobs. Impacts would be less than significant.

6.3.11.2 Construction or Expansion of Recreational Facilities

The proposed project does not include the development of any recreational facilities. The proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase operational efficiency. In addition, as described under Section 6.3.11.1, the project would not increase the use of existing recreational facilities. Therefore, the proposed project would not require construction or expansion of recreational facilities that might have an adverse physical effect on the environment. As a result, no impact would occur

6.3.12 Transportation, Circulation, and Parking

6.3.12.1 Geometric Design Features

The proposed project does not involve any design modifications to existing street segments or intersections, nor would it change any driveways that provide access to the project site. Additionally, the project site is situated in an area consisting predominantly of industrial and maritime uses. The proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase efficiency of operations within an existing ship repair yard on San Diego Bay. The project site would continue to operate as a ship repair yard upon project completion, which is compatible with the surrounding land uses. Therefore, the proposed project does not have the potential to increase traffic hazards to motorists or create an incompatible traffic-related use. No impacts would occur.

6.3.12.2 Emergency Access

Construction of the proposed project would not require any temporary closures of public roadways or driveways that could impede emergency access either within the District's jurisdiction or along

streets under the jurisdiction of the City of San Diego. Access to the site from E. Belt Street would be maintained throughout project construction. Additionally, there are no components of the proposed project that would result in inadequate emergency access during project operations. No impacts on emergency access would occur.

6.3.13 Tribal Cultural Resources

6.3.13.1 California Register of Historical Resources

Pursuant to Assembly Bill (AB) 52 (codified as PRC Section 21080.3.1), tribes can request to be notified of projects in particular geographies. However, at present, no Native American tribes have requested consultation regarding environmental review for projects subject to CEQA within the District's jurisdiction. Tribal cultural resources (TCRs) are a defined class of resources under Section 1 of AB 52. TCRs include sites, features, places, cultural landscapes, and sacred places or objects that have cultural value or significance to a tribe.

A search of the Native American Heritage Commission's Sacred Lands File conducted on August 13, 2018 revealed that there are no known sacred lands in or near the project area. Additionally, a record search conducted on April 25, 2017, by the South Coastal Information Center revealed that no cultural resources have been recorded in the project area. Furthermore, the project area is constructed entirely of fill. Historic maps indicate that the natural shoreline was east of the project area in 1857. Therefore, the proposed project would not cause a substantial adverse change in the significance of a TCR, and no impacts would occur.

6.3.13.2 California Native American Tribe Significant Resource

Pursuant to PRC Section 21080.3.1 (AB 52), California Native American tribes that are traditionally and culturally affiliated with the project area can request notification of projects in their traditional cultural territory. No tribes have requested consultation regarding projects that are subject to CEQA within the District's jurisdiction. The District has determined that no impacts would occur on TCRs, given the lack of substantial evidence and the criteria set forth in subdivision (c) of PRC Section 5024.1. However, in the event that a TCR is unexpectedly identified during the course of the proposed project and the District determines that the project may cause a substantial adverse change to a TCR, the District will rely on measures described in the Public Resources Code that, if the District determines to be feasible, may avoid or minimize the significant adverse impacts (PRC Section 21084.3 (b)).

6.3.14 Utilities and Service Systems

6.3.14.1 Exceed Wastewater Treatment Requirements

Wastewater treatment service is provided to the project site by the Metropolitan Sewerage System, which is owned and operated by the City of San Diego Public Utilities Department (PUD), Wastewater Branch. The Metropolitan Sewerage System serves the City's water customers as well as 12 cities and agencies, with a service area of approximately 450 square miles and service population of approximately 2.2 million. The Metropolitan Sewerage System collects, treats, and disposes of

approximately 180 million gallons per day (mgd) of wastewater. Planned improvements will increase wastewater treatment capacity to serve an estimated population of 2.9 million through 2050, when nearly 340 mgd of wastewater will be generated (City of San Diego 2016b). Three treatment plants currently treat wastewater generated within the Metropolitan Sewerage System's service area (i.e., the North City Water Reclamation Plant, South Bay Water Reclamation Plant, and Point Loma Wastewater Treatment Plant). The Point Loma plant currently treats wastewater generated at the project site and has a treatment capacity of 240 mgd and a peak wet-weather capacity of 432 mgd (City of San Diego 2016b).

As discussed in Section 6.3.9.1, the proposed project would not increase population; the jobs generated during project construction would primarily rely on workers drawn from the local workforce, which is currently served by existing wastewater treatment facilities; no new jobs would be generated during project operations. Project-generated wastewater requiring treatment would be limited to that generated by onsite construction personnel and activities. These activities, which would be limited primarily to personal wastewater, would not generate a significant amount of new wastewater that would require new treatment facilities. In addition, none of the operational changes associated with the proposed project would generate new or additional sources of wastewater. Therefore, impacts would be less than significant.

6.3.14.2 Construction of New Water or Wastewater Treatment Facilities

As discussed above in Section 6.3.14.1, the proposed project would generate minimal wastewater during construction. In addition, none of the operational changes associated with the proposed project would generate new sources of wastewater or require the expansion of existing wastewater treatment facilities. Similarly, water use would increase minimally during project construction. No new sources of water use are anticipated during project operations compared to existing conditions, and any water-related improvements would be limited to the replacement of existing potable water feeds. Therefore, the proposed project would not substantially increase the amount of water or wastewater requiring treatment and would not require the need for new or improved water or wastewater treatment facilities. Impacts would be less than significant.

6.3.14.3 Construction of New or Expansion of Existing Stormwater Drainage Facilities

The proposed project would not result in a change to existing stormwater flows or drainage patterns or result in other stormwater discharges during construction that would require new or upgraded stormwater drainage facilities. The proposed project would increase space utilization and increase operational efficiency but would not substantially alter the existing drainage pattern of the site. The project site would continue to discharge to the Bay but would not increase the rate or amount of surface runoff because the impervious surfaces would be similar to existing conditions. Construction of the proposed project would be required to comply with the District's Municipal Stormwater Permit, District Code Article 10 (Stormwater Management and Discharge Control Ordinance), and the JRMP. The proposed project is considered a Priority Development Project; therefore, it is required to implement pollutant control BMPs, following the hierarchy described in the District's *BMP Design Manual* (i.e., retention, partial retention with biofiltration, or flow through with participation in an Alternative Compliance Program).

During project operations, the impervious surfaces associated with the site would remain consistent with existing conditions, as the majority of the site currently consists of impervious surfaces. The project site would continue to discharge directly to the Bay. As such, the proposed project would not substantially increase the amount of surface runoff and exceed the capacity of existing or planned stormwater drainage systems, requiring the construction of new or expansion of existing storm drain facilities. In addition, it is anticipated that relevant project elements would incorporate existing BMPs, including the Stormwater Diversion System, or modify/develop project-specific BMPs, as appropriate in accordance with regulatory requirements. The diversion system consists of 36 catch basins and associated piping as well as secondary containment. Additional system capacity would not be required. Therefore, impacts would be less than significant.

6.3.14.4 Sufficient Water Supplies Available to Serve the Project

Potable water would be provided to contractors on the site during various project activities, including demolition to limit the propagation of fugitive dust, concrete preparation and placement, and other general activities. Dredge and utility projects do not require potable water. Approximately 150,000 gallons of water would be required for construction of the proposed project (BAE Systems pers. comm.). This water would be provided by the City of San Diego PUD, which is the current water service provider for the project site.

The proposed project includes replacement of existing Pier 3 restroom facilities, thereby requiring the provision of utilities and related infrastructure, including potable water. However, there would not be a substantial change in water use because the nature of operations would remain similar to existing conditions. In addition, the worst-case (largest) onsite vessel crew and labor force size would decrease under the proposed project compared to existing conditions. No other components of the proposed project would require potable water during project operations. Therefore, impacts on water supplies would be less than significant.

6.3.14.5 Adequate Wastewater Capacity Determined by the Wastewater Treatment Provider

As discussed above in Sections 6.3.14.1 and 6.3.14.2, the proposed project would not generate a substantial amount of new wastewater from construction activities. In addition, none of the operational changes associated with the proposed project would generate new sources of wastewater. Therefore, the proposed project would not substantially increase the amount of wastewater that would require treatment and have the potential to affect the wastewater treatment capacity of the Point Loma Wastewater Treatment Plant. Impacts would be less than significant.

6.3.14.6 Served by a Landfill with Sufficient Permitted Capacity

Eight of the project elements require demolition of existing structures and disposal of the subsequent debris. Construction waste generated from this demolition would be transported from the site and disposed of at an approved upland disposal facility (e.g., Miramar or Otay Landfill). A minimum of 65 percent of the construction waste would be recycled in accordance with the City of San Diego Construction and Demolition (C&D) Debris Deposit Ordinance. Scrap steel generated during demolition and construction would be handled through BAE Systems' facility scrap recycling program and, therefore, would not be disposed of at a landfill. In addition, dredged sediment

designated for upland disposal would be transported to Otay Landfill in the city of Chula Vista, which is capable of accepting contaminated sediment. Furthermore, because the proposed project would not increase the number of employees at the site, none of the operational changes associated with the proposed project would generate new sources of solid waste that would require disposal at a landfill. Therefore, impacts would be less than significant.

6.3.14.7 Comply with Federal, State, and Local Regulations Related to Solid Waste

When first enacted, AB 939 required every city and county in the state to prepare a Source Reduction and Recycling Element in their Solid Waste Management Plans to identify how they planned to meet mandatory the state waste diversion goals of 25 percent by 1995 and 50 percent by 2000. AB 939 also established the California Integrated Waste Management Board, the state agency designated to oversee, manage, and track California's solid waste generation each year. In order to further the goals of AB 939, statewide strategies for achieving a 75 percent reduction goal by 2020 were established with the adoption of AB 341 in May 2012. The main component of AB 341 implemented mandatory commercial recycling for certain businesses and public entities. In addition, the City of San Diego C&D Debris Deposit Ordinance requires the majority of construction, demolition, and remodeling projects that need permits to pay a refundable C&D debris recycling deposit and divert at least 65 percent of their debris through recycling, reusing, or donating usable materials.

Eight of the project elements require demolition of existing structures and disposal of the subsequent debris. The construction waste generated from this demolition would be transported from the site and disposed of at an approved upland disposal facility (e.g., Miramar or Otay Landfill). A minimum of 65 percent of the construction waste would be recycled in accordance with the City of San Diego C&D Debris Deposit Ordinance. In addition, dredged sediment designated for upland disposal would be transported to Otay Landfill in the city of Chula Vista, which is capable of accepting contaminated sediment.

Furthermore, because the proposed project would not increase the number of employees at the site, none of the operational changes associated with the proposed project would generate new sources of solid waste that would require disposal at a landfill. Therefore, the proposed project would have a less-than-significant impact related to compliance with federal, state, and local solid waste statutes and regulations.

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Chapter 7
Alternatives to the Proposed Project

7.1 Overview

This chapter describes and analyzes a range of reasonable alternatives that could feasibly attain most of the basic project objectives while avoiding or substantially lessening one or more of the significant effects of the proposed project. The chapter's primary purpose is to ensure that the comparative analysis provides sufficient detail to foster informed decision-making and public participation in the environmental process.

Two alternatives to the proposed project are analyzed in this chapter and discussed in terms of their merits relative to the proposed project.

- Alternative 1 – No Project/No Build Alternative
- Alternative 2 – Reduced Project Alternative

Based on the analysis below, the Reduced Project Alternative (Alternative 2) would be the environmentally superior alternative.

7.2 Requirements for Alternatives Analysis

The State CEQA Guidelines require that an EIR present a range of reasonable alternatives to a project, or to the location of a project, that could feasibly attain a majority of the basic project objectives, but that would avoid or substantially lessen one or more significant environmental impacts of the project. The range of alternatives required in an EIR is governed by a "rule of reason" that requires an EIR to set forth only those alternatives necessary to permit a reasoned choice. An EIR need not consider every conceivable alternative to a project. Alternatives may be eliminated from detailed consideration in the EIR if they fail to meet most of the basic project objectives, are not feasible, or do not avoid or substantially lessen any significant environmental effects (State CEQA Guidelines, Section 15126.6(c)).

In addition to the requirements described above, CEQA requires the evaluation of a No Project Alternative, which analyzes the environmental effects that would occur if the project did not proceed (State CEQA Guidelines Section 15126.6(e)). Moreover, the EIR is required to identify the environmentally superior alternative. If the environmentally superior alternative is the No Project Alternative, the EIR must also identify an environmentally superior alternative among the other alternatives (State CEQA Guidelines Section 15126.6(e)(2)).

7.3 Selection of Alternatives

In developing alternatives that meet the requirements of CEQA, the starting point is the proposed project's objectives. The proposed project includes the following objectives.

1. Construct and operate shipyard repair facilities that maximize the use of existing waterways, available shoreline, and existing land.
2. Modernize the BAE Systems San Diego Ship Repair Yard by providing improved facilities to meet the needs of the current and anticipated ship fleet of military and commercial customers.
3. Enhance worker safety, customer security, and environmental protection programs through integration of relevant project elements.
4. Invest in new shipyard infrastructure that will enhance the short- and long-term attractiveness and viability of San Diego Bay and the region to military and commercial ship operators for construction and repair, consistent with the Port Master Plan.[1]
5. Preserve jobs by maintaining the physical capacity and technical capability to support U.S. Naval presence and commercial maritime needs in San Diego.

CEQA also requires that alternatives be feasible. Feasible is defined in CEQA as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors" (Public Resource Code Section 21061.1). The State CEQA Guidelines indicate that factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, other plans or regulatory limitations, and jurisdictional boundaries and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (State CEQA Guidelines Section 15126.6).

Finally, the alternatives should also avoid or substantially lessen one or more significant environmental impacts that would occur under the proposed project. Table 7-1 summarizes the proposed project's significant impacts, which have been identified to assist with focusing the analysis of alternatives in Section 7.5.

Table 7-1. Summary of Significant Environmental Impacts of the Proposed Project

Resource Impact	Significant and Unavoidable	Less than Significant with Mitigation
Section 4.1, Air Quality and Health Risk		
No significant impact identified	N/A	N/A
Section 4.2, Biological Resources		
Impact-BIO-1: Water Quality Impairment Impacts on California Least Tern and California Brown Pelican Foraging		X
Impact-BIO-2: Potential Disturbance or Destruction of Nests Protected by the Migratory Bird Treaty Act and California Fish and Game Code		X
Impact-BIO-3: Potential Disruption of or Injury to Green Sea Turtles and Marine Mammals During Pile Driving Activities		X
Impact-BIO-4: Loss of Open Water Habitat from Shipyard Operations		X

[1] "Renovation and redevelopment of existing facilities will continue as industries respond to market demands and changes in the maritime industrial climate." San Diego Unified Port District, Port Master Plan (August 2017), page 79.

Resource Impact	Significant and Unavoidable	Less than Significant with Mitigation
Impact-BIO-5: Potential Water Quality Impairment or Construction-Related Impacts on Eelgrass		X
Section 4.3, Greenhouse Gas Emissions and Climate Change		
Impact-GHG-1: Inconsistency with District Climate Action Plan and Partial Consistency with Applicable GHG Reduction Plans, Policies, and Regulatory Programs		X
Section 4.4, Hazards and Hazardous Materials		
Impact-HAZ-1: Landside Potential to Encounter Hazardous Materials in Soil and/or Groundwater		X
Impact-HAZ-2: Waterside Potential to Encounter Hazardous Materials in Sediment		X
Section 4.5, Hydrology and Water Quality		
Impact-HWQ-1: Degradation of Water Quality from Waterside Sediment Contamination		X
Impact HWQ-2: Removal of Creosote Piles Could Result in Resuspension of Sediments Contaminated with PAHs		X
Section 4.6, Land Use and Planning		
No significant impact identified	N/A	N/A
Section 4.7, Noise and Vibration		
No significant impact identified	N/A	N/A
Section 4.8, Sea-Level Rise		
No significant impact identified	N/A	N/A
Section 4.9, Transportation, Circulation, and Parking		
No significant impact identified	N/A	N/A

7.4 Alternatives Considered

Five alternatives were initially considered for evaluation. Based on the criteria described in Section 7.3, *Selection of Alternatives*, in addition to evaluating the No Project Alternative scenario, one other alternative was carried forward. The other alternatives that were considered, but rejected, included an alternate location, overlapping construction schedule, and no waterside improvements. The alternative that was carried forward and analyzed below eliminates certain project elements in order to reduce one or more significant environmental impacts of the proposed project. No alternatives were suggested in any of the scoping comments received during the 30-day public scoping period.

7.4.1 Alternatives Considered But Rejected

As mentioned above, alternatives may be eliminated from detailed consideration in the EIR if they fail to meet most of the basic project objectives, are not feasible, or do not avoid or substantially lessen any significant environmental effects (State CEQA Guidelines, Section 15126.6(c)). The following discusses the alternatives that were initially considered, but rejected for further consideration.

7.4.1.1 Alternate Location

Besides the proposed project site, possible suitable locations with marine-related industrial and specialized berthing designations are largely limited to the Working Waterfront Planning District. However, industrial waterfront property in the District's jurisdiction is limited for several reasons, primarily that there are already existing lease agreements with tenants, and the size or physical constraints of alternative sites, including the lack of drydocks, would not allow implementation of the proposed project. Importantly, the project proponent does not have a current lease or another agreement with the District for another property with adequate acreage or characteristics to accommodate the proposed project, which includes both landside and waterside development with structures designed to accommodate the ship repair services provided by BAE Systems, including three working piers, five wet berths, and two floating drydocks, as well as administrative offices and electrical, metal, painting shops, etc. Therefore, there is a lack of available locations within the District's jurisdiction for the proposed project.

In addition, an alternative site would not likely reduce any of the proposed project's significant impacts and, in certain cases, could worsen one or more impacts. For example, another location may require more dredging to accommodate new drydocks, which would potentially result in greater air emissions and water quality, biological resources, and hazardous materials impacts from longer construction activities. Additionally, an alternative site would not result in the long-term benefits of the proposed project associated with the removal of contaminated sediment from San Diego Bay.

Therefore, because (1) it is unlikely that developing the proposed project at other waterfront location within the District's jurisdiction would reduce a significant impact and not result in similar or more severe impacts, (2) the tenant does not have leasing rights to any other sites, and (3) the proposed project site is surrounded by land uses similar to the proposed project, no suitable alternative sites were identified. Thus, the Alternate Location Alternative was rejected from consideration.

7.4.1.2 Overlapping Construction Schedule

The Overlapping Construction Schedule Alternative was selected because it would reduce the duration of environmental impacts due to the condensed construction schedule, which would begin in 2021 with Project Element 3 (Fender System Repair and Replacement) and Project Element 4 (Pier 3 South Nearshore Dredging) and last through 2025. Under this alternative, construction of several project elements may occur concurrently, as shown in Table 7-2. All construction activities would occur between 7 a.m. and 7 p.m. except for dredging activities, which would potentially occur 24 hours a day, 7 days a week for their duration. Table 7-2 lists the project elements in chronological order and provides the timing, duration, and construction crew size of each element. Note that the anticipated construction schedule in the table is approximate and is provided for analysis purposes, and the actual start and end dates may vary.

Table 7-2. Overlapping Construction Schedule

#	Project Element	Schedule	Duration (months)	Crew Size
3[1]	Fender System Repair and Replacement (If continuous)	February 2021–October 2021	9.00	6
4	Pier 3 South Nearshore Dredging	February 2021–April 2021	2.25	10
5	Pier 3 Mooring Dolphin	March 2021–April 2021	1.50	5
9	Small Boat Mooring Float Replacement	July 2021–August 2021	1.00	5
7	Quay Wall Modifications	October 2021–November 2021	1.00	10
14	Electric Utility Service Update	January 2022–April 2022	3.50	5
8	Post Security Barrier Replacement	February 2022–April 2022	2.00	6
6	Pier 3 Lunchroom Wharf Replacement and Realignment	July 2022–October 2022	3.50	7
1	Pride of San Diego Drydock Dredging and Moorage	February 2023–May 2023	3.25	12
2	Pride of San Diego Drydock Wharf Replacement and Realignment	February 2023–May 2023	4.00	13
15	Sanitary Sewer and Potable Water Utility Services	July 2023–September 2023	3.00	3
11	New Production Building	October 2023–July 2024	9.25	16
12	Administration Office Building	August 2024–May 2025	9.50	16
13	Pier 1 Restroom Renovation and/or Demolition	March 2025–April 2025	1.00	10
10	Central Tool Room Demolition and Reconstruction	June 2025–December 2025	7.00	13

[1] Fender system repairs and new installation to be conducted at various berths and quay walls depending on BAE Pier availability. Schedule for this project element reflects the duration if all berths were replaced/installed continuously.
Note: The project construction schedule has been structured to minimize in-water work during the California Least Tern nesting/foraging season, where feasible.

As shown in Table 7-2, the construction of several project elements would have overlapping schedules,. Due to the condensed construction schedule, which includes construction of several overlapping project elements, it is anticipated that this alternative would result in greater air quality and noise impacts compared to the proposed project. Therefore, this alternative was rejected as infeasible because it would result in greater air quality and noise impacts than the proposed project, and impacts related to the other resources would be similar. Because this alternative would not reduce any significant impacts of the proposed project, and would increase impacts related to air quality and noise, it was rejected from consideration.

7.4.1.3 No Waterside Improvements

The No Waterside Improvements Alternative would eliminate all of the project elements that involve in-water work, including Project Elements 1 through 9, and therefore would only include the landside elements of the proposed project. The No Waterside Improvements Alternative includes the following project elements:

- Project Element 10: Central Tool Room Demolition and Reconstruction
- Project Element 11: New Production Building

- Project Element 12: Administrative Office Building
- Project Element 13: Pier 1 Restroom Renovation and/or Demolition
- Project Element 14: Main Electrical Utility Service Update
- Project Element 15: Sanitary Sewer and Potable Water Utility Services

The purpose of this alternative is to eliminate the project impacts related to hazards and hazardous materials release and exposure resulting from marine side sediment contamination. Under this alternative, all existing in-water structures would remain in their current location and configuration. While the replacement of the Port Security Barrier (PSB) would not occur under this alternative, it should be noted that the U.S. Navy could still require the replacement of the barrier to comply with its security requirements under a separate action. Dredging, and the associated transport of dredged material off site (upland and ocean disposal), would be eliminated under this alternative. Similarly, no pile driving or other bottom disturbing activities would occur under this alternative. As a result, there would be no potential to disturb contaminated sediments during in-water construction activities; however, no removal of contaminated sediment would occur either. Therefore, this alternative would not achieve the same long-term benefits as the proposed project. While this alternative would eliminate the project's significant hazard and hazardous materials impacts related to exposure to contaminated sediment, it would not meet most of the project objectives (#1, #2, #4, and #5) because it would not provide a modernized shipyard repair facility that would meet the berthing needs of current and future Navy assets and other customers, and therefore would not allow BAE Systems to service newer and larger classes of vessels. Therefore, this alternative was rejected from consideration.

7.4.2 Alternatives Selected for Analysis

7.4.2.1 Alternative 1 – No Project/No Build Alternative

The No Project/No Build Alternative is required by CEQA to discuss and analyze potential impacts that would occur if the proposed project was not implemented. Under the No Project/No Build Alternative, the site would operate as it currently does until the expiration of the current lease in 2034. The proposed project would not occur, and the existing site would retain the existing buildings and facilities without any upgrades to and/or reconstruction of these landside or waterside facilities. The existing configuration of the Pride of San Diego Drydock and associated dredge sump would continue to create operational inefficiencies, including the requirement for the drydock to be detached from its moorings and shifted to the west and south during docking and undocking of a vessel. The associated removal of potentially contaminated sediment during the proposed Pride of San Diego Drydock improvements would not occur under this alternative. Dredging of up to approximately 116,600 cubic yards (cy) of dredged material, including potentially contaminated sediment that was previously inaccessible during 2015 remedial dredging activities, would not occur under this alternative, nor would replacement of deteriorated or damaged structures, such as the existing fender systems or Pier 3 North wharf, or security features required by the U.S. Navy, including the PSB or the small boat mooring float replacement. Similarly, no pile driving or other bottom disturbing activities would occur under this alternative. As a result, there would be no potential to disturb contaminated sediments during in-water construction activities; however, no removal of contaminated sediment would occur either. Therefore, this alternative would not achieve the same long-term benefits as the proposed project. While the replacement of the PSB would not occur under this alternative, it should be noted that the U.S. Navy could still

require the replacement of the barrier to comply with its security requirements under a separate action, regardless of whether the No Project/No Build Alternative is adopted. Finally, the No Project/No Build Alternative would not involve landside improvements, including reconstruction of the tool room, production building, administrative office buildings, restrooms, or upgrades to the onsite utilities.

7.4.2.2 Alternative 2 – Reduced Project Alternative

Under Alternative 2, all project elements, except Project Element 1 (Pride of San Diego Drydock Dredging and Moorage Replacement), and Project Element 2 (Pride of San Diego Drydock Wharf Replacement and Realignment) would occur. Eliminating Project Elements 1 and 2 was assumed for this alternative because they represent significant construction components of the proposed project. Elimination of other project elements may also reduce associated construction emissions (whether or not included with the elimination of Project Elements 1 and 2). Therefore, eliminating Project Elements 1 and 2 is a representative "reduced project alternative" for purposes of the alternatives analysis. This alternative includes the following project elements:

- Project Element 3: Fender System Repair and Replacement
- Project Element 4: Pier 3 South Nearshore Dredging
- Project Element 5: Pier 3 Mooring Dolphin
- Project Element 6: Pier 3 North Lunchroom Wharf Replacement and Realignment
- Project Element 7: Quay Wall Modifications
- Project Element 8: Port Security Barrier Replacement
- Project Element 9: Small Boat Mooring Float Replacement
- Project Element 10: Central Tool Room Demolition and Reconstruction
- Project Element 11: New Production Building
- Project Element 12: Administrative Office Building
- Project Element 13: Pier 1 Restroom Renovation and/or Demolition
- Project Element 14: Main Electrical Utility Service Update
- Project Element 15: Sanitary Sewer and Potable Water Utility Services

The purpose of this alternative is to avoid or reduce the project-level and/or cumulative construction impacts associated with biological resources, greenhouse gas (GHG) emissions and energy, hazards and hazardous materials, and hydrology and water quality. Under this alternative, the Pride of San Diego Drydock would remain in its current location and would require the drydock to be moved from its mooring to the west and south in order to submerge and dock or undock a vessel each time a vessel comes in for drydock servicing and would continue to create constraints when wide-bodied vessels are moored at Pier 3 North. This would prevent wide-bodied vessels from being concurrently moored at Pier 3 North and would require the diesel engines of two separate vessels to run concurrently during docking and undocking activities, and would require tugboats to move the drydock. Dredging, and the associated transport of dredged material off site (upland and ocean disposal), would be substantially reduced under this alternative because the project would no longer include the dredging of 98,800 cy of material in order to accommodate the Pride of San Diego

Drydock improvements. However, this alternative would involve the removal of the contaminated sediment around the Pride of San Diego ramp wharf and eastern mooring dolphin during implementation of Project Element 6 (Pier 3 North Lunchroom Wharf Replacement and Realignment). Because Alternative 2 would still include implementation of other project elements that would allow servicing of newer and different classes of vessels (e.g., Project Elements 4 and 5), the potential ship mix at the site as well as the number of vessel crew and laborers onsite would be similar to the proposed project.

7.5 Analysis of Alternatives

This section discusses each of the project alternatives and determines whether each alternative would avoid or substantially reduce any of the significant impacts of the proposed project. This section also identifies any additional impacts resulting from the alternatives that would not result from the proposed project and considers the alternatives' respective relationships to the proposed project's basic objectives. A summary comparison of the impacts of the proposed project and the alternatives under consideration is included as Table 7-3 at the end of this chapter. A summary comparison of the relationship of the project objectives for the proposed project and the alternatives is included as Table 7-4 at the end of this chapter.

7.5.1 Alternative 1 – No Project/No Build Alternative

7.5.1.1 Air Quality and Health Risk

Alternative 1 would not include any construction activities that would result in additional air pollutant emissions. Under the No Project/No Build Alternative, operational conditions would be the same as existing conditions at the site, which currently has more berthing capacity, more vessel calls annually, and higher overall emissions than the proposed project. Under this alternative, the Pride of San Diego Drydock would remain in its current location and would require the drydock to be moved from its mooring to the west and south in order to submerge and dock or undock a vessel each time a vessel comes in for drydock servicing. This would result in operational inefficiencies because it would require the diesel engines of two separate vessels to run concurrently during docking and undocking activities, and tugboats would be needed to move the drydock. Since Alternative 1 would result in higher operational emissions than the proposed project, air quality and health risk impacts from operations would be greater compared to the proposed project, for which impacts would be less than significant.

7.5.1.2 Biological Resources

Under Alternative 1, no pile driving or construction activities associated with the proposed project would occur that would impair the water quality of California least tern and California brown pelican foraging areas; disrupt or injure green sea turtles and marine mammals; disturb or destroy protected nests; result in the loss of open water habitat; or result in indirect impacts on adjacent eelgrass. While this alternative would not disturb any contaminated sediment that could be released into the water column, thereby affecting marine biological resources, it also would not result in the removal of potentially contaminated sediment from San Diego Bay. As such, Alternative 1 would not achieve the same long-term benefits as the proposed project. Overall, no biological resource impacts

would occur under Alternative 1, and impacts would be reduced compared to the proposed project, for which impacts would be less than significant after mitigation.

7.5.1.3 Greenhouse Gas Emission and Energy

Alternative 1 would not include any construction and operational activities that would result in additional GHG emissions. Alternative 1 would be consistent with the District's Climate Action Plan (CAP); however, Alternative 1 would not include the operational efficiency improvements of the proposed project. The proposed improvements would result in a decrease in GHG emissions over time primarily due to the decrease in annual vessel calls, as well as new, energy efficient buildings that would use less energy and water and generate less wastewater. Alternative 1 would maintain the current annual vessel calls; thus, it would reduce GHG emissions compared to existing conditions and the proposed project. Therefore, while construction-related GHG emissions under Alternative 1 would be reduced when compared to the proposed project, this alternative would not incorporate efficiency improvements and would continue business as usual at the project site, thereby not reducing operational GHG emissions. Under this alternative, the Pride of San Diego Drydock would remain in its current location and would require the drydock to be moved from its mooring to the west and south in order to submerge and dock or undock a vessel each time a vessel comes in for drydock servicing. This would result in operational inefficiencies because it would require the diesel engines of two separate vessels to run concurrently during docking and undocking activities, and tugboats would be needed to move the drydock. As such, because the No Project/No Build Alternative would emit more GHGs on an annual basis, it would result in greater impacts associated with GHGs compared to the proposed project, for which impacts would be less than significant after mitigation.

7.5.1.4 Hazards and Hazardous Materials

Alternative 1 would not result in any construction activities that would disturb potentially contaminated landside soils and/or groundwater or waterside sediment contamination, if present. Consequently, Alternative 1 would result in no impact associated with the potential for hazardous materials to be released into the environment and expose workers or the public. Impacts under the proposed project would be less than significant with mitigation. While this alternative would not disturb any contaminated sediment that could be released into the environment from construction and expose workers or the public, it also would not remove potentially contaminated sediment from San Diego Bay. As such, Alternative 1 would not achieve the same long-term benefits as the proposed project. Overall, impacts related to hazards and hazardous materials from Alternative 1 would be reduced compared to the proposed project, for which impacts would be less than significant after mitigation.

7.5.1.5 Hydrology and Water Quality

Unlike the proposed project, Alternative 1 would not involve any soil- or sediment-disturbing construction activities that have the potential to adversely affect water quality from increased turbidity or the release of hazardous materials into the water column. Therefore, Alternative 1 would result in no impacts related to hydrology and water quality, whereas the proposed project would result in less-than-significant impacts with mitigation incorporated. While this alternative would not disturb any contaminated sediment that could be released into the water column, it also would not result in the removal of potentially contaminated sediment from San Diego Bay. As such,

Alternative 1 would not achieve the same long-term benefits as the proposed project. Overall, impacts would be reduced compared to the proposed project.

7.5.1.6 Land Use and Planning

Alternative 1 would not change the existing operations at the site, would not involve any construction activities, and would not have the potential to conflict with plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. As such, similar to the proposed project, Alternative 1 would be consistent with the goals of the PMP and other applicable plans and policies, including the California Coastal Act, the California Coastal Commission's Sea Level Rise Policy Guidance, and the San Diego Bay Integrated Natural Resource Management Plan. Therefore, Alternative 1 would result in no impacts related to land use and planning, which would be slightly reduced compared to the proposed project, for which impacts would be less than significant.

7.5.1.7 Noise and Vibration

Alternative 1 would not involve any noise-generating construction activities, and because the nature of operations would be similar to existing conditions, noise levels under operational conditions would not change. Therefore, no impacts related to noise and vibration would result from Alternative 1, and impacts would be slightly reduced compared to the proposed project, for which impacts would be less than significant.

7.5.1.8 Sea-Level Rise

Alternative 1 would not change any of the land- or waterside structures at the project site, which are at a similar minimum elevation relative to mean lower low water as the proposed project elements. Therefore, impacts related to sea-level rise under Alternative 1 would be less than significant and similar to the proposed project, for which impacts would be less than significant.

7.5.1.9 Transportation, Circulation, and Parking

Alternative 1 would not involve any new construction activities, and operations would remain the same as existing conditions. As such, this alternative would not generate new traffic or parking demands above existing conditions. Therefore, Alternative 1 would result in no impacts related to transportation, circulation, and parking, and impacts would be slightly reduced compared to the proposed project, for which impacts would be less than significant.

7.5.1.10 Relationship to Project Objectives and Summary of Impacts

The project would not result in any significant and unavoidable impacts. However, when accounting for mitigated impacts of the project, the No Project/No Build Alternative would avoid or reduce impacts of the proposed project related to biological resources, GHG emissions and energy, hazards and hazardous materials, and hydrology and water quality. However, the No Project/No Build Alternative would not meet any of the project objectives (#1, #2, #3, #4, and #5), which aim to maximize use of the project site for ship repair facilities, modernize the BAE Systems San Diego Ship Repair Yard by providing improved facilities, enhance worker safety, invest in new shipyard infrastructure to enhance short- and long-term viability of the San Diego Bay and the region to military and commercial ship operators, and preserve jobs by maintaining the physical capacity and

technical capability to support the U.S. Naval presence. Due to the current operational inefficiencies that exist at the project site, these objectives would not be met because none of the project elements, which would increase operational efficiency and are required to meet the demands anticipated by the U.S. Navy's "Pivot West" strategy, would be implemented.

7.5.2 Alternative 2 – Reduced Project Alternative

7.5.2.1 Air Quality and Health Risk

Under the Reduced Project Alternative, there would be no construction associated with Project Elements 1 and 2. As a result, large emission sources during construction, including dredgers, scows, tugs, and survey vessels, would be reduced under Alternative 2; thus, daily and annual construction emissions of criteria pollutants would generally be decreased compared to the proposed project. Under this alternative, the Pride of San Diego Drydock would remain in its current location and would require the drydock to be moved from its mooring to the west and south in order to submerge and dock or undock a vessel each time a vessel comes in for drydock servicing. This would continue existing operational inefficiencies because it would require the diesel engines of two separate vessels to run concurrently during docking and undocking activities, and tugboats would be needed to move the drydock. Therefore, emissions during operation of the Reduced Project Alternative would be similar to existing conditions, which are higher for each criteria pollutant than the proposed project on an annual basis. Because there would be a reduction in emissions during construction and an increase in emissions during operation compared to the proposed project, overall impacts associated with emissions of criteria pollutants from Alternative 2 would be similar to the proposed project, for which impacts would be less than significant.

7.5.2.2 Biological Resources

Alternative 2 would involve in-water work, including pile driving, dredging, barge operations, and some new open water coverage (although a smaller amount than what would occur under the proposed project) that has the potential to result in significant impacts on biological resources, including impacts related to water quality impairment of California least tern and California brown pelican foraging areas, disruption of or injury to green sea turtle and marine mammals during pile driving, disturbance or destruction of protected nests, loss of open water habitat, and indirect impacts on eelgrass habitat outside the project site. Similar to the proposed project, mitigation would be required to reduce these impacts to less-than-significant levels. However, the extent of impacts would be less under Alternative 2 due to the elimination of Project Elements 1 and 2. While this alternative would result in less disturbance of contaminated sediment that could be released into the water column than the proposed project, it also would remove less potentially contaminated sediment from San Diego Bay. As such, Alternative 2 would not achieve the same long-term benefits as the proposed project. Overall, impacts on biological resources from Alternative 2 would be reduced compared to the proposed project, for which impacts would be less than significant after mitigation.

7.5.2.3 Greenhouse Gas Emission and Energy

The Reduced Project Alternative would reduce the amount of sources of construction-related GHG emissions compared to the proposed project due to the elimination of Project Elements 1 and 2. The Pride of San Diego Drydock would remain in its current location under this alternative and would

require the drydock to be moved from its mooring to the west and south in order to submerge and dock or undock a vessel each time a vessel comes in for drydock servicing. This would result in operational inefficiencies because it would require the diesel engines of two separate vessels to run concurrently during docking and undocking activities, and tugboats would be needed to move the drydock. GHG emissions during operation of the Reduced Project Alternative would be similar to existing conditions, which are higher than the proposed project on an annual basis, as shown in Table 4.3-7 of Section 4.3, *Greenhouse Gas Emissions and Energy*. Therefore, Alternative 2 would result in a reduction of GHG emissions resulting from construction, but would result in more GHG emissions from operation compared to the proposed project. Overall, the impacts related to GHG emissions from Alternative 2 would be greater than the proposed project.

7.5.2.4 Hazards and Hazardous Materials

Similar to the proposed project, Alternative 2 would involve ground-disturbing activities on the landside and waterside portions of the project site that would have the potential to encounter landside contamination and waterside sediment contamination, thereby resulting in potentially significant hazards and hazardous materials impacts. Similar to the proposed project, mitigation would be required to reduce these impacts to less than significant. However, the extent of impacts would be less under Alternative 2 due to the elimination of Project Elements 1 and 2. While this alternative would result in less disturbance of contaminated sediment than the proposed project, it also would remove less contaminated sediment from San Diego Bay. As such, Alternative 2 would not achieve the same long-term benefits as the proposed project. Overall, hazards and hazardous materials impacts under Alternative 2 would be reduced compared to the proposed project.

7.5.2.5 Hydrology and Water Quality

Similar to the proposed project, Alternative 2 would involve dredging in the Bay (although less than the project), including removal of contaminated sediment as part of Project Elements 4 and 6, and would also involve construction of the landside project elements. Therefore, Alternative 2 has the potential to violate water quality standards or degrade existing water quality. Similar to the proposed project, mitigation would be required to reduce these impacts to less-than-significant levels. However, the extent of impacts would be less under this alternative due to the elimination of Project Elements 1 and 2. While this alternative would result in less disturbance of contaminated sediment that could be released into the water column than the proposed project, it also would remove less contaminated sediment from San Diego Bay. As such, Alternative 2 would not achieve the same long-term benefits as the proposed project. Overall, hydrology and water quality impacts under Alternative 2 would be reduced compared to the proposed project.

7.5.2.6 Land Use and Planning

Alternative 2 would result in less construction than the proposed project due to the elimination of Project Elements 1 and 2, but operation of Alternative 2 would generally be similar to the proposed project. As such, similar to the proposed project, Alternative 2 would be consistent with the goals of the PMP and other applicable plans and policies including the California Coastal Act, the California Coastal Commission's Sea Level Rise Policy Guidance, and the San Diego Bay Integrated Natural Resource Management Plan. Therefore, land use and planning impacts under Alternative 2 would be similar to the proposed project.

7.5.2.7 Noise and Vibration

Alternative 2 would involve construction activities similar to those anticipated for the proposed project, including pile driving/extraction, dredging, and hauling, but overall construction activities would be reduced compared to the proposed project due to the elimination of Project Elements 1 and 2. Similar to the proposed project. Alternative 2 would result in less-than-significant impacts related to noise standards, temporary noise increases, and vibration. Therefore, noise and vibration impacts under Alternative 2 would be similar to the proposed project.

7.5.2.8 Sea-Level Rise

Alternative 2 would involve many of the same project elements as the proposed project, including Project Element 3 (Pier 1 and 3 Fenders), Project Element 5 (Pier 3 Mooring Dolphins), Project Element 6 (Pier 3 Breakroom), Project Element 7 (Quay Wall), and Project Element 14 (Building 13). Similar to the proposed project, impacts associated with these project elements would be less than significant. Additionally, similar to the proposed project, Alternative 2 would be consistent with the California Coastal Commission's Sea Level Rise Policy Guidance. Therefore, sea-level rise impacts under Alternative 2 would be similar to the proposed project.

7.5.2.9 Transportation, Circulation, and Parking

Alternative 2 would generate construction traffic, including construction worker trips and truck trips, but would be slightly reduced compared to the proposed project because it would not require as many trucks to haul away dredged material and would also likely reduce construction worker trips due to the elimination of Project Elements 1 and 2. Alternative 2 would result in fewer vehicle trips and a reduced parking demand during construction compared to the proposed project, and impacts would be less than significant. However, the proposed project would also result in less-than-significant impacts on transportation, circulation, and parking. Therefore, transportation, circulation, and parking impacts under Alternative 2 would be similar to the proposed project.

7.5.2.10 Relationship to Project Objectives and Summary of Impacts

Alternative 2 would avoid or reduce impacts of the proposed project related to biological resources, GHG emissions and energy, hazards and hazardous materials, and hydrology and water quality during construction. However, this alternative would result in greater air pollutant and GHG emissions than the proposed project during operations because the Pride of San Diego Drydock would remain in its current location and would require the drydock to be moved from its mooring to the west and south in order to submerge and dock or undock a vessel each time a vessel comes in for drydock servicing. This would result in operational inefficiencies because it would require the diesel engines of two separate vessels to run concurrently during docking and undocking activities, and tugboats would be needed to move the drydock. Alternative 2 would only fully meet one of the project objectives (#3) and only partially meet the rest (#1, #2, #4, and #5). Without the improvements to the Pride of San Diego Drydock, substantial operational inefficiencies would still exist at the project site. Thus, this alternative would not fully achieve the objectives related to maximizing the use of existing waterways, available shoreline, and land; modernizing the shipyard to meet the demands of the current and anticipated ship fleet of military and commercial customers; enhancing the short- and long-term viability of the San Diego Bay related to shipyard infrastructure; and preserving jobs by maintaining the physical capacity and technical capabilities needed to support U.S. Naval presence and commercial maritime needs in San Diego.

7.5.3 Environmentally Superior Alternative

Pursuant to CEQA, the EIR is required to identify the environmentally superior alternative. Although the No Project/No Build Alternative (Alternative 1) reduces the greatest number of significant impacts, CEQA requires that when the environmentally superior alternative is the No Project/No Build Alternative, another alternative should be identified. The Reduced Project Alternative (Alternative 2) reduces the second-largest number of impacts of the proposed project associated with biological resources, GHG emissions and energy, hazards and hazardous materials, and hydrology and water quality.

Impacts on biological resources under Alternative 2 would be reduced compared to the proposed project because of the elimination of in-water construction activities and new overwater structures for Project Elements 1 and 2. However, impacts on biological resources under Alternative 2 would still be significant and would require mitigation to reduce the impacts to less than significant. Impacts related to criteria pollutants and GHG emissions under Alternative 2 would be reduced during construction compared to the proposed project because of the reduction in heavy emitters such as scows and tugs; however, Alternative 2 would result in more emissions during the overall life of the project because efficiency measures would not be implemented. Impacts related to hazards and hazardous materials and hydrology and water quality would be reduced compared to the proposed project because Alternative 2 would result in less disturbance of contaminated sediment. However, impacts on hazards and hazardous materials and hydrology and water quality under Alternative 2 would still be significant and would require mitigation to reduce the impacts to less than significant. Impacts on all other resources would be similar to the proposed project under Alternative 2.

Therefore, Alternative 2 is considered the environmentally superior alternative, and overall impacts on environmental resources would be reduced compared to the proposed project (see Table 7-3). However, the proposed project would also result in beneficial effects on the environment, including dredging to remove contaminated sediment from the project site, and efficiency improvements to the operations of the Pride of San Diego Drydock, which would reduce criteria pollutants emissions and GHG emissions over time. This alternative would not fully achieve most of the project objectives (see Table 7-4).

Table 7-3. Summary Impact Comparison of Proposed Project Alternatives

Environmental Resource	Proposed Project Determination	No Project/No Build Alternative (Alternative 1)	Reduced Project Alternative (Alternative 2)
Air Quality and Health Risk	Less than Significant	+1	+1
Biological Resources	Less than Significant w/Mitigation	-1	-1
Greenhouse Gas Emissions and Energy	Less than Significant w/Mitigation	+1	+1
Hazards and Hazardous Materials	Less than Significant w/Mitigation	-1	-1
Hydrology and Water Quality	Less than Significant w/Mitigation	-1	-1
Land Use and Planning	Less than Significant	0	0
Noise and Vibration	Less than Significant	-1	0

Environmental Resource	Proposed Project Determination	No Project/No Build Alternative (Alternative 1)	Reduced Project Alternative (Alternative 2)
Sea-Level Rise	Less than Significant	0	0
Transportation, Circulation, and Parking	Less than Significant	-1	0
Total[1]	**--**	**-3**	**-1**

[1] Lowest score is environmentally superior alternative; however, if the lowest score is the No Project Alternative, then the next lowest score is the environmentally superior alternative.
-1= Reduced; 0 = Similar; +1 = Greater

Table 7-4. Summary Project Objective Comparison of Proposed Project Alternatives

Project Objective	No Project/No Build Alternative (Alternative 1)	Reduced Project Alternative (Alternative 2)
1. Construct and operate shipyard repair facilities that maximize the use of existing waterways, available shoreline, and existing land.	No	Partially
2. Modernize the BAE Systems San Diego Ship Repair Yard by providing improved facilities to meet the needs of the current and anticipated ship fleet of military and commercial customers.	No	Partially
3. Enhance worker safety, customer security, and environmental protection programs through integration of relevant project elements.	No	Yes
4. Invest in new shipyard infrastructure that will enhance the short- and long-term attractiveness and viability of San Diego Bay and the region to military and commercial ship operators for construction and repair, consistent with the Port Master Plan.	No	Partially
5. Preserve jobs by maintaining the physical capacity and technical capability to support U.S. Naval presence and commercial maritime needs in San Diego.	No	Partially

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Chapter 8
List of Preparers and Agencies Consulted

8.1 Lead Agency—San Diego Unified Port District

Real Estate and Development Services

Real Estate

Amber Jensen	Asset Manager
Ryan Donald	Department Manager

Development Services

Wileen C. Manaois	Director
Joseph Smith	Department Manager
Peter Eichar	Project Manager
Kelly Czechowski	Senior Planner
Megan Hamilton	Associate Planner

Planning & Green Port

Eileen Maher	Director, Environmental Conservation
Paul Brown	Program Manager

Office of the General Counsel

Rebecca S. Harrington, Esq.	Senior Deputy General Counsel
Christopher Burt	Deputy General Counsel

8.2 Project Management Consultant—Dudek

Matt Valerio	Project Manager
Shannon Baer	Environmental Analyst

8.3 EIR Preparation—ICF

EIR Management

Chad Beckstrom	Principal-In-Charge/QA-QC
Tristan Evert	Project Manager

Emily Seklecki	Deputy Project Manager

Technical Staff

Kelly Ross	Senior Environmental Planner
Claudia Watts	Environmental Planner
Matt McFalls	Senior Air Quality and Greenhouse Gas Specialist
Sarah Halterman	Air Quality and Climate Change Specialist
Louis Browning, Ph.D	Technical Director, Maritime Air Expert
Brenda Dix	Senior Climate Change Specialist (Sea Level Rise)
Maya Bruguera	Climate Change Specialist (Sea Level Rise)
Jonathan Higginson, INCE	Senior Noise Specialist
Jacob Rzeszutko	Noise Specialist
Keoni Calantas	Senior Biologist
Mike Ireland	Senior Biologist
Laura Rocha	Senior Water Quality Specialist
David Duncan	GIS Specialist

Publication Staff

Kenneth Cherry	Lead Editor
Jenelle Mountain-Castro	Publications Specialist

8.4 Traffic Report—Chen Ryan Associates

Stephen Cook, P.E.	Project Engineer
Nick Mesler	Project Planner
Dale Domingo	Project Planner

8.5 Biological Technical Study and Essential Fish Habitat Assessment—Merkel and Associates

Keith Merkel	Principal Consultant

8.6 Biological Technical Study and Essential Fish Habitat Assessment 3rd Party Review—Marine Taxonomic Services, Ltd.

Robert Mooney, PhD. Principal Marine Scientist

8.7 Hazardous Materials Technical Report—Ninyo and Moore

Lisa Bestard Senior Environmental Scientist

8.8 Agencies, Organizations, and Persons Consulted

Agency/Company Name	Contact
State of California, Governor's Office of Planning and Research, State Clearinghouse and Planning Unit (SCH)	N/A
California Department of Fish and Wildlife	Loni Adams, Marine Environmental Specialist
California Department of Transportation	Melina Pereira, Acting Branch Chief
Native American Heritage Commission	Steve Quinn, Associate Governmental Program Analyst
San Diego Regional Water Quality Control Board	Sarah Mearon, Senior Engineering Geologist Julie Macedo, Senior Staff Counsel
San Diego Association of Governments	Katie Hentrich, Associated Regional Energy/Climate Planner
City of San Diego, Development Services Department	Ismail Elhamad, Associate Traffic Engineer
City of San Diego, Environmental Services Department	Lisa Wood, Principal Planner
City of San Diego, Transportation and Stormwater Department	Mark G. Stephens, Associate Planner
Environmental Health Coalition	Joy Williams, Research Director

I hereby certify that the statements furnished above present the data and information required for this report to the best of my ability, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Signature: _____ Date: July 1, 2020

Chad Beckstrom, Principal, ICF

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Chapter 9
References

9.1 Executive Summary

Anchor QEA, LLC (Anchor QEA). 2019. *Year 2 Post-Remedial Monitoring Progress Report.* February 5, 2019. Available: https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000003580. Accessed: September 2019.

National Oceanic and Atmospheric Administration (NOAA). 2017. *Guidance for Developing a Marine Mammal Monitoring Plan.*

San Diego Unified Port District (District). 2019. *Best Management Practices and Environmental Standards for Overwater Structural Repair and Maintenance Activities for Existing Port Facilities Conducted by the San Diego Unified Port District*.

9.2 Chapter 2—Environmental Setting

Tetra Tech, Inc. 2016. *Historical Study of Shipyard Sites on the San Diego Waterfront, Cesar E. Chavez Parkway to Sicard Street, San Diego, California*. September. Prepared for the San Diego Unified Port District, San Diego, California.

9.3 Chapter 3—Project Description

Anchor QEA, LLC. 2019. *Year 2 Post-Remedial Monitoring Progress Report.* February 5, 2019. Available: https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000003580. Accessed: September 2019.

9.4 Section 4.1—Air Quality and Health Risk

California Air Pollution Control Officers Association (CAPCOA). 2009. *Health Risk Assessments for Proposed Land Use Projects.* July

California Air Resources Board (CARB). 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.* October. Sacramento, CA

———. 2005. *Air Quality and Land Use Handbook: A Community Health Perspectiv*e. Available: http://www.arb.ca.gov/ch/landuse.htm.

———. 2009. *The California Almanac of Emissions and Air Quality* - 2009 Edition. Available: http://www.arb.ca.gov/aqd/almanac/almanac09/almanac09.htm.

———. 2010. *Emissions Estimation Methodology for Commercial Harbor Craft*. Available: https://www.arb.ca.gov/regact/2010/chc10/appc.pdf

———. 2016. *Ambient Air Quality Standards*. Available: https://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed: September 7, 2018.

———. 2018. *Air Quality Data Statistics: Top 4 Measurements and Days Above the Standard*. Available: https://www.arb.ca.gov/adam/topfour/topfourdisplay.php. Accessed: September 2018.

———. 2019a. *What is Carbon Monoxide?* Available: https://ww2.arb.ca.gov/resources/carbon-monoxide-and-health. Accessed: February 26, 2019.

———. 2019b. *Lead & Health*. Available: https://ww2.arb.ca.gov/resources/lead-and-health. Accessed: February 26, 2019.

———. 2019c. *Facility Search Engine*. Available: <https://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php>. Accessed: August 26, 2019.

California Environmental Protection Agency (CalEPA). 2017. *California Climate Investments to Benefit Disadvantaged Communities*. Available: https://calepa.ca.gov/envjustice/ghginvest/. Accessed: September 7, 2018.

———. 2018. CalEnviroScreen 3.0. June 2018 Update. Available: https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30. Accessed: September 2018.

City of San Diego. 2013. *Public Review Draft Program Environmental Impact Report for the Barrio Logan Community Plan Update*. January 8, 2013. Available: https://www.sandiego.gov/sites/default/files/legacy/planning/community/cpu/barriologan/pdf/bl_cpu_full_w_historic_res_091913.pdf.

County of San Diego. 2007. *County of San Diego Guidelines for Determining Significance: Air Quality*. Available: https://www.sandiegocounty.gov/content/dam/sdc/pds/ProjectPlanning/docs/AQ-Guidelines.pdf, Accessed: December 31, 2019.

Gould, Cynthia. September 13, 2018 Email with ICF regarding pre-processed meteorological data.

McConnell, R., K. Berhane, F. Gilliland, S. J. London, T. Islam, W. J. Gauderman, E. Avol, H. G. Margolis and J. M. Peters (2002). Asthma in Exercising Children Exposed to Ozone: A Cohort Study. *Lancet* 359(9304):386–391.

Office of Environmental Health Hazard Assessment (OEHHA). 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments*. March.

Reşitoğlu, Ibrahim. 2018. *NO_X Pollutants from Diesel Vehicles and Trends in the Control Technologies*. Available: https://www.intechopen.com/online-first/nox-pollutants-from-diesel-vehicles-and-trends-in-the-control-technologies. Accessed: March 18, 2019.

Sacramento Metropolitan Air Quality Management District. 2013a. *PM2.5 Implementation/Maintenance Plan and Redesignation Request for Sacramento PM2.5 Nonattainment Area.* October.

———. 2013b. *Sacramento 8-Hour Ozone Attainment and Reasonable Further Progress Plan*. September.

San Diego Air Pollution Control District (SDAPCD). 2005. *Measures to Reduce Particulate Matter in San Diego County.* December. Available: http://sandiegohealth.org/air/SB656StaffRpt.pdf. Accessed: August 2019.

———. 2018a. *2016 Revision of the Regional Air Quality Strategy for San Diego County*. Available: https://www.sandiegocounty.gov/content/sdc/apcd/en/air-quality-planning.html. December.

———. 2018b. Wind Rose Plot Station #23188 – Perkins/Barrio Logan: Wind Speed, and Direction. December 7. Data gathered by ICF.

———. 2019a. *Attainment Status.* Available: https://www.sdapcd.org/content/sdc/apcd/en/air-quality-planning/attainment-status.html. Accessed: April 2019.

———. 2019b. *2018 Air Toxics "Hot Spots" Program Report for San Diego County*. Available: https://www.sandiegocounty.gov/content/dam/sdc/apcd/PDF/Toxics_Program/2018_THS_%20Rpt.pdf. October 16.

San Diego Unified Port District (District). 2015. *Pier 1 North Drydock, Associated Real Estate Agreements and Removal of Cooling Tunnels Project Draft EIR.* April.

San Joaquin Valley Air Pollution Control District. 2015. *Applicable of the Leave to File Amicus Curiae Brief of San Joaquin Valley Unified Air Pollution Control District in Support of Defendant and Respondent, County of Fresno and Real Party in Interest and Respondent, Friant Ranch, L.P*. Filed April.

South Coast Air Quality Management District (SCAQMD). 1993. *CEQA Air Quality Handbook*. November.

———. 2007. *Air Quality Management Plan Chapter 2: Air Quality and Health Effects.* Available: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2007-air-quality-management-plan/2007-aqmp-ch-2.pdf. Accessed: September 2018.

———. 2015. *Applicable of the South Coast Air Quality Management District for Leave to File Brief of Amicus Curiae in Support of Neither Party.* Filed April.

———. 2017. *2016 Air Quality Management Plan*. Appendix I, Health Effects. March.

State of California. 2002. *Air Quality at Memorial Academy Charter School in Barrio Logan, a Neighborhood Community in San Diego*. California Air Resources Board. June. Available: http://www.arb.ca.gov/ch/communities/studies/barriologan/barriologan.htm.

———. 2003. *Ambient Air Monitoring for Hexavalent Chromium and Metals in Barrio Logan: May 2001 through May 2002*. Prepared by Kathy Gill, Operations Planning and Assessment Section. Approved by the Monitoring and Laboratory Division Quality Management Branch Monitoring and Laboratory Division. California Air Resources Board October 14. Available: http://www.arb.ca.gov/ch/communities/studies/barriologan/barriologan.htm.

———. 2004. *Barrio Logan Report: A Compilation of Air Quality Studies in Barrio Logan.* November. California Air Resources Board. November. Available: http://www.arb.ca.gov/ch/communities/studies/barriologan/barriologan.htm.

United States Environmental Protection Agency (EPA). 2001. *Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control*

Requirements; Final Rule. Available: https://www.gpo.gov/fdsys/pkg/FR-2001-01-18/pdf/01-2.pdf. Accessed: September 7, 2018.

———. 2004. *Control of Emissions of Air Pollution from Nonroad Diesel Engines and Fuel*. 40 Code of Federal Regulations, Parts 9 and 69. June.

———. 2014. *Health Risk and Exposure Assessment for Ozone - Final Report*. Available: https://www3.epa.gov/ttn/naaqs/standards/ozone/data/20140829healthrea.pdf. August. Accessed: August 2019.

———. 2016. *Process of Reviewing the National Ambient Air Quality Standards.* Available: https://www.epa.gov/criteria-air-pollutants/process-reviewing-national-ambient-air-quality-standards. Accessed: August 2019.

———. 2018. *Technical Support Document Estimating the Benefit per Ton of Reducing PM2.5 Precursors from 17 Sectors.* Available: https://www.epa.gov/sites/production/files/2018-02/documents/sourceapportionmentbpttsd_2018.pdf. Accessed: February 26, 2019.

———. 2019a. *Health Effects of Ozone Pollution*. Available: https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution. Accessed: February 26, 2019.

———. 2019b. *Health Effects In the General Population.* Available: https://www.epa.gov/ozone-pollution-and-your-patients-health/health-effects-ozone-general-population. Accessed: February 26, 2019.

———. 2019c. *Basic Information about NO_2*. Available: https://www.epa.gov/no2-pollution/basic-information-about-no2. Accessed: April 2020.

———. 2019d. *Criteria Pollutant Nonattainment Summary Report*. Available: https://www3.epa.gov/airquality/greenbook/ancl3.html. Accessed: November 25, 2019.

———. 2019e. *Sulfur Dioxide (SO_2) Pollution*. Available: https://www.epa.gov/so2-pollution/sulfur-dioxide-basics#effects. Accessed: December 31, 2019.

University of California Riverside. 2003. *Measurement of Toxic Air Pollutants for Neighborhood Assessment: Final Report for Barrio Logan Measurement Study.* Prepared by Dennis Fitz, Co-Principal Investigator, College of Engineering–Center for Environmental Research and Technology. Prepared for Todd Sax, California Air Resources Board, Planning and Technical Support Division, Contract No. 00-720. August 27. Available: http://www.arb.ca.gov/ch/communities/studies/barriologan/barriologan.htm.

Western Regional Climate Center. 2012a. *San Diego Lindbergh Field, California Period of Record General Climate Summary – Temperature*. Available: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7740. Accessed: September 11, 2018.

Western Regional Climate Center. 2012b. *San Diego Lindbergh Field, California (047740) Period of Record General Climate Summary – Precipitation*. Available: https://wrcc.dri.edu/cgi-bin/cliGCStP.pl?ca7740. Accessed: September 10, 2018.

9.5 Section 4.2—Biological Resources

California Department of Fish and Wildlife (CDFW). 2018. *California Natural Diversity Database*. August 21, 2018.

California Department of Transportation (Caltrans). 2015. *Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish.*

Fisheries Hydroacoustics Working Group (FHWG). 2008. *Memorandum: Agreement in Principle for Interim Criteria for Injury to Fish from Pile Driving Activities*.

Heck, K. L., G. Hays, and R. J. Orth. 2003. Critical Evaluation of the Nursery Role Hypothesis for Seagrass Meadows. *Marine Ecology Progress Series* 253:123–136.

ICF. 2019. *BAE Systems Construction – Airborne Noise Levels for Potential Impacts on Marine Mammals.*

Kaufman, K. 2001. *Lives of North American Birds.* Houghton Mifflin. Boston.

Kettel, E. F., L. K. Gentle, J. L. Quinn, and R. W. Jarnell. 2018. The Breeding Performance of Raptors in Urban Landscapes: A Review and Meta-analysis. *Journal of Ornithology* 159(1):1–18.

Merkel & Associates, Inc. 2013. *Draft Wharf Shading Study for the Pier 8 Replacement and Demolition Project, Naval Base San Diego.* Prepared for Naval Facilities Engineering Command Southwest Division. November 2013.

———. 2019. *Biological Technical Study and Essential Fish Habitat Assessment for the BAE Waterfront Infrastructure Maintenance, Repair, and Replacement Project.*

National Marine Fisheries Service (NMFS). 2018. *2018 Revision to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0), Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts*.

National Marine Fisheries Service (NMFS) NOAA Fisheries, West Coast Region. 2014. *California Eelgrass Mitigation Policy and Implementing Guidelines.* October 2014.

National Oceanic and Atmospheric Administration (NOAA). 2017. *Guidance for Developing a Marine Mammal Monitoring Plan.*

Nightingale, Barbara and Charles Simenstad. 2001. White Paper. *Overwater Structures: Marine Issues.* University of Washington, Wetland Ecosystem Team, School of Aquatic and Fishery Sciences. Available: http://wdfw.wa.gov/publications/00051/wdfw00051.pdf.

San Diego Unified Port District (District). 2019. *Best Management Practices and Environmental Standards for Overwater Structural Repair and Maintenance Activities for Existing Port Facilities Conducted by the San Diego Unified Port District*.

———. 2013. *Integrated Natural Resources Management Plan*. September. Available: https://www.Portofsandiego.Org/Document/Environment/Natural-Resources/5730-Inrmp-September-2013/File.html.

Scianni et al. 2013. Marine Invasive Species Program – Biofouling Technical Advisory Group. Meeting Notes, April 4, 2013. Sacramento, CA. Available: http://www.slc.ca.gov/Laws-Regs/Article4.8/Studies/TAGNotes/59.pdf.

U.S. Fish and Wildlife Services (USFWS). 1983. *The California Brown Pelican Recovery Plan*. Prepared by USFWS, Portland, Oregon. February 3, 1983. 179 pp.

———. 2006. *California Least Tern 5-Year Review Summary and Evaluation*. Prepared by USFWS Carlsbad Fish and Wildlife Office, Carlsbad, California. September 2006. 32 pp.

———. 2018. Information, Planning, and Consultation System (IPAC). Available: https://www.fws.gov/ipac/. Accessed: June 29, 2020.

U.S. Navy. 2013. *Hawaii-Southern California Training and Testing Environmental Impact Statement/Overseas Environmental Impact Statement*. August 2013. Available: https://www.hstteis.com/Documents/2013-Hawaii-Southern-California-Training-and-Testing-Final-EIS-OEIS/Final-EIS-OEIS.

9.6 Section 4.3—Greenhouse Gas Emissions and Energy

Argonne National Laboratory. 2015. *Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) Model.* October 2.

Blasing, T. J. 2016. *Recent Greenhouse Gas Concentrations*. DOI: 10.3334/CDIAC/atg.032. Updated April. Available: http://cdiac.ornl.gov/pns/current_ghg.html

California Air Pollution Control Officers Association (CAPCOA). 2008. *Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act.* January. Available: http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA-White-Paper.pdf. Accessed: April 2020.

California Air Resources Board. 2008. *Climate Change Scoping Plan*. Available: http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf. December.

———. 2010. *Emissions Estimation Methodology for Commercial Harbor Craft.* Available: https://www.arb.ca.gov/regact/2010/chc10/appc.pdf.

———. 2014. *First Update to the AB 32 Scoping Plan*. Available: http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm.

———. 2016. *2030 Target Scoping Plan Concept Paper*. Available: http://www.arb.ca.gov/cc/scopingplan/document/2030_sp_concept_paper2016.pdf. June 17.

———. 2017. *California's 2017 Climate Change Scoping Plan.* November. Available: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed: September 2018.

———. 2018. *California Greenhouse Gas Emission Inventory - 2018 Edition*. Available: https://www.arb.ca.gov/cc/inventory/data/data.htm.

———. 2019. *California Greenhouse Gas Emission Inventory- 2019 Edition*. Available: https://www.arb.ca.gov/cc/inventory/data/data.htm. Accessed: September 2019.

California Energy Commission (CEC). 2012. G*uide to the (Non-Residential) California Green Building Standards Code*. July 1, 2012. Available: https://www.documents.dgs.ca.gov/bsc/calgreen/mastercalgreennon-resguide2010_2012suppl-3rded_1-12.pdf. Accessed: September 7, 2018.

———. 2016. 2015 Total *System Electric Generation*. Available: https://ww2.energy.ca.gov/almanac/electricity_data/system_power/2015_total_system_power.html. Accessed: January 2, 2020.

———. 2018a. *California Energy Demand Revised Forecast, 2018–2030*. Available: file:///C:/Users/36696/Downloads/TN223244_20180419T154213_California_Energy_Demand_20182030_Revised_Forecast.pdf.

———. 2018b. *2019 Building Energy Efficiency Standards*. Available: https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency. December.

City of San Diego. 2019. *2018 Annual Report: Climate Action Plan*. Available: https://www.sandiego.gov/sites/default/files/city_of_san_diego_2018_cap_annual_report.pdf

County of San Diego. 2018. *County of San Diego Climate Action Plan, Chapter 2: Greenhouse Gas Emissions Inventory, Projections, and Reduction Targets.* February 14, 2018. Available: https://www.sandiegocounty.gov/content/dam/sdc/pds/advance/cap/publicreviewdocuments/PostBOSDocs/Chapter%202%20-%20Greenhouse%20Gas%20Emissions%20Inventory%2c%20Projections%2c%20and%20Reduction%20Targets.pdf.

Energy Policy Initiatives Center. 2015. *2012 Greenhouse Gas Emissions Inventory and Projections for the San Diego Region*. Available: http://www.sdforward.com/pdfs/EIR_final/Appendix%20G%20Greenhouse%20Gas%20Emissions.pdf

Intergovernmental Panel on Climate Change (IPCC). 2007. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.* Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor and H. L. Miller (eds.).

———. 2014. *Climate Change 2014: Synthesis Report*. Available: http://www.ipcc.ch/report/ar5/syr. Accessed: August 2019.

Myhre, G., D. Shindell, F.-M. Bréon, W. Collins, J. Fuglestvedt, J. Huang, D. Koch, J.-F. Lamarque, D. Lee, B. Mendoza, T. Nakajima, A. Robock, G. Stephens, T. Takemura and H. Zhang, 2013: *Anthropogenic and Natural Radiative Forcing. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

National Park Service. 2019. *What is Climate Change?* August 2. Available: https://www.nps.gov/goga/learn/nature/climate-change-causes.htm. Accessed: August 2019.

———. 2018. *Port of San Diego 2016 Maritime Air Emissions Inventory*. June. Accessed: August 2019. Available: https://pantheonstorage.blob.core.windows.net/environment/2016-Maritime-Air-Emissions-Inventory.pdf

San Diego Association of Governments (SANDAG). 2015. *2050 San Diego Forward: The Regional Plan*. Available: http://www.sdforward.com.

———. 2015. *Final Environmental Impact Report San Diego Forward: The Regional Plan. October*. Available: https://sdforward.com/envimpactreport. Accessed: August 2019.

Sempra Energy Company. 2018. *Recognition for our Conservation and Innovation Efforts*. Available: https://www.sdge.com/more-information/environment/about-our-initiatives. Accessed: January 2, 2020.

The Climate Registry. 2018. Default Emission Factors. May 1, 2018.

Unified Port District of San Diego. 2013. *Climate Action Plan*. Available: https://pantheonstorage.blob.core.windows.net/environment/Port-of-San-Diego-Climate-Action-Plan.pdf. Accessed: August 2019.

———. 2018. *Overview of Methods and Results for the Recalibrated 2006 Baseline Greenhouse Gas Inventory and 2016 Greenhouse Gas Inventory Update.*

———. 2020. *Energy.* Available: https://www.portofsandiego.org/environment/energy-sustainability/energy. Accessed: April 2020

U.S. Energy Information Administration. 2017. *Primary Energy Production Estimates in Trill Btu, 2017*. Available: https://www.eia.gov/state/seds/sep_prod/pdf/P2.pdf. Accessed: September 2019.

———. 2019. *California Energy Consumption Estimates, 2017*. Available: https://www.eia.gov/state/?sid=CA. Accessed: September 2019.

U.S. Environmental Protection Agency (EPA). 2015. *Cutting Carbon Pollution, Improving Fuel Efficiency, Saving Money, and Supporting Innovation for Trucks. Regulatory Announcement. EPA-420-F-15-900.* Available: http://www3.epa.gov/otaq/climate/documents/420f15900.pdf. June.

———. 2018. *Greenhouse Gas Emissions from a Typical Passenger Vehicle*. March 2018. Available: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100U8YT.pdf. Accessed: January 2018.

———. 2019. *Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990–2017*. April. Available: https://www.epa.gov/sites/production/files/2019-04/documents/us-ghg-inventory-2019-main-text.pdf. Accessed: April 2019.

———. 2020. *Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990–2018.* April. Available: https://www.epa.gov/sites/production/files/2020-04/documents/us-ghg-inventory-2020-main-text.pdf. Accessed: April 2020.

9.7 Section 4.4—Hazards and Hazardous Materials

Anchor QEA, LLC (Anchor QEA). 2016a. *North Shipyard Remedial Action Plan Implementation Report, San Diego Shipyard Sediment Site – North Shipyard*. July 2016. Available:

https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000003580. Accessed: September 2019.

———. 2016b. *Final Cleanup and Abatement Completion Report, San Diego Shipyard Sediment Site. Cleanup and Abatement Order No. R9-2012-0024.* July 2016. Available: https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000003580. Accessed: September 2019.

———. 2019. *Year 2 Post-Remedial Monitoring Progress Report.* February 5, 2019. Available: https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000003580. Accessed: September 2019.

California Water Boards. No Date. *Site Assessment and Clean Up*. Available: https://www.waterboards.ca.gov/centralvalley/water_issues/site_cleanup/key_regs_policy_docs/.

County of San Diego. 2017. *Multi-Jurisdictional Hazard Mitigation Plan.* October 2017. Available: https://www.sandiegocounty.gov/oes/emergency_management/oes_jl_mitplan.html. Accessed: September 2019.

———. 2018. *County of San Diego Operational Area Emergency Operations Plan.* September 2018. Available: https://www.sandiegocounty.gov/content/sdc/oes/emergency_management/oes_jl_oparea.html. Accessed: September 2019.

EnecoTech Southwest, Inc. 2002. *Additional Soil and Groundwater Investigation Southwest Marine.* Available: https://www.sandiegocounty.gov/content/sdc/deh/doclibrary/. Accessed: September 2019.

ENV America Inc. 2004. *Site Assessment Report, Landside Tidelands Lease Area, Silver Gate Power Plant.* July 14, 2004.

Geosyntec Consultants. 2019. *Sampling and Analysis Report, Area of Investigation under Investigative Order Number R9-2017-0083.* April 30, 2019.

Ninyo & Moore. 2019. *Hazardous Materials Technical Study; BAE Systems Waterfront Improvement Project; 2205 East Belt Street, San Diego, California*. January 25, 2019. (Appendix E).

San Diego County Regional Airport Authority. 2014. *San Diego International Airport Land Use Compatibility Plan.* April 2014. Available: https://san.org/Portals/0/Documents/Land%20Use%20Compatibility/SDIA/SDIA%20ALUCP%20Ch%201-6%20(May%202014).pdf. Accessed: September 2019.

———. 2019. *NASNI. About the ALUCP.* Available: https://www.san.org/NASNI/About-ALUCP. Accessed: September 2019.

San Diego Regional Water Quality Control Board (RWQCB). 2017. *Investigative Order No. R9-2017-0083. An Order Directing BAE Systems San Diego Ship Repair, Inc. and San Diego Gas and Electric Company to Submit Technical Reports Pertaining to an Investigation of Sediment Chemistry in San Diego Bay to the North of BAE Systems San Diego Ship Repair, Inc. August 4, 2017*. Available: https://documents.geotracker.waterboards.ca.gov/regulators/deliverable_documents/2376793980/2017-

0804%20Final%20Investigative%20Order%20No.%20R9-2017-0083.pdf. Accessed: September 2019.

U.S. Environmental Protection Agency (EPA). 2019a. *Categories of Hazardous Waste Generators; Large Quantity Generators (LQGs).* Available: https://www.epa.gov/hwgenerators/categories-hazardous-waste-generators. Accessed: September 2019.

———. 2019b. *Envirofacts. Large Quantity Summary Report.* BR Facility Summary Report. 2007.

9.8 Section 4.5—Hydrology and Water Quality

City of San Diego. 2015. Jurisdictional Runoff Management Plan (JRMP) Appendix IV. Storm Drain System Map, June 16, 2015. Available: https://www.sandiego.gov/sites/default/files/iii._ms4_map_0.pdf. Accessed: August 19, 2019.

Federal Emergency Management Agency (FEMA). 2012. Flood Insurance Rate Map No. 06073C1885G, map revised May 16, 2012. Available: https://msc.fema.gov/portal/search?AddressQuery=2205%20E%20Belt%20St%2C%20San%20Diego%20CA#searchresultsanchor Accessed: September 13, 2018.

Geosyntec Consultants. 2019. *Sampling and Analysis Report, Area of Investigation Under Investigative Order Number R9-2017-0083.* Prepared April, 30, 2019.

Project Clean Water. 2018. *San Diego Bay Watershed Management Area*. Available: http://www.projectcleanwater.org/watersheds/san-diego-bay-wma/. Accessed: September 7, 2018.

San Diego Regional Water Quality Control Board (RWQCB). 2013. Total Maximum Daily Load Progress Report for Convair Lagoon, San Diego Bay. Available: http://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdls/docs/tmdlproject/convairlagoon_pcbs.pdf. Accessed: September 11, 2018.

———. 2016*. Basin Plan. San Diego, CA*. Available: https://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/. Accessed: September 12, 2018.

———. 2017. Investigative Order No. R9-2017-0083. August 4, 2017.

San Diego Unified Port District (District). 2018a. *Jurisdictional Runoff Management Plan and Appendices.* Available: https://pantheonstorage.blob.core.windows.net/environment/january-2018-JRMP-document-and-appendices.pdf Accessed: September 13, 2018.

———. 2018b. *Port BMP Design Manual*. January.

State Water Resources Control Board. 2016. *2014 and 2016 Integrated Report 303(d)/305(b) Report.* Available: https://www.waterboards.ca.gov/water_issues/programs/tmdl/2014_16state_ir_reports/00055.shtml#34200. Accessed: September 11, 2018.

State Water Resources Control Board. 2019*. Water Quality Control Plan, Ocean Waters of California*. Available: https://www.waterboards.ca.gov/water_issues/programs/ocean/docs/oceanplan2019.pdf. Accessed: October 24, 2019.

9.9 Section 4.6—Land Use and Planning

San Diego Unified Port District (District). 2017. *Port Master Plan.* August.

San Diego County Regional Airport Authority. 2013. *San Diego International Airport – Airport Land Use Compatibility Plan*. April 3. Amended May 1. 2014. Available: https://san.org/Portals/0/Documents/Land%20Use%20Compatibility/SDIA/SDIA%20ALUCP%20Ch%201-6%20(May%202014).pdf. Accessed: August 6, 2019.

9.10 Section 4.7—Noise and Vibration

California Department of Transportation (Caltrans). 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. Final. CT-HWANP-RT-13-069.25.2. Sacramento, CA. Prepared by: California Department of Transportation, Division of Environmental Analysis, Environmental Engineering, Hazardous Waste, Air, Noise, and Paleontology Office, Sacramento, CA.

———. 2020. *Transportation and Construction Vibration Guidance Manual*. Final. CT-HWANP-RT-20-365.01.01. September 2013. Sacramento, CA.

City of Coronado. 2012. *General Plan, Noise Element*. Figure 2. Available: https://www.coronado.ca.us/UserFiles/Servers/Server_746006/File/government/departments/comm%20dev/General%20Plan%20Combined%20Files.pdf.

City of San Diego. 2015. *Noise Element of the General Plan*.

———. 2016. *California Environmental Quality Act Significance Determination Thresholds*. Available: https://www.sandiego.gov/sites/default/files/july_2016_ceqa_thresholds_final_0.pdf.

Federal Highway Administration (FHWA). 2008. FHWA Roadway Construction Noise Model (RCNM), Software Version 1.1. December 8, 2008. Prepared by: U.S. Department of Transportation, Research and Innovative Technology Administration, John A. Volpe National Transportation Systems Center, Environmental Measurement and Modeling Division

Nelson P. M. 1987. *Transportation Noise Reference Book*. Butterworth & Co. (Publishers) Ltd. Cambridge, United Kingdom.

Onyx Group. 2011. *Air Installation Compatible Use Zones (AICUZ) Study Update for NAS North Island and Naval Outlying Landing Field Imperial Beach*. Figure 4-8.

Port of Long Beach. 2009. *Middle Harbor Redevelopment Project, Final Environmental Impact Statement (FEIS)/Final Environmental Impact Report (FEIR) and Application Summary Report (ASR). Appendix C, Noise.* SCH No. 2004091010. April.

Ricondo & Associates. 2014. *San Diego International Airport, Airport Land Use Compatibility Plan (ALUCP).* Exhibit 2-1.

U.S. Department of Transportation/Federal Transit Administration. 2018. *Transit Noise and Vibration Impact Assessment Manual.* Final. FTA Report No. 0123. September 2018. Washington, DC. Prepared by Volpe National Transportation Systems Center. Cambridge, MA.

U.S. Environmental Protection Agency. 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.*

9.11 Section 4.8—Sea-Level Rise

California Coastal Commission (CCC). 2015. *California Coastal Commission Sea-Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea-Level Rise in Local Coastal Programs and Coastal Development Permits.* Available: https://documents.coastal.ca.gov/assets/slr/guidance/august2015/0a_execsumm_adopted_sea_level_rise_policy_guidance.pdf.

———. 2018. *California Coastal Commission Sea-Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea-Level Rise in Local Coastal Programs and Coastal Development Permits*. Available: https://documents.coastal.ca.gov/assets/slr/guidance/2018/0_Full_2018Adoptedsea-level riseGuidanceUpdate.pdf.

Griggs, G, J. Árvai, D. Cayan, R. DeConto, J. Fox, H. A. Fricker, R. E. Kopp, C. Tebaldi, and E. A. Whiteman (California Ocean Protection Council Science Advisory Team Working Group). 2017. *Rising Seas in California: An Update on Sea-Level Rise Science*. California Ocean Science Trust. April.

International Council for Local Environmental Initiatives (ICLEI). 2013. *Sea-Level Rise Adaptation Strategy for San Diego Bay*. Prepared by ICLEI with the support of The San Diego Foundation. http://icleiusa.org/wp-content/uploads/2015/08/San-Diego-Sea-Level-Rise.pdf.

Kalansky, Julie, Dan Cayan, Kate Barba, Laura Walsh, Kimberly Brouwer, Dani Boudreau (University of California, San Diego). 2018. *San Diego Summary Report*. California's Fourth Climate Change Assessment. Publication number: SUM-CCCA4-2018-009.

National Oceanic and Atmospheric Administration (NOAA). 2018. *Sea Level Trends.* Available: https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?id=9410170. Accessed: October 15, 2019.

National Resource Council (NRC). 2012. Chapter 5: Projections of Sea-Level Change. In *Sea-Level Rise for the Coastal of California, Oregon, and Washington: Past, Present, and Future.* National Academy of Sciences. Available: https://www.nap.edu/read/13389/chapter/7#97. Accessed: October 15, 2019.

9.12 Section 4.9—Transportation, Circulation, and Parking

BAE Systems. 2019. *BAE Systems Available Parking Capacity*.

City of San Diego. 2006. *Pedestrian Master Plan*. Available: https://www.sandiego.gov/sites/default/files/legacy//planning/programs/transportation/pdf/pmpfv.pdf.

———. 2013. *Bicycle Master Plan*. Available: http://www.sandiego.gov/planning/programs/transportation/mobility/pdf/bicycle_master_plan_final_dec_2013.pdf.

Institute of Traffic Engineers (ITE). 2019*. Draft Guidelines for Transportation Impact Studies in the San Diego Region*. January 22, 2019. Available: https://static1.squarespace.com/static/5ab6b8a33e2d09b08935bcb1/t/5c521ddf21c67c7bc8ba547c/1548885476933/Draft+Guidelines+for+TIS+in+the+San+Diego+Region+1-22-19.pdf. Accessed: April 7, 2020.

Metropolitan Transit System (MTS). 2016. *Metropolitan Fact Sheet.* October 2016. Available: https://www.sdmts.com/sites/default/files/attachments/mts_factsheet.pdf. Accessed: August 14, 2019.

North County Transit District (NCTD). 2018. *COASTER Fact Sheet*. Available: http://www.gonctd.com/wp-content/uploads/2018/08/COASTER-Fact-Sheet-2018.pdf. Accessed: August 14, 2019.

Office of Planning and Research (OPR). 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. December 2018.

San Diego Association of Governments (SANDAG). 2010. *Riding to 2050, the San Diego Regional Bike Plan*. Available: http://www.sandag.org/uploads/projectid/projectid_353_10862.pdf.

9.13 Chapter 5—Cumulative Impacts

Anchor QEA, LLC (Anchor QEA). 2016. *Final Cleanup and Abatement Completion Report, San Diego Shipyard Sediment Site. Cleanup and Abatement Order No. R9-2012-0024.* July 2016. Available: https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000003580. Accessed: September 2019.

Bay Area Air Quality Management District (BAAQMD). 2017. *California Environmental Quality Act - Air Quality Guidelines.* May.

California Air Resources Board (CARB). 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*. Available: http://www.arb.ca.gov/ch/landuse.htm.

National Oceanic and Atmospheric Administration (NOAA). 2017. *Guidance for Developing a Marine Mammal Monitoring Plan.*

San Diego Unified Port District (District). 2019. *Final Mitigated Negative Declaration for the HII San Diego Shipyard Inc. Marginal Wharf Repair and As-Needed Pile Replacement Project*. April 2019. Available: https://pantheonstorage.blob.core.windows.net/ceqa/HII-Wharf-Repair-Pile-Replacement-Final-MND.pdf.

9.14 Chapter 6—Additional Consequences of Project Implementation

California Department of Conservation (DOC). 2013. *San Diego County Williamson Act 2013/2014.* Available: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/San_Diego_w_13_14_WA.pdf. Accessed: August 8, 2018.

———. 2016. *San Diego County Important Farmland 2016, Sheet 1 of 2*. Published May.

City of San Diego. 2008a. *Seismic Safety Study Geologic Hazards and Faults*. Available: http://archive.sandiego.gov/development-services/industry/hazards/pdf/geo13.pdf. Accessed: August 6, 2018.

———. 2008b. *General Plan: Conservation Element*. Planning Department. Available: http://www.sandiego.gov/planning/genplan/pdf/2012/ce120100.pdf. Accessed: August 22, 2018.

———. 2009. *Very High Fire Hazard Severity Zone Map*. Available: https://www.sandiego.gov/sites/default/files/legacy/fire/pdf/maps/grid11.pdf. Accessed: August 20, 2018.

———. 2015. *General Plan: Public Facilities, Services and Safety Element.* Planning Department. Available: http://www.sandiego.gov/planning/genplan/. Accessed: August 6, 2018.

———. 2016a. *California Environmental Quality Act Significance Determination Thresholds*. Development Services Department. July.

———. 2016b. *2015 Urban Water Management Plan*. June 2016.

National Environmental Title Research, LLC (NETR). 2018. *Historic Aerial Views of BAE Systems Site, 1953, 1966, 1980, 1981, 1989, 1994, 1996, 2002, 2003, 2005, 2009, 2014*. Available: https://www.historicaerials.com. Accessed: August 8, 2018.

San Diego Association of Governments (SANDAG). 2013. *Series 13 Regional Growth Forecast, San Diego Region*. October.

San Diego County Regional Airport Authority, Airport Land Use Commission. San Diego International Airport (SDIA). 2014. *Airport Land Use Compatibility Plan*. Adopted April 3, 2014, Amended May 1, 2014. Available: http://www.san.org/Portals/0/Documents/Land%20Use%20Compatibility/SDIA/SDIA%20Factor%20Maps%20and%20Matrices.pdf. Accessed: August 8, 2018.

San Diego Unified Port District (District). 2018. *Port BMP Design Manual*. January.

Terra Costa Consulting Group Inc. 2015. *Final Geotechnical Investigation. Pier 1 North, Large Dry Dock.* October.

U.S. Department of Agriculture. 1973. *Soil Survey of San Diego Area, California*. USDA Soil Conservation Service. December.

Appendix A

Notice of Preparation

San Diego Unified Port District
P.O. Box 120488
San Diego, California 92112-0488

NOTICE OF PREPARATION
of a
DRAFT ENVIRONMENTAL IMPACT REPORT

PROJECT TITLE: **BAE SYSTEMS WATERFRONT IMPROVEMENT PROJECT (UPD #EIR-2018-197)**

APPLICANT: BAE Systems San Diego Ship Repair Inc.

LOCATION: 2205 East Belt Street, City of San Diego, in San Diego County, California

REFERENCE: California Code of Regulations, Title 14, Sections 15082(a), 15103, 15375

The San Diego Unified Port District (District) will be the Lead Agency in preparing an Environmental Impact Report (EIR) for the project identified above (proposed project or project). The District is soliciting input and feedback from various agencies, stakeholders, and the public pertaining to the scope and content of the environmental information that will be included in the EIR. For certain agencies, this may be germane to statutory responsibilities in connection with the proposed project. An agency may need to use the proposed project's EIR when considering its permit or other approval for the project. The project description, location, and possible environmental effects of the proposed project are contained in the attached materials.

Due to the time limits mandated by state law, your comments must be sent at the earliest possible date but no later than 30 days after issuance of this notice. **Comments regarding environmental concerns will be accepted until 5:00 p.m. on Monday, April 8, 2019**, and should be mailed to: San Diego Unified Port District, Development Services Department, Attn: Joseph Smith, Department Manager, P.O. Box 120488, San Diego, CA 92112-0488 or emailed to: jdsmith@portofsandiego.org.

A public scoping meeting regarding the proposed EIR will be held on Monday, March 25, 2019 at 5:00 p.m. at the San Diego Unified Port District Administration Building, Training Room, 3165 Pacific Highway, San Diego, CA 92101.

For questions on this Notice of Preparation, please contact Joseph Smith, Department Manager, at (619) 686-6597.

Signature: Wileen C Manaois Date: March 5, 2019

Wileen C. Manaois
Director, Development Services

Issuance Date: March 7, 2019

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San Diego Unified Port District
P.O. Box 120488
San Diego, California 92112-0488

NOTICE OF PREPARATION
of a
DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE
BAE SYSTEMS WATERFRONT IMPROVEMENT PROJECT
(UPD #EIR-2018-197)

Publication of this Notice of Preparation (NOP) initiates the San Diego Unified Port District's (District's) compliance with the California Environmental Quality Act (CEQA) for the BAE Systems Waterfront Improvement Project (proposed project or project). The NOP is the first step in the Environmental Impact Report (EIR) process. It describes the proposed project and is distributed to responsible agencies, trustee agencies, cooperating federal agencies, and the general public. As stated in State CEQA Guidelines Section 15375, the purpose of the NOP is "to solicit guidance from those agencies as to the scope and content of the environmental information to be included in the EIR." The District is the CEQA lead agency and the Project Applicant/Proponent is BAE Systems San Diego Ship Repair Inc. (BAE Systems or Applicant).

Project Location

The project site is located in San Diego, California, at the BAE Systems San Diego Ship Repair Yard at 2205 E. Belt Street, within Planning Subarea 43 (Belt Street Industrial) of Planning District 4 (Tenth Avenue Marine Terminal) of the certified Port Master Plan. Existing facilities at the project site include three working piers, five wet berths, and two floating drydocks, all of which are used to modernize, repair, and overhaul marine vessels. The site is bounded by East Belt Street and marine-related industrial uses to the north and east, R.E. Staite Engineering to the northwest, NASSCO/General Dynamics ship building facility to the southeast and south, and San Diego Bay to the west. Per the Port Master Plan, the area surrounding the project site is developed entirely with marine-related industrial businesses, while the waterside portion of the site is surrounded entirely by specialized berthing water uses.

Major regional circulation facilities in the area include State Route (SR-) 75, also known as the San Diego-Coronado Bay Bridge, approximately 0.25 mile to the northwest, and Interstate (I-) 5, approximately 0.5 mile to the northeast. Figure 1 provides a regional map of the proposed project's location. Figure 2 provides an aerial view of the proposed project site.

Project Description

BAE Systems is a ship repair company in the San Diego area, primarily serving non-nuclear Navy vessels, as well as commercial customers. The purpose of the proposed project is to maintain and improve existing facilities at the BAE Systems San Diego Ship Repair Yard for the berthing needs of current and future U.S. Naval assets and other customers. As part of the U.S. Navy's "Pivot West" strategy, it is anticipated that more Navy vessels will be home-ported in San Diego. As a result, BAE Systems requires the ability to flexibly locate various ships within the existing facility as well as to ensure safe and efficient facility utilization for the moorage of vessels, including during extreme weather conditions. However, no new berthing space would be provided with the proposed project and no increase in the number of vessels serviced would result.

The proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase efficiency of operations at the ship repair yard. While these improvements would allow for newer and different classes of vessels to be moored and repaired on site, the proposed improvements are not expected to increase the number of vessels serviced as no new berthing space would be provided and the mooring of new, larger vessels would reduce the number of other vessels that could be concurrently moored at the ship repair yard. The proposed project includes 15 distinct project elements designed to improve efficiency and functionality of the existing BAE Systems San Diego Ship Repair Yard. A summary of the proposed activities associated with each project element is provided in Table NOP-1. Figure 3 provides an overall site plan identifying the location of each project element by number and Figures 4 through 11 provide representative photos of the various project elements.

Table NOP-1. Proposed Project Elements

#	Title	Description
1	Pride of San Diego Drydock Dredging and Moorage Replacement	This project element proposes to shift the Pride of San Diego drydock west by approximately 100 feet and replace two existing 15 by 30-foot mooring dolphins (which would include removing twenty-six 18-inch square concrete piles and 85 cubic yards [cy] of concrete caps, installation of thirty-eight 24-inch octagonal precast concrete piles and 900 square feet of surface area). The drydock sump would be relocated, which would require dredging to -70 feet of overdepth and transportation of 24 scows offsite.
2	Pride of San Diego Drydock Wharf Replacement and Realignment	Upon completion of Project Element 1, wharf and ramp modifications would be needed. This project element proposes to extend the Pride of San Diego wharf to provide a material handling area. This element would include demolition of approximately 5,540 square feet of the existing wharf and twenty 18-inch piles, and installation of 12,500 square feet of cast-in-place decking on 73 octagonal piles and 6 concrete precast piles to extend the wharf structure to the northeast. An apron and a new pedestrian access ramp would be installed to minimize in-water structures required to access and support the drydock. The replacement structure would be incorporated into the existing Pride of San Diego wharf ramp; however, if the geotechnical evaluation determines this to be technically infeasible, the existing structure would be demolished and a complete replacement would be constructed (this worst case scenario is assumed for analysis purposes).
3	Fender Repair and Replacement	Fenders are occasionally damaged when impacted by vessels and need to be replaced to provide safe vessel moorage. This project element proposes to remove and replace 503 existing (14-inch by 89-foot) steel H-pile fenders, and install an additional 122 new steel H-pile fenders for a total of 625 fenders. Due to the occasional damage to fenders the project assumed that approximately 39 steel H-pile fenders would be replaced per year.
4	Pier 3 South Nearshore Dredging	This project element proposes to dredge approximately 15,000 cubic yards from the toes of the dredge sump to allow for the safe passage of tug boats while maneuvering large ships. The dredged materials would be placed directly onto dredge scows and disposed off tidelands at an upland disposal site.
5	Pier 3 Mooring Dolphin	This project element proposes the installation of one 16- by 20-foot, 3-foot thick mooring dolphin 970 feet offshore (west) of the U.S. Bulkhead Line. The dolphin would provide a fixed mooring structure to secure the bow of large vessels and would require the installation of eight 24-inch concrete octagonal piles, two 150-ton double bitts, and 16 steel H-pile fenders, 12 cylindrical fenders, whalers, and chocks around the perimeter of the proposed mooring dolphin. This project element is necessary to ensure safe vessel moorage, especially during extreme storm surge or other climatic conditions (e.g., wind and tide).

Table NOP-1. Proposed Project Elements

#	Title	Description
6	Pier 3 North Lunchroom Wharf Replacement and Realignment	This project element proposes demolition of the existing overwater 1,150-square-foot restroom structure, as well as removing the existing 2,915-square-foot wood decking, 595 square feet of metal material, and twenty-seven 12-inch concrete pilings and one HP-pile. This project element proposes to install forty-eight 24-inch octagonal pre-cast concrete pilings; and 8,800 square feet of cast-in-place decking.
7	Quay Wall Modifications	This project element proposes to dredge 300 cy of rock and 500 cy of sediment in the immediate vicinity of the submerged sheet pile structure, and installation of up to 50 linear feet of submerged sheet pile structure.
8	Port Security Barrier Replacement	A Port Security Barrier (PSB) is maintained around the existing shipyard facility as required by the U.S. Navy for vessels located within the BAE Systems San Diego Ship Repair Yard. The U.S. Navy has instituted new, stricter requirements for the PSB system, resulting in the need for BAE Systems to replace the existing PSB with a new design. This project element proposes the removal of the existing PSB consisting of a 3,500-linear-foot floating boom and replacing it with a new 3,500-foot hard barrier. The project element would also replace the weighted anchors that hold the existing PSB system in place (consisting of 30 anchors and 60 sinker weights).
9	Small Boat Mooring Float Replacement	This project element is to address enhanced site security requirements instituted by the U.S. Navy that requires BAE Systems to maintain on-water security, including a security patrol vessel. This project element would involve the replacement of the existing 320-square-foot (160 square feet for each float) aged timber moorage float system with two 200-square-foot concrete floats. The new floats would include one 45-foot-long aluminum gangway, low voltage electrical service, and potable water. This project element also proposes to replace four piles supporting the float.
10	Central Tool Room Demolition and Reconstruction	This project element includes the demolition of the existing 2,000-square-foot central tool room and the construction of a new 21,900-square-foot, 3-story tool room on the wharf (part of Project Element 6). This project element also includes replacing the existing Pier 3 restroom facilities.
11	New Production Building	This project element proposes to demolish the existing 17,675-square-foot production building and construct a new 3-story, 48,379-square-foot (16,475-square-foot building footprint) production building to increase the efficiency of material assembly. An overhead bridge crane would be installed within the first floor of the new building.
12	Administration Office Building	This project element includes removal of four existing trailers and construction of a new permanent 3-story modular administrative office space with approximately 46,000 square feet of work space, a building footprint of 16,000 square feet, and a height of up to 55 feet. The first floor would contain production spaces, a tool room, and restroom. The second and third floors would contain office space and a second-floor break room.
13	Pier 1 Restroom Renovation and/or Demolition	The restroom facility would be reconfigured to increase the number of fixtures and upgraded to provide water efficient fixtures, LED lighting, and other features to increase utility and efficiency. However, upon completion of Project Element 12 (Administration Office Building), the Pier 1 restroom may be demolished.
14	Main Electrical Utility Service Update	This project element proposes to relocate the existing San Diego Gas & Electric (SDG&E) main in Building 13 to Building 65 alongside East Belt Street and to replace and upgrade electrical distribution equipment. This project element would increase overall site safety by allowing SDG&E

Table NOP-1. Proposed Project Elements

#	Title	Description
		technicians access to critical electrical components outside the secure property perimeter.
15	Sanitary Sewer and Potable Water Utilities Services	The existing sanitary sewer and potable water service feeds were installed in 1983. This project element proposes to replace the sanitary and potable water feeds to better accommodate the existing hotel service requirements of modern naval and commercial vessels.

The majority of the proposed work would take place within the District's jurisdiction (i.e., Project Elements 2, 3, 4, and 6, 7, and 9–15). Three project elements are located either partially (Project Elements 1 and 8) or entirely (Project Element 5) within State Lands Commission (SLC) jurisdiction and are outside of the District's jurisdiction. BAE Systems will apply directly to SLC and the California Coastal Commission (CCC) for authorization and entitlements for Project Elements 1, 5, and 8; however, this Initial Study and corresponding Draft Environmental Impact Report (EIR) will analyze the entire proposed project as required by the California Environmental Quality Act (CEQA).

Project Construction

Construction of the various project elements is anticipated to begin in February 2020 with Project Element 3 (Fender System Repair and Replacement) and Project Element 4 (Pier 3 South Nearshore Dredging) and last through December 2024. Construction of each project element would not be performed sequentially as numbered on Figure 3, and construction of several elements may occur concurrently. Construction activities would occur between 7 a.m. and 7 p.m. in compliance with the City of San Diego Noise Ordinance (Municipal Code Section 59.5.0404).[1] However, dredging operations would occur 24 hours a day, 7 days per week for the duration of dredging activities. Table NOP-2 lists the project elements in chronological order and provides the anticipated timing, duration, and construction crew size of each project element.

Table NOP-2. Proposed Construction Schedule

#	Project Element	Schedule	Duration (months)	Crew Size
3[a]	Fender System Repair and Replacement (continuous)	February 2020–October 2020	9.00	6
4	Pier 3 South Nearshore Dredging	February 2020–April 2020	2.25	10
5	Pier 3 Mooring Dolphin	March 2020–April 2020	1.50	5
9	Small Boat Mooring Float Replacement	July 2020–August 2020	1.00	5
7	Quay Wall Modifications	October 2020–November 2020	1.00	10
14	Electric Utility Service Update	January 2021–April 2021	3.50	5
8	Post Security Barrier Replacement	February 2021–April 2021	2.00	6
6	Pier 3 Lunchroom Wharf Replacement and Realignment	July 2021–October 2021	3.50	7

[1] When the District has not adopted its own code or regulation on a specific topic, it defers to the corresponding member city's codes and regulations for the same.

Table NOP-2. Proposed Construction Schedule

#	Project Element	Schedule	Duration (months)	Crew Size
1	Pride of San Diego Drydock Dredging and Moorage	February 2022–May 2022	3.25	12
2	Pride of San Diego Drydock Wharf Replacement and Realignment	February 2022–May 2022	4.00	13
15	Sanitary Sewer and Potable Water Utility Services	July 2022–September 2022	3.00	3
11	New Production Building	October 2022–July 2023	9.25	16
12	Administration Office Building	August 2023–May 2024	9.50	16
13	Pier 1 Restroom Renovation and/or Demolition	March 2024–April 2024	1.00	10
10	Central Tool Room Demolition and Reconstruction	June 2024–December 2024	7.00	13

Note: The project construction schedule has been structured to minimize in-water work during the California Least Tern nesting/foraging season, where feasible.

[a] Fender system repairs and new installation to be conducted at various berths and quay walls depending on BAE Pier availability. Schedule for this project element reflects the duration if all berths were replaced/installed continuously.

Project Operations

Several of the proposed project elements are infrastructure maintenance and modernization improvements and would not change the existing operations at the project site. However, Project Element 1 (Pride of San Diego Drydock Dredging and Moorage), as well as Project Element 4 (Pier 3 South Nearshore Dredging) and Project Element 5 (Pier 3 Mooring Dolphin), would allow BAE Systems to improve operational efficiency. However, as stated above, the proposed improvements are not expected to increase the number of vessels serviced as no new berthing space would be provided and the mooring of new, larger vessels would reduce the number of other vessels that could be concurrently moored at the ship repair yard. The Pier 3 improvements would allow for servicing of newer and different classes of vessels, which would represent a change from existing conditions. Therefore, the analysis contained within the Draft EIR will evaluate how any changes to operations, including the result of more efficient systems, will affect the environment.

Environmental Considerations

The Draft EIR will address the following potential project-related and cumulative environmental effects of the proposed project, including: Air Quality, Biological Resources, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Noise, Transportation/Traffic, and Utilities and Service Systems. The Draft EIR will also address other potential impacts identified during the NOP process, identify feasible mitigation measures and a reasonable range of alternatives, and include the other additional mandatory sections required by CEQA. A proposed Mitigation Monitoring and Reporting Program (MMRP) to address the potentially significant adverse impacts of the proposed project will also be presented to the Board of Port Commissioners for its consideration. The Initial Study/Environmental Checklist is attached.

Comments

This NOP is available for a 30-day public review period that starts on Thursday March 7, and ends at 5:00 p.m. on Monday, April 8, 2019. Comments regarding the scope and content of the environmental information that should be included in the Draft EIR and other environmental concerns should be mailed to:

San Diego Unified Port District
Development Services Department
Attn: Joseph Smith, Department Manager
P.O. Box 120488
San Diego, CA 92112 0488

Or emailed to: jdsmith@portofsandiego.org

Public Scoping Meeting

A public scoping meeting to solicit comments on the scope and content of the EIR for the proposed project will be held on Monday, March 25, 2019, from 5:00 p.m. to 7:00 p.m. at the San Diego Unified Port District Administration Building, Training Room, 3165 Pacific Highway, San Diego, CA 92101.

The District, as Lead Agency pursuant to CEQA, will review the public comments received during the scoping period to determine what issues should be addressed in the EIR. Other opportunities for the public to comment on the potential environmental effects of the proposed project are as follows:

- A minimum 45-day public review and comment period for the Draft EIR;
- A public hearing for the Board of Port Commissioners to consider certification of the Draft EIR.

For questions regarding this NOP, please contact Joseph Smith, Department Manager, at (619) 686-6597.

Attachments

Figure 1: Regional Map

Figure 2: Project Vicinity

Figure 3: Project Elements

Figure 4: Project Element 1 Representative Photos

Figure 5: Project Elements 2 and 5 Representative Photos

Figure 6: Project Elements 6 and 7 Representative Photos

Figure 7: Project Element 8 Representative Photos

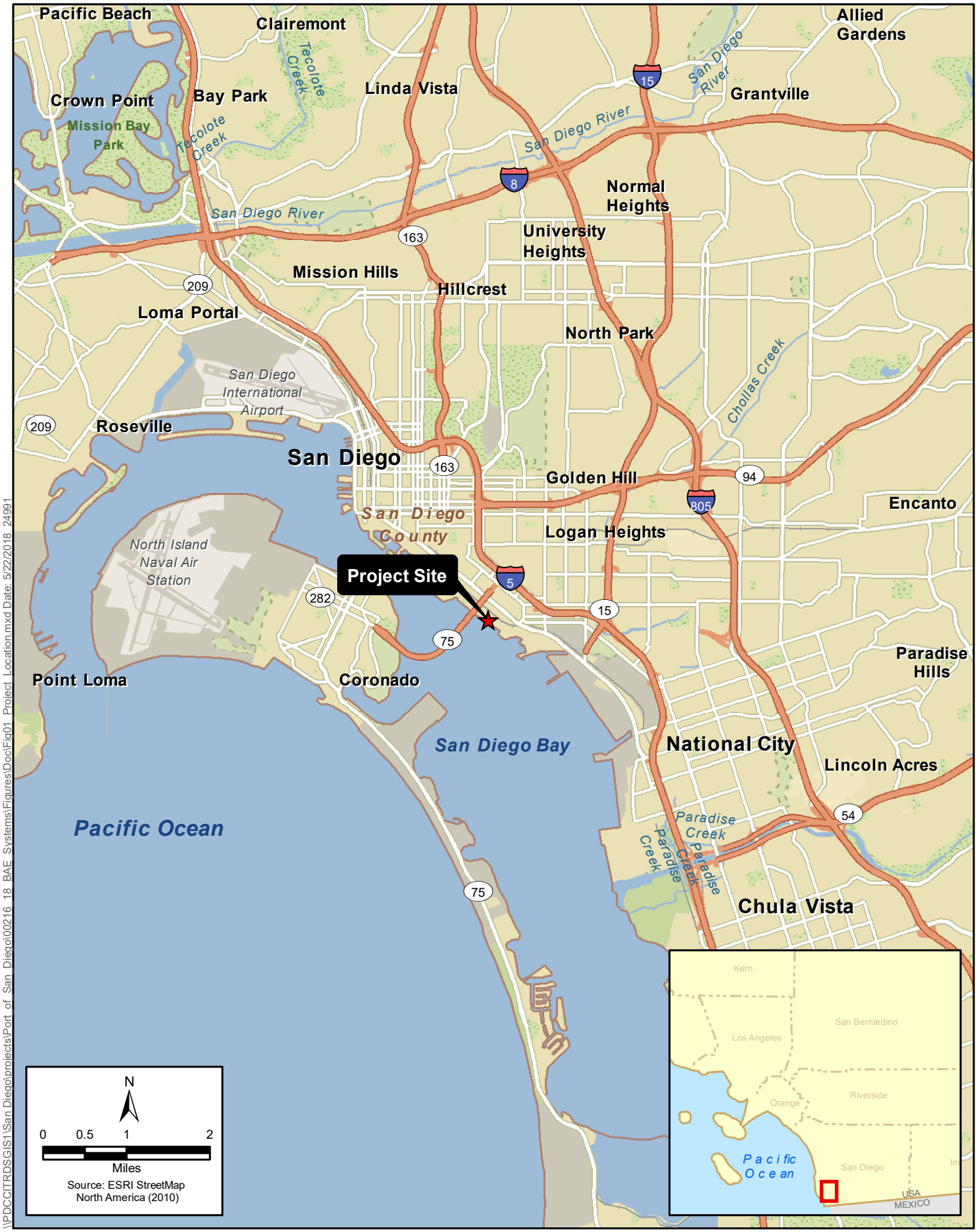
Figure 8: Project Elements 9 and 10 Representative Photos

Figure 9: Project Element 11 Representative Photos

Figure 10: Project Elements 12 and 13 Representative Photos

Figure 11: Existing and Proposed Vessel Arrangement Pier Layout

Initial Study/Environmental Checklist



\\PDCCITRDSGIS1\San Diego\projects\Port of San Diego\00216 18 BAE Systems\Figures\Doc\Fig01 Project Location.mxd Date: 5/22/2018 24991

Figure 1
Project Location
BAE Systems Waterfront Improvement Project

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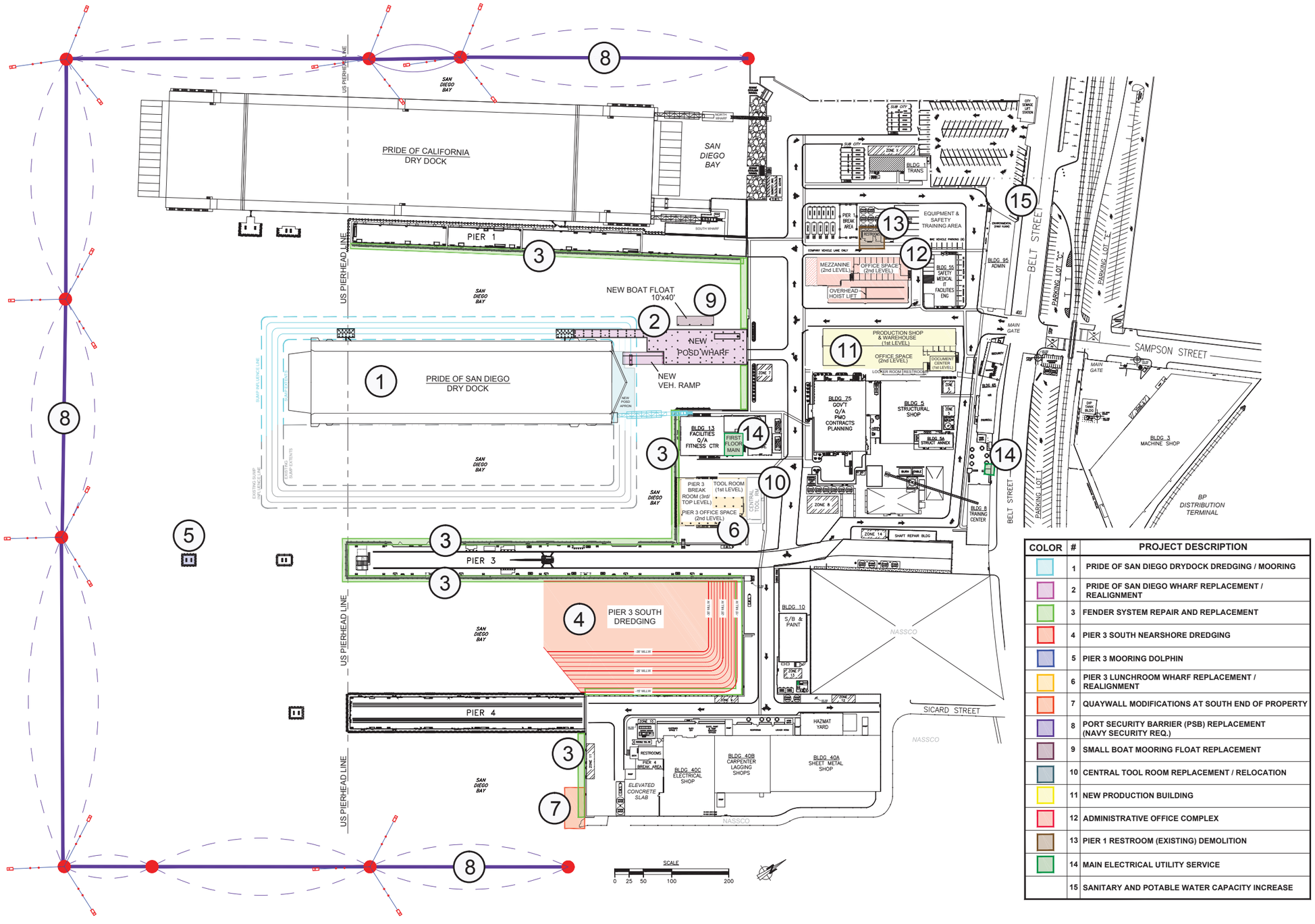
Figure 2
Project Vicinity
BAE Systems Waterfront Improvement Project



COLOR	#	PROJECT DESCRIPTION
	1	PRIDE OF SAN DIEGO DRYDOCK DREDGING / MOORING
	2	PRIDE OF SAN DIEGO WHARF REPLACEMENT / REALIGNMENT
	3	FENDER SYSTEM REPAIR AND REPLACEMENT
	4	PIER 3 SOUTH NEARSHORE DREDGING
	5	PIER 3 MOORING DOLPHIN
	6	PIER 3 LUNCHROOM WHARF REPLACEMENT / REALIGNMENT
	7	QUAYWALL MODIFICATIONS AT SOUTH END OF PROPERTY
	8	PORT SECURITY BARRIER (PSB) REPLACEMENT (NAVY SECURITY REQ.)
	9	SMALL BOAT MOORING FLOAT REPLACEMENT
	10	CENTRAL TOOL ROOM REPLACEMENT / RELOCATION
	11	NEW PRODUCTION BUILDING
	12	ADMINISTRATIVE OFFICE COMPLEX
	13	PIER 1 RESTROOM (EXISTING) DEMOLITION
	14	MAIN ELECTRICAL UTILITY SERVICE
	15	SANITARY AND POTABLE WATER CAPACITY INCREASE

ICF

Figure 3
Project Elements
BAE Systems Waterfront Improvement Project

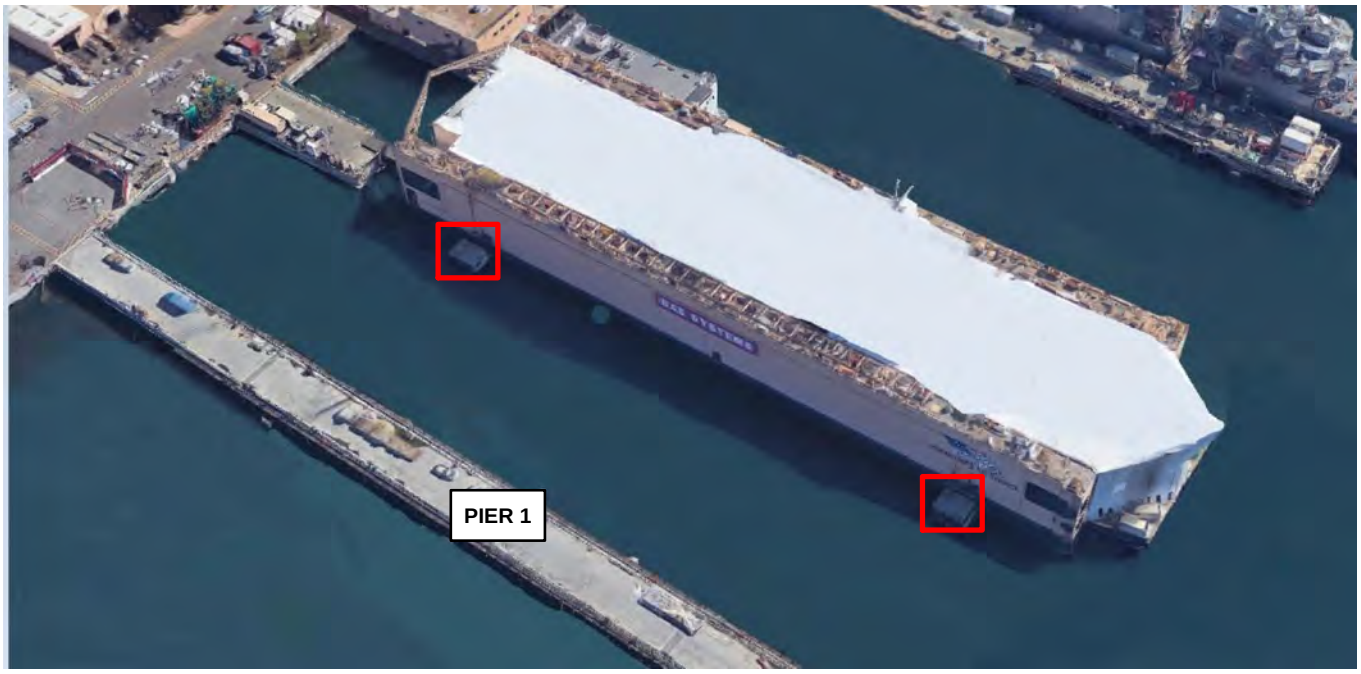
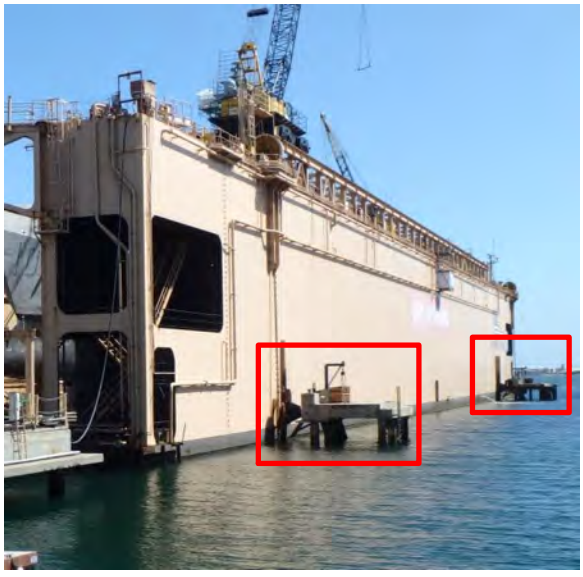


Photo of existing Pride of San Diego mooring dolphins to be demolished in-way-of new Pride of San Diego mooring dolphin construction.



Existing Pride of San Diego dolphins to be demolished for new dolphin construction

Existing Pride of San Diego dolphin to be demolished for new dolphin construction

Figure 4
Project Element 1: Pride of San Diego Dry Dock Dredging / Mooring
BAE Systems Waterfront Improvement Project

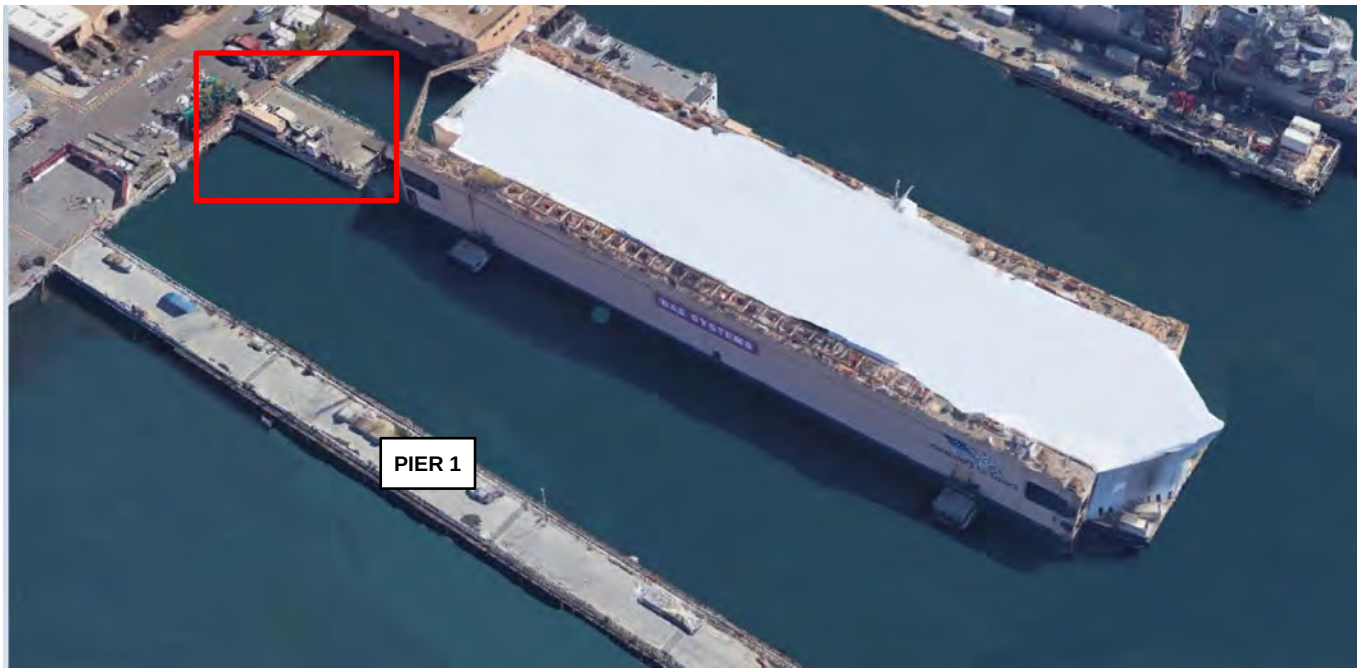
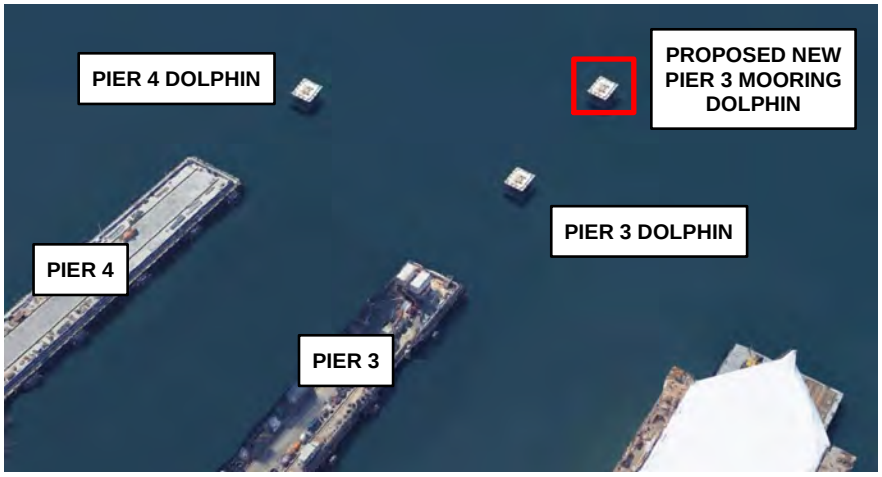


Photo of existing Pride of San Diego ramp wharf to be demolished in-way-of new extended wharf structure.

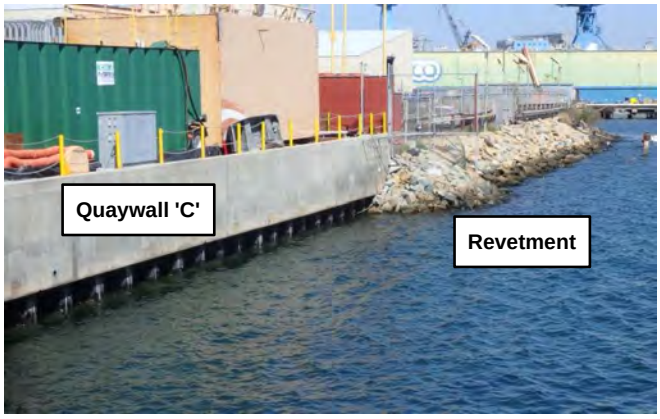


Approximate location of new pier 3 mooring dolphin

Existing pier 3 mooring dolphin; proposed new dolphin would consist of same design

Figure 5
Project Element 2: Pride of San Diego Wharf Replacement / Realignment and Project Element 5: Pier 3 Mooring Dolphin
BAE Systems Waterfront Improvement Project

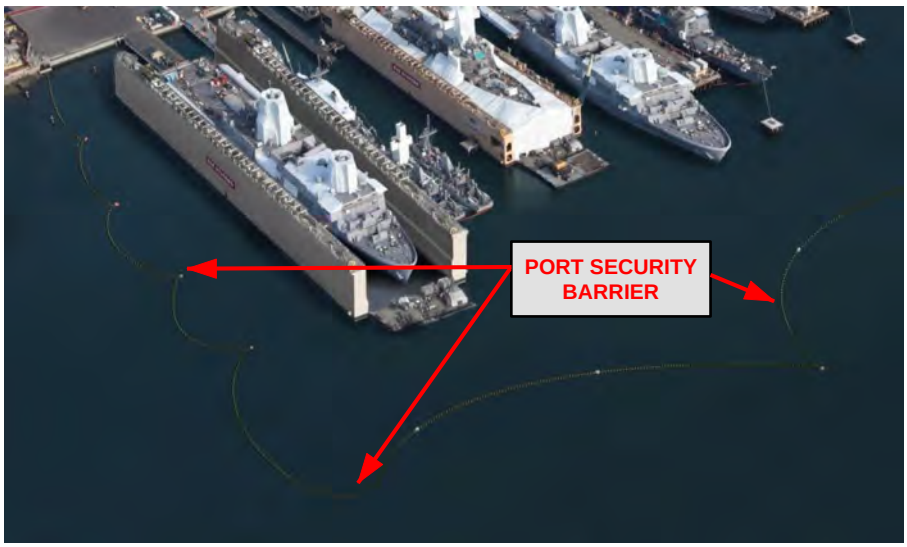
Pier 3 break area and outline of proposed wharf structure



Pier 4 South Quaywall, looking towards south property line

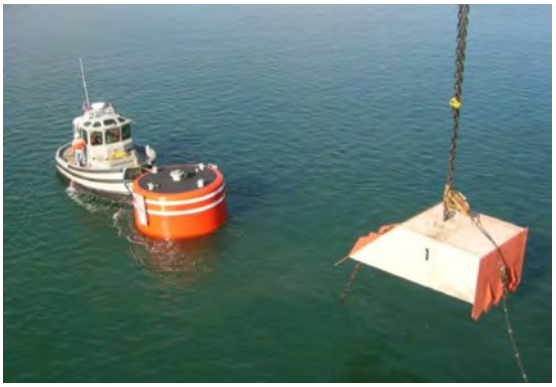
Subsurface and sloped revetment to be removed

Figure 6
Project Element 6: Pier 3 Lunchroom Wharf Replacement / Realignment and
Project Element 7: Quaywall Modifications at South End of Property
BAE Systems Waterfront Improvement Project



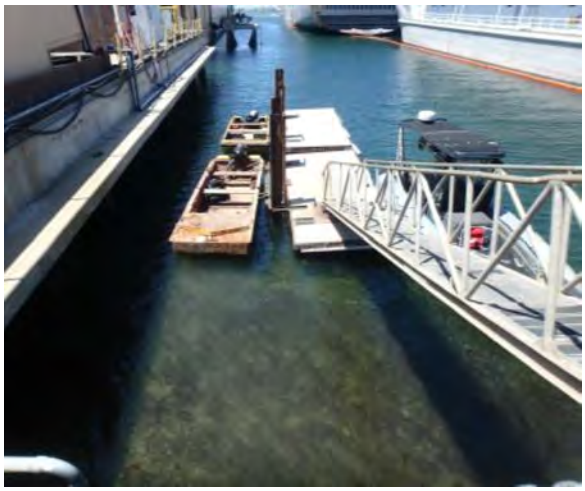
Existing Port Security Barrier (PSB) perimeter around facility waterfront

Proposed PSB Barrier (float sections spanning waterway)



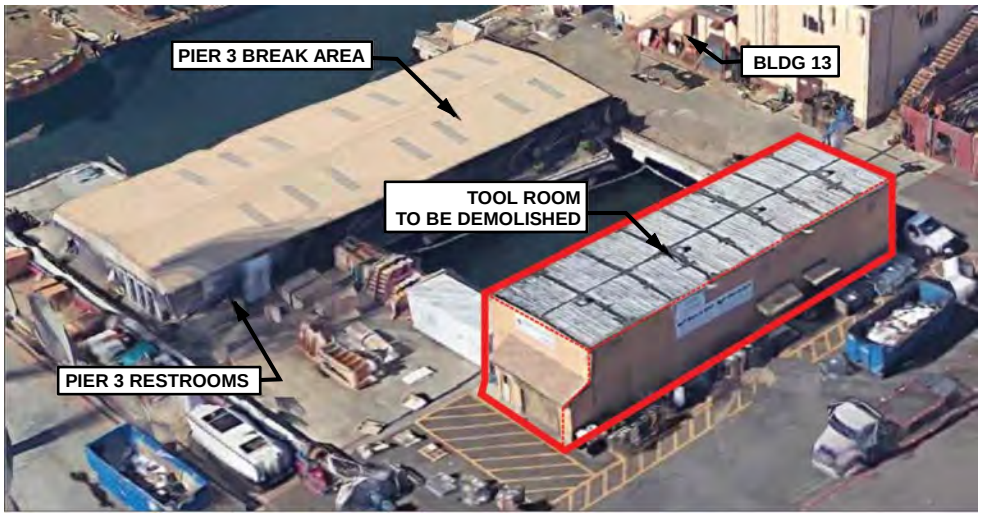
Proposed PSB buried conc. anchor block & mooring buoy

Figure 7
Project Element 8: Port Security Barrier (PSB) Replacement
BAE Systems Waterfront Improvement Project



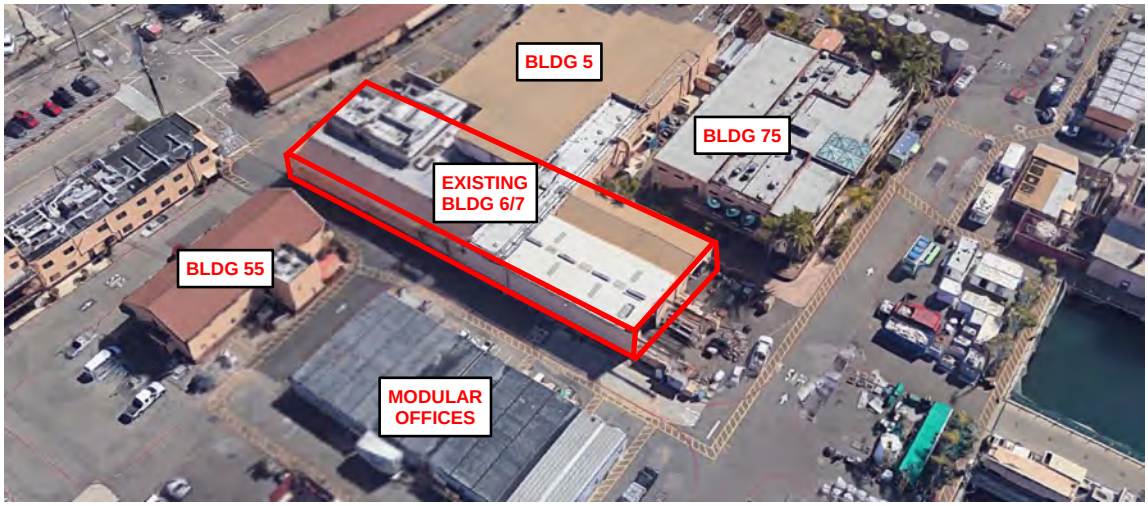
Existing small craft float

Concrete float concept design mockup



Location of existing tool room to be demolished and incorporated into proposed wharf structure building.

Figure 8
Project Element 9: Small Boat Mooring Float Replacement and
Project Element 10: Central Tool Room Replacement / Relocation
BAE Systems Waterfront Improvement Project



Location of existing bldg 6 & 7 to be demolished in-way-of new production building in similar footprint

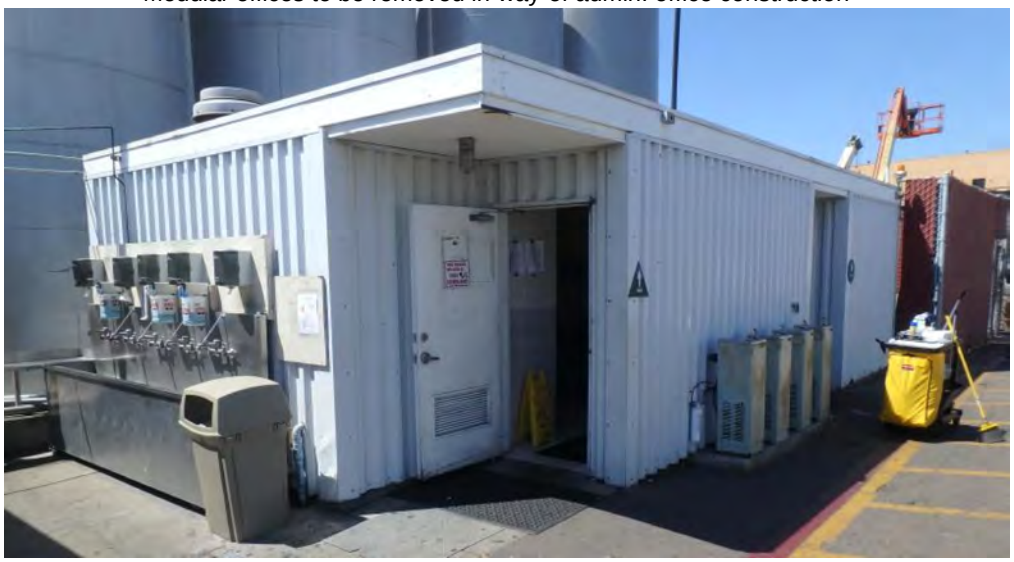
Bldg 6/7 (east) to be demolished in-way-of new prod. bldg.

Bldg 6/7 (west) to be demolished in-way-of new prod. bldg.

Figure 9
Project Element 11: New Production Building
BAE Systems Waterfront Improvement Project

Existing modular offices footprint of new admin. office complex

Modular offices to be removed in-way-of admin. office construction



Existing pier 1 restroom to be demolished and incorporated into new admin complex

Figure 10
Project Element 12: Administrative Office Complex and Project Element 13: Pier 1 Restroom Demolition
BAE Systems Waterfront Improvement Project

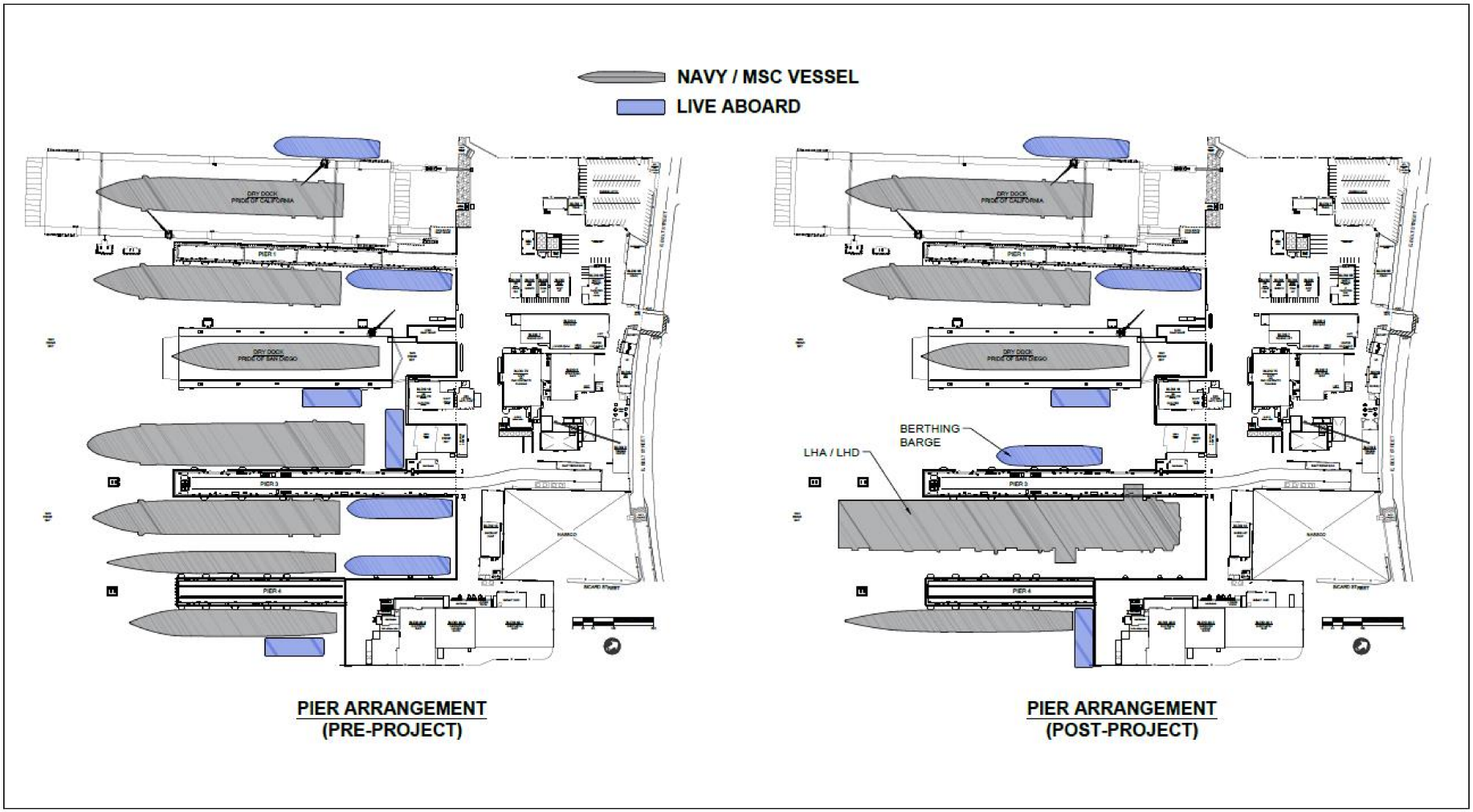


Figure 11
Existing and Proposed Vessel Arrangement Pier Layout
BAE Systems Waterfront Improvement Project

Initial Study/Environmental Checklist

for the

BAE Systems Waterfront Improvement Project

Prepared for

San Diego Unified Port District

March 2019

Contents

Tables

Acronyms and Abbreviations

AB	Assembly Bill
ALUCP	Airport Land Use Compatibility Plan
BMPs	Best Management Practices
CARB	California Air Resources Board
CCC	California Coastal Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CWA	Clean Water Act
District	San Diego Unified Port District
DOT	Department of Transportation
DTSC	California Department of Toxic Substances Control
EIR	environmental impact report
FAA	Federal Aviation Administration
GHG	greenhouse gas
HPD	San Diego Harbor Police Department
INRMP	Integrated National Resources Management Plan
JRMP	District's Jurisdictional Runoff Management Program
mgd	million gallons per day
MHPA	Multi-Habitat Planning Area
MSCP	Multiple Species Conservation Program
NAS	Naval Air Station
NOAA	National Oceanic and Atmospheric Administration
OES	Office of Emergency Services
PDP	priority development project
PM10	particulate matter of 10 microns in diameter or smaller
PM2.5	particulate matter of 2.5 microns in diameter or smaller

PRC	Public Resources Code
PSB	Port Security Barrier
PUD	Public Utilities Department
RAQS	Regional Air Quality Strategy
RCRA	Resource Conservation and Recovery Act
Regional Plan	San Diego Forward: The Regional Plan
SANDAG	San Diego Association of Governments
SDAPCD	San Diego Air Pollution Control District
SDFD	City of San Diego Fire-Rescue Department
SDIA	San Diego International Airport
SDMC	San Diego Marine Construction Company
SIP	State Implementation Plan
SLC	State Lands Commission
SR-	State Route
SWM	Southwest Marine, Inc.
SWRCB	State Water Resources Control Board
TCRs	Tribal Cultural Resources
VHFHSZ	Very High Fire Hazard Severity Zones
VOCs	volatile organic compounds

Initial Study/Environmental Checklist

1. Project Title:	BAE Systems Waterfront Improvement Project
2. Lead Agency Name and Address:	San Diego Unified Port District Post Office Box 120488 San Diego, CA 92112 0488
3. Contact Person and Phone Number:	Joseph Smith, Department Manager (619) 686-6597
4. Project Location:	2205 E. Belt Street San Diego, CA 92113
5. Project Sponsor's Name and Address:	BAE Systems San Diego Ship Repair Inc. 2205 E. Belt Street San Diego, CA 92113
6. Port Master Plan Designation:	Planning District 4 Land Use Designation: Marine Related-Industrial Water Use Designation: Specialized Berthing
7. Zoning:	See #6 above.
8. Description of Project:	BAE Systems San Diego Ship Repair Inc. proposes to replace aging structures, improve existing infrastructure, increase space utilization, and increase efficiency of operations at the BAE Systems San Diego Ship Repair Yard. These improvements would allow for newer and different classes of vessels to be moored and repaired on site. The proposed project includes 15 distinct project elements to replace, realign, or improve the existing operational elements.
9. Incorporation by Reference:	This Initial Study and the Environmental Impact Report (EIR) for the proposed project will incorporate by reference the Final EIR for the Pier 1 North Drydock, Associated Real Estate Agreements and Removal of Cooling Tunnels Project (Pier 1 North Drydock) (UPD #EIR-2014-31, SCH#2014041071) Volumes 1–4, certified and adopted by the Board of Port Commissions in November 17, 2015, by Resolution Number 2015-152. The Pier 1 North Drydock, Associated Real Estate Agreements and Removal of Cooling Tunnels Project Final EIR is available at the Office of the District Clerk located at 3165 Pacific Highway, San Diego, CA 92101.
10. Other Public Agencies Whose Approval Is Required:	U.S. Army Corps of Engineers issuance of Clean Water Act (CWA) Section 404 permit and Section 10, Rivers and Harbors Act Permit; U.S. Environmental Protection Agency (EPA) issuance of Ocean Dumping Permit; U.S. Coast Guard concurrence with Ocean Dumping Permit; National Marine Fisheries Service and U.S. Fish and Wildlife Service concurrence with Ocean Dumping Permit; Regional Water Quality Control Board issuance of CWA Section 401 Certification; California Coastal Commission issuance of Coastal Development Permit; State Lands Commission issuance of lease; City of San Diego issuance of ministerial permits.

Environmental Factors Potentially Affected

The environmental factors checked below would potentially be affected by this project (i.e., the project would involve at least one impact that is a "Potentially Significant Impact"), as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agricultural and Forestry Resources	☒ Air Quality
☒ Biological Resources	☐ Cultural Resources	☐ Geology and Soils
☒ Greenhouse Gas Emissions	☒ Hazards and Hazardous Materials	☒ Hydrology and Water Quality
☒ Land Use and Planning	☐ Mineral Resources	☒ Noise
☐ Population and Housing	☐ Public Services	☐ Recreation
☒ Transportation	☐ Tribal Cultural Resources	☒ Utilities and Service Systems
☒ Mandatory Findings of Significance		

Determination

On the basis of this initial evaluation:

☐ I find that the Proposed Project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.

☐ I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.

☒ I find that the Proposed Project MAY have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

☐ I find that the Proposed Project may have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the Proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the Proposed Project, nothing further is required.

Signature: Wileen O Manaois Date: March 5, 2019

Wileen Manaois
Director, Development Services

Evaluation of Environmental Impacts

The following discussion addresses impacts on various environmental resources, per the Environmental Checklist Form contained in Appendix G of the State CEQA Guidelines.

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects such as the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained if it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an environmental impact report (EIR) is required.

4. "Negative Declaration: Less-than-Significant Impact with Mitigation Incorporated" applies when the incorporation of mitigation measures has reduced an effect from a "Potentially Significant Impact" to a "Less-than-Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less-than-significant level.

5. Earlier analyses may be used if, pursuant to tiering, program EIR, or other California Environmental Quality Act (CEQA) process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063(c)(3)(D)). In this case, a brief discussion should identify the following:

    a. Earlier Analysis Used. Identify and state where earlier analyses are available for review.

    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Incorporated," describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, when appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

    a. The significance criteria or threshold, if any, used to evaluate each question; and

    b. The mitigation measure identified, if any, to reduce the impact to a less-than-significant level.

I. Aesthetics

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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 the site and its surroundings?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Significance criteria established by State CEQA Guidelines, Appendix G.

Would the project:

a. Have a substantial adverse effect on a scenic vista?

Less-than-Significant Impact. The project site is located in the San Diego Unified Port District's (District's) jurisdiction, within the urban setting of downtown San Diego. The visual character of the project site and surrounding area is defined by the existing industrial uses, proximity to Coronado and the San Diego–Coronado Bay Bridge, and the commercial and residential uses in the adjacent community of Barrio Logan. Views of the project site from nearby surrounding areas include large ships, working piers, berths, security fencing, lighting, and dry docks.

Scenic vistas within the project vicinity are designated in the District's Port Master Plan (PMP), which provides a framework for the consideration of vistas areas that have been recognized as scenic and visually important to the area and the region. The PMP considers the scenic quality of the land within its jurisdiction and establishes District policies for maintenance of important views. Within many of its precise plans, the District has identified vista areas—key viewpoints from which to enjoy the scenic beauty of the Bay and other visible District features. Vista areas within the District's jurisdiction are identified on the PMP's precise plans by arrow symbols, which are placed on the vista areas and pointed toward the intended view. The Public Recreation portion of Section III of the PMP explains that these symbols identify "points of natural visual beauty, photo vantage points, and other panoramas. It is the intent [of the PMP] to guide the arrangement of development on those sites to preserve and enhance such vista points."

The proposed project is located in Planning District 4 of the adopted PMP, which does not contain any designated vista areas (see Figure 13 of the PMP). The nearest designated vistas are in Planning District 3 (Centre City/Embarcadero), approximately 1.3 miles northwest of the project site on the same (east) side of the San Diego Bay, and Planning District 6 (Coronado Bayfront), located approximately 1.3 miles west of the project site across the Bay. Within Planning District 3, there is a designated vista area near the San Diego Convention Center that faces west, toward the bay and Coronado beyond that. The project site is southeast of this designated vista area. No views of the project site exist from this vista area, and none would be affected by the proposed project. Within Planning District 6, areas near First Street and Orange Avenue with westerly views of downtown San Diego from Coronado have been designated as vista areas; however, no views of the project site are available from this vista area. Additionally, designated scenic vistas along Second and Third Streets contain brief, but mostly obstructed, views of the project site. Moreover, the 33-acre project site (12 acres of land and 21 acres of water from the District) is only a small portion of the viewshed from Coronado, with the project site in character with the naval shipyards immediately to the southeast. Therefore, the existing views from Coronado would not substantially change

with implementation of the proposed project, and impacts on scenic vistas would be less than significant. No further discussion is warranted in the EIR.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

Less-than-Significant Impact. The San Diego–Coronado Bay Bridge (State Route [SR-] 75) is a California State-designated scenic highway, located just north of the project site, which spans the Bay, connecting the City of San Diego to the City of Coronado (DOT 2018). Existing long-distance views of the downtown San Diego area from the San Diego–Coronado Bay Bridge are dominated by a mix of high-rise residential, commercial, and urban developments; while views of the project site and surrounding area include a variety of maritime industrial facilities (such as storage structures, large vessels, docks, piers, cranes, trucks, and other large pieces of shipping equipment) associated with the existing ship repair yard and Tenth Avenue Marine Terminal (TAMT). From SR-75, the project site appears in the foreground of adjacent industrial uses and behind the water of San Diego Bay. Ships, silos, warehouses, and heavy industrial machinery are visible under existing conditions. Views of the site include piers, large ships, mooring dolphins, permanent and modular buildings, and associated equipment at the site.

Implementation of the proposed project is not anticipated to damage scenic resources, such as trees or rock outcroppings along a scenic highway, because there are no such resources at the project site. Visual changes associated with the project would include the addition of mooring dolphins, Quay Wall modifications, and replacement of existing structures and piers. Although these visual changes would be at least partially visible from portions of SR-75, they would not be readily noticeable because of the distance between the site and SR-75. Additionally, the project site is currently dominated by industrial uses and facilities, and would continue to be industrial in nature upon project completion. Furthermore, motorists traveling on SR-75 would generally be focused on the roadway in front of them. Their southerly views while traveling westbound or eastbound would not be prolonged, and viewer sensitivity to the proposed changes would be low. The proposed additions at the project site would be similar in size, color, and scale as elements of the existing developed site, which would continue to appear as a working ship repair yard. While Project Elements 10 (Central Tool Room Demolition and Reconstruction), 11 (New Production Building), and 12 (Administration Office Building) propose to increase the height of the existing 1-story structures to 3-story structures, several 2-story structures and larger cranes are already located on the project site, and there are large industrial tanks, cranes, and large structures in the surrounding area. Due to the height of existing features in the background such as cranes and tanks, the proposed project would be compatible with the surrounding area and would not substantially degrade the existing view. Therefore, impacts on designated scenic highways would be less than significant, and no further discussion is warranted in the EIR.

c. Substantially degrade the existing visual character or quality of the site and its surroundings?

Less-than-Significant Impact. The proposed project would be within an area of the District that is developed entirely with industrial and maritime uses. The proposed project's improvements to existing infrastructure to increase space utilization and increase efficiency of operations would be consistent with the site and surrounding area's existing industrial visual character and quality, and the project site would continue to appear as a working ship repair yard. As discussed above in response to question I.b, the project components would be similar in color, size, bulk, and scale to existing structures at the project site and in the surrounding vicinity. While Project Elements 10 (Central Tool Room Demolition and Reconstruction), 11 (New Production Building), and 12 (Administration Office Building) propose to increase the height of the existing 1-story structures to 3-story structures, several 2-story structures and larger cranes are already located on the project site, and there are large industrial tanks, cranes, and structures in the surrounding area. Due to the height of existing features in the background, such as cranes and tanks, the proposed project would be compatible with the surrounding area and would not be discernable from the surrounding industrial development. Similarly, the proposed waterside project elements would be compatible with other surrounding in-water structures and facilities and would typically involve the replacement of existing structures with new structures that would be similar in size and appearance. Therefore, the proposed project would have less-than-significant impacts on the visual character and quality of the surrounding area, and no further discussion is warranted in the EIR.

d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less-than-Significant Impact. The project site is an existing shipyard repair facility, which currently provides lighting inside, and security lighting outside of, the existing structures. The proposed project would not require the installation of new outdoor lighting that could affect nighttime views. The proposed project would augment existing exterior lighting with lighting on the proposed equipment necessary to provide adequate illumination to safely access the equipment and provide security. All new lighting would be aimed toward the facility with the necessary shrouds to limit spill light. In addition, implementation of the project elements would not result in the installation of buildings or structures with highly reflective materials. The new replacement lighting would be consistent with the type of marine industrial lighting that currently exists on the site, as well as up and down the eastern San Diego Bay shoreline. Furthermore, none of the operational changes associated with the proposed project would generate new sources of substantial lighting or glare. Therefore, lighting and glare-related impacts from the proposed project would be less than significant, and no further discussion is warranted in the EIR.

II. Agricultural and Forestry Resources

In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts on forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the project?	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Significance criteria established by State CEQA Guidelines, Appendix G.

Would the project:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The project site is located entirely within the District. According to the California Department of Conservation's San Diego County Important Farmland 2016 map, the project site is classified as "Urban and Built-Up Land" and "Other Land," which do not contain agricultural uses or areas designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (DOC 2016). Construction of any of the project elements would not impact Prime Farmland, Unique Farmland, or Farmland of Statewide Importance and there is no potential for any actions to convert farmland resources to nonagricultural uses. Similarly, no components of the proposed project would convert farmland resources to nonagricultural uses once operational. No impact would occur, and no further discussion is warranted in the EIR.

b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The project site is not zoned for agricultural use, nor is there a Williamson Act contract for the site (DOC 2013). Therefore, the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and no impact would occur. No further discussion is warranted in the EIR.

c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. The project site is classified as "Urban and Built-Up Land" and is not zoned as forest land, timberlands, or timberland zoned Timberland Production (DOC 2016). No land that has been zoned as forest land or timberland exists within the boundaries of the project site. No impact would occur, and no further discussion of this topic is warranted in the EIR.

d. Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. As discussed under question II.c, no land that has been zoned as forest land or timberland exists within the boundaries of the project site. Implementation of any of the project elements would not result in a loss of forest land or the conversion of forest land to other uses. No impact would occur, and no further discussion of this topic is warranted in the EIR.

e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. See question II.a. Implementation of the proposed project would have no impact on agriculture and/or forestry resources. No agricultural land, forest land, or timberland exists on or in the vicinity of the project site. The proposed project would not involve changes to the existing environment that, because of their location or nature, could result in the conversion of Farmland to nonagricultural use or forest land to non-forest use. No impact would occur and no further discussion is warranted in the EIR.

III. Air Quality

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☒	☐	☐	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☒	☐	☐	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
e. Create objectionable odors affecting a substantial number of people?	☒	☐	☐	☐

Significance criteria established by State CEQA Guidelines, Appendix G.

Would the project:

a. Conflict with or obstruct implementation of the applicable air quality plan?

Potentially Significant Impact. The San Diego County Air Pollution Control District (SDAPCD) is required, pursuant to the federal and state Clean Air Acts, to reduce emissions of criteria pollutants for which the County is in nonattainment (i.e., ozone, particulate matter of 10 microns in diameter or smaller [PM10], and particulate matter of 2.5 microns in diameter or smaller [PM2.5]). The Regional Air Quality Strategy (RAQS) projects future emissions and determines the strategies necessary for the reduction of stationary source emissions through regulatory controls to attain the CAAQS for ozone. The federal Clean Air Act also mandates that the state submit and implement a State Implementation Plan (SIP) for local areas not meeting those standards. California Air Resources Board (CARB) mobile source emission projections and San Diego Association of Governments (SANDAG) growth projections are based on population and vehicle trends and land use plans developed by local agencies. As such, projects that propose development that is consistent with the growth anticipated by the relevant land use plans that were used in the formulation of the RAQS and SIP would be consistent with the RAQS and SIP. The PMP is the governing land use document for physical development under the jurisdiction of the District. Therefore, projects that propose development consistent with growth anticipated by the current PMP are considered consistent with the RAQS and SIP. Moreover, in the event that a project proposes development that is less dense than anticipated within a general plan (or other governing land use document such as the PMP), the project would likewise be consistent with the RAQS and SIP because emissions would be less than estimated for the existing PMP. If a project proposes development that is greater than that anticipated in the PMP and SANDAG's growth projections, the project would be in conflict with the RAQS and SIP, and might have a potentially significant impact on air quality because emissions would exceed those estimated for the existing PMP. Because the proposed project would have potential operational changes, further analysis will be provided in the EIR.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Potentially Significant Impact. Implementation of the proposed project has the potential to result in air quality impacts through the use of heavy-duty construction equipment, construction worker vehicle trips, truck haul and material delivery trips, off-gassing from paving activities, dredging activities, and fugitive dust from demolition and grading activities. Mobile-source criteria pollutant emissions would result from the use of construction equipment and vehicles, and re-paving would result in emissions of volatile organic compounds (VOCs) associated with off-gassing. While the proposed project would result in no new berthing space, it would replace and improve facilities that would increase the efficiency of operations and allow for newer and larger Navy vessels to be accommodated compared to existing conditions. These improvements may change operational activities, resulting in new or different sources of emissions. Therefore, this issue area will be analyzed in the EIR.

c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Potentially Significant Impact. The San Diego Air Basin (SDAB) is in nonattainment status for ozone (8-hour standard) at the federal and state level; and for ozone (1-hour standard), PM10, and PM2.5 at the State level. Implementation of the proposed project could result in a cumulatively considerable net increase in these criteria pollutants. Therefore, further discussion will be provided in the EIR.

d. Expose sensitive receptors to substantial pollutant concentrations?

Potentially Significant Impact. Sensitive receptors in the area are primarily the residential, school, and park areas east of the project site in the Barrio Logan neighborhood. Construction and operation of the proposed project elements could result in criteria pollutant and toxic air contaminants (TAC) emissions in different quantities than existing conditions. Activities associated with each project element would include diesel equipment activity near existing sensitive receptors, both within the project site and in surrounding neighborhoods. Implementation of the proposed project may result in new or different sources of emissions. Therefore, this issue area will be analyzed in the EIR.

e. Create objectionable odors affecting a substantial number of people?

Potentially Significant Impact. According to CARB's *Air Quality and Land Use Handbook* (2005), land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding facilities. The proposed project does not include any uses identified by CARB as being associated with odors. However, construction activities may involve odors from diesel exhaust, asphalt paving, and the use of any architectural coatings; also, during operations odors could occur with diesel exhaust from trucks as well as any solvents used during ship building and repair. Impacts are potentially significant, and this topic will be analyzed further in the EIR.

IV. Biological Resources

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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 Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
c. Have a substantial adverse effect on 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?	☒	☐	☐	☐

Significance criteria established by State CEQA Guidelines, Appendix G.

Would the 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 Game or U.S. Fish and Wildlife Service?

Potentially Significant Impact. The California Natural Diversity Database (CNDDB) was reviewed to identify special-status species that are known to occur within 1 mile of the project site. Eleven special-status plant species and 14 special-status wildlife species have been recorded within 1 mile of the project site. Due to the industrial nature of the proposed project site, special-status plant species are not present. However, due to the project site's proximity to San Diego Bay and downtown San Diego there is potential for American peregrine falcon, California brown pelican, and California least tern (all of which are state

fully protected species) to occur on the landside portion of the project site. For the marine portion of the project, there is potential for green sea turtle, coastal bottlenose dolphin, and common dolphin. While these occurrences are likely transient in nature, green sea turtle is federally threatened, and both dolphin species are protected under the Marine Mammal Protection Act. Construction activities at the project site could result in a significant impact on these special-status wildlife species.

Dredging activities are planned for Project Elements 1 (Pride of San Diego Drydock), 4 (Pier 3 South Nearshore Dredging), and 7 (Quay Wall Modifications) to remove sediment that has accumulated at these locations. Dredging has the potential to elevate turbidity within the project area, which may impact California least tern and California brown pelican foraging. In addition to elevated turbidity, in-water noise associated with dredging may have negative impacts on green sea turtle and both dolphin species.

Because there are potential impacts related to implementation of the proposed project elements, a full analysis will be provided in the EIR to determine if a significant impact would occur on candidate, sensitive, or special-status species.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Potentially Significant Impact. The landside portion of the project site consists entirely of developed land; there are no sensitive vegetation communities or areas of riparian habitat on site. The vegetated, shallow subtidal habitat of San Diego Bay is dominated by eelgrass. Eelgrass beds function as important habitat for a variety of invertebrate, fish, and avian species. Although eelgrass is not a threatened or endangered species, it is considered essential fish habitat and a Habitat Area of Particular Concern under the Magnuson-Stevens Fishery Management and Conservation Act, the federal legislation that protects waters and substrates necessary for fish spawning, breeding, feeding, or growth to maturity. Because of its designation as a habitat area of particular concern and its notable contributions to ecological processes, it is also protected under the Clean Water Act (CWA) and is managed by the National Oceanic and Atmospheric Administration (NOAA) in California through adherence to the California Eelgrass Mitigation Policy (NOAA 2014). Given the abundance of eelgrass within San Diego Bay, its preferred habitat in shallow water (typically near shore), and its designation as a habitat area of particular concern, there is a potential for in-water construction and operational activities associated with the proposed project to result in impacts on eelgrass potentially present within or adjacent to the project site. These impacts would be potentially significant; therefore, further analysis is warranted in the EIR.

c. Have a substantial adverse effect on 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?

No Impact. The project site consists of developed land as well as open water. Based on a review of aerial images (NETR 2018) as well as site visit conducted on April 17, 2018, the project site does not contain federally protected wetlands as defined under Sections 401 and 404 of the CWA or state wetlands protected under the California Coastal Act; therefore, the proposed project would not impact federally protected wetlands and no further discussion is warranted in the EIR.

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?

Potentially Significant Impact. The landside portion of the project site consists entirely of developed land, and there are no wildlife corridors within the project site (District 2015). Native species present on site are limited to those that commonly occur in heavily developed areas. Such species would not be substantially affected by the proposed project. Additionally, because the project site is an existing ship repair yard developed entirely with industrial and maritime uses, it would not function as a wildlife corridor or a nursery site. Furthermore, the City of San Diego Multiple Species Conservation Program (MSCP) Subarea Plan and District's Integrated National Resources Management Plan (INRMP) do not identify any wildlife

corridors or nursery sites within the project site (City of San Diego 1997; District 2013). The waterside portion of the project site consists primarily of open water. However, as discussed above under question IV.b, in-water construction work associated with the proposed project would have the potential to result in impacts on eelgrass potentially present within or adjacent to the project site. Eelgrass beds function as important habitat for a variety of invertebrate, fish, and avian species, including serving as nursery sites for numerous fish species. Construction and operational activities associated with the proposed project could result in increased levels of turbidity or accidental damage to eelgrass beds, which could impact nursery habitat for fish species. Impacts would be potentially significant, and further analysis is warranted in the EIR.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Potentially Significant Impact. The City of San Diego MSCP Subarea Plan does not apply to projects within the District's jurisdiction, nor is any City of San Diego Multi-Habitat Planning Area (MHPA) present within the District's jurisdiction or adjacent to the project site. The project site is several miles outside the boundary of the closest MHPA, which is the planned habitat preserve within the City of San Diego MSCP Subarea.

The applicable local land use plans, policies, ordinances, or regulations of the District, adopted for the purpose of protecting biological resources, are the PMP, San Diego Unified Port District Code, and the District's INRMP. The District and the U.S. Navy Southwest Division maintain and implement the INRMP, which catalogues the plant and animal species around the Bay and identifies habitat types to ensure the long-term health, recovery, and protection of San Diego Bay's ecosystem in concert with economic, Naval, recreational, navigational, and fisheries needs. Additionally, the District has established goals to protect, preserve, and enhance natural resources in San Diego Bay in Section II of the PMP, *Planning Goals* (Goal XI). The project site is located within the District's PMP Planning District 4. The PMP's conservation policies focus on protecting and restoring functional areas of high ecological value, none of which are located within or adjacent to the project site. However, the proposed project includes in-water work that has the potential to result in significant impacts on biological resources of the San Diego Bay. Therefore, the proposed project would potentially conflict with local policies or ordinances protecting biological resources. Impacts would be potentially significant, and, further analysis is warranted in the EIR.

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?

Potentially Significant Impact. The project site is within the City of San Diego MSCP boundaries, although it is several miles beyond the closest City of San Diego MHPA, which is the planned habitat preserve within the MSCP Subarea Plan. However, the MSCP Subarea Plan does not apply to projects within the jurisdiction of the District, including the proposed project.

As previously mentioned, the District and the U.S. Navy Southwest Division maintain the INRMP, which aims to ensure the long-term health, recovery, and protection of San Diego Bay's ecosystem. In-water work associated with the proposed project has the potential to result in significant impacts on biological resources of the San Diego Bay. Therefore, development of the proposed project will be reviewed with the goals and intent of the INRMP and a more detailed analysis will be provided in the EIR.

V. Cultural Resources

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

Significance criteria established by State CEQA Guidelines, Appendix G.

Would the project:

a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

No Impact. The project site was developed as a marine ship construction and repair facility beginning in 1915. That year, the San Diego Marine Construction Company (SDMC) leased tidelands at the foot of Sampson Street to establish such a facility. The lease allowed SDMC to reclaim tidelands at this location by extracting fill material from the adjacent bay but not by transporting fill to the site from elsewhere. By the end of the 1960s, the project site was an approximately 50-year-old waterfront industrial complex where SDMC continued to construct and repair ships. In 1972, SDMC sold its lease on the property to a subsidiary of Campbell Industries that changed its name to the San Diego Marine Construction Company. In 1979, Southwest Marine, Inc. (SWM) acquired the property. SWM also acquired the ARCO (formerly Richfield Oil) marine fuel pier in 1982 and added the former National Pump & Injector Sales and Service leasehold to its facility in 1985. SWM changed its name to BAE Systems San Diego Ship Repair, Inc. in 2005 (Tetra Tech, Inc. 2016:9–10). As an industrial site for the construction and maintenance of marine vessels that has operated for over 100 years, the facility has been continually subject to physical alteration from maintenance activities and from replacement or repurposing of buildings and structures to accommodate the changing technology of shipbuilding.

To qualify as historical resources under CEQA, buildings or structures need to have historical significance as well as historical integrity with respect to their period of significance. While buildings or structures less than 50 years old sometimes qualify as historical resources under CEQA when they are exceptionally significant, this remains rare, and an overwhelming majority of historical resources are 50 years old or older. Although several buildings and structures at the BAE Systems site that would be physically altered by the proposed project incorporate elements that are 50 years old or older, those buildings and structures have been subject to substantial alteration. Limited portions of Pier 3 are over 50 years of age, but historic aerial photographs show that this pier was dramatically altered in the 1980s. A fairly narrow structure in the early 1990s, Pier 1 was altered into a much wider structure after 2000. The Production Building is an amalgamation of dissimilar structures that have been joined together over time prior to and during the last 50 years (NETR 2018). These built resources do not maintain historical integrity with respect to a discernable period of potential significance 50 years ago or earlier, and therefore are not considered historical resources under CEQA. For these reasons, the proposed project elements that would alter these buildings and structures, including Project Elements 3 (Fender System Repair and Replacement), 6 (Pier 3 Lunchroom Wharf Replacement and Realignment), and 11 (New Production Building) would not result in

an impact on any built resource with potential to qualify as a historical resource. Therefore, no impact would occur, and no further analysis is warranted in the EIR.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

No Impact. The entire project area consists of constructed fill or water. Analysis of historic maps shows that the historic shoreline in 1857 was to the east of the project area; therefore, no native soil is present in the project area. A record search was conducted on April 25, 2017, by South Coastal Information Center located on the San Diego State University campus. The record search revealed that no archaeological resources are present within the project area. Therefore, because the record search was negative and no native soils are present in the project area that could contain an intact archaeological deposit, no impact would occur. Accordingly, no further analysis is warranted in the EIR.

c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less-than-Significant Impact. The proposed project includes both landside and waterside improvements. Based on review of historic maps and a Geotechnical Report prepared for the BAE Pier 1 North Drydock Project EIR, the landside portion of the project site consists of modern fill approximately 8 to 10 feet deep (Terra Costa Consulting Group 2015), although specific depths are unknown. Below areas of fill, the bayfront is underlain by Bay Point Formation (Kennedy and Tan 2008). Bay Point Formation is a near-shore marine sedimentary deposit that dates from the late to middle Pleistocene, roughly 10,000 to 600,000 years ago. A tremendous variety of invertebrate and vertebrate fossils have been found in this deposit, including both marine and terrestrial animals, with mammoth and whale remains being some of the most significant. The formation is assigned high resource sensitivity in the City of San Diego's CEQA Significance Determination Thresholds. Pursuant to the City of San Diego's Municipal Code Chapter 14, Article 2, Division 11: Grading Regulations, any proposed excavation or other ground disturbing activities in a paleontological sensitive area would need to comply with the City's Municipal Code Section 142.0151; which requires paleontological resource monitoring when grading involves 1,000 cubic yards or greater, and results in 10 feet or greater in depth within in a highly sensitive formation. The City of San Diego's grading regulations stipulate treatment of any paleontological resources that are discovered during grading activities which would minimize potential disturbance to paleontological resources. Compliance with the City's grading regulations would reduce potential impacts to paleontological resources to less than significant.

Based on the Geotechnical Report (Terra Costa Consulting Group 2015), the geology of the waterside portion of the project site consists of several layers. The geotechnical report states that the waterside portion of the project site consists of Holocene deposits, underlain by a thin layer of younger Quaternary terrace deposits, which are underlain by older Quaternary deposits. The change between Holocene deposits and younger Quaternary terrace deposits range between elevations of -16 and -20 feet mean lower low water (MLLW). The change between younger and older Quaternary deposits occurs around -65 feet MLLW. It was estimated that the top of the San Diego Formation is near elevation -150 feet MLLW. As a reference, the City of San Diego's CEQA Significance Determination Thresholds assign low paleontological sensitivity to Holocene and Quaternary deposits, and high paleontological sensitivity to the San Diego Formation. Waterside project activities would consist of dredging to depths of -70 feet and excavation of up to 95,000 cubic yards for the replacement of the mooring dolphins that hold the Pride of San Diego drydock in place. As such, because waterside project-related activities would not reach geologic formations of high paleontological sensitivity, and therefore would not destroy a unique paleontological resource, impacts would be less than significant. No further analysis is warranted in the EIR.

d. Disturb any human remains, including those interred outside of dedicated cemeteries?

Less-than-Significant Impact. No evidence in the historical record indicates that human remains were buried on site. It is highly unlikely that human remains would be encountered during construction of the proposed project as the project site consists of imported fill and water. Bay Point Formation deposits that are marine in origin and date from 10,000 to 600,000 years ago underlie these fill layers. However, if human

remains should be discovered during construction, while unlikely, they would be treated in accordance with existing laws and regulations, notably Public Resources Code (PRC) Section 5097 and Health and Safety Code Section 7050.5, which would ensure that impacts would be less than significant. Therefore, no further analysis is warranted in the EIR.

VI. Geology and Soils

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic groundshaking?	☐	☐	☐	☒
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c. Be located on geologic units or soil that is unstable, or that would become unstable as a result of the 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 Section 1803.5.3 of the California Building Code (2016), 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?	☐	☐	☐	☒

*Geology and Soils question (d) reflects the current 2016 California Building Code, effective January 1, 2017, which is based on the International Building Code (2015).
Significance criteria established by State CEQA Guidelines, Appendix G.

Would the project:

a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less-than-Significant Impact. According to the City of San Diego Seismic Safety Study, Geologic Hazards and Faults, Sheet 13, the project site is not located within an active, Alquist-Priolo Earthquake Fault Zone (City of San Diego 2008a). As such, project construction and operation would not exacerbate

the potential rupture of a known earthquake fault. Therefore, impacts would be less than significant, and no further analysis is warranted in the EIR.

ii) Strong seismic groundshaking?

Less-than-Significant Impact. As discussed above, according to the City of San Diego Seismic Safety Study, Geologic Hazards and Faults, Sheet 13, the project site is not located within an active, Alquist-Priolo Earthquake Fault Zone (City of San Diego 2008a). However, the San Diego region is subject to earthquakes, which can result in strong seismic ground-shaking. As such, the project site could be exposed to strong seismic ground-shaking in the future. At question, however, is not whether the project site would experience strong seismic ground-shaking, but rather if the proposed project's construction and operation would exacerbate such effects on future users at the project site. Since the proposed project would have no potential to result in any increased chance of strong seismic ground-shaking (i.e. increase the risk of an earthquake), no impact would occur and no further analysis is warranted in the EIR.

iii) Seismic-related ground failure, including liquefaction?

Less-than-Significant Impact. The proposed project site is underlain by relatively loose, unconsolidated bay deposits and fill materials. The potential for liquefaction at the proposed project site is high due to the area's shallow groundwater table and the low density of the underlying sandy subsurface materials. Additionally, the City of San Diego Seismic Safety Study, Geologic Hazards and Faults, Sheet 13, maps the proposed project site as being in an area with a high potential for liquefaction.

Three key components are required for liquefaction: (1) liquefaction-susceptible soils; (2) groundwater; and, (3) strong groundshaking, such as that caused by an earthquake. The Geotechnical Report prepared for the BAE Pier 1 North Drydock Project EIR (Terra Costa Consulting Group 2015) notes that the recent bay deposits are considered liquefiable. However, the Geotechnical Report indicates that the subsurface soils within the Holocene, the younger Quaternary terrace deposits, and the older Quaternary terrace deposits are generally non-liquefiable. There are several isolated pockets of soils that might liquefy, but due to the general heterogeneous nature of the Quaternary terrace deposits, the impact associated with these layers is considered less than significant. Moreover, design and construction of the proposed project would be required to comply with all seismic safety development requirements, including Title 24 standards contained within the current California Building Code. Because the proposed project would be engineered to eliminate the liquefaction hazard and would not exacerbate the potential for liquefaction to occur, impacts associated with liquefaction or other seismic-related ground failure would be less than significant. Therefore, no further analysis is warranted in the EIR.

iv) Landslides?

No Impact. Landslide activity generally occurs in areas that lack vegetation and have steep slopes (typically, with grades of 30% or more). The project site is situated on fill areas that are flat and completely developed. Additionally, the project site is not mapped within a landslide hazard zone in the City of San Diego's Seismic Safety Study (City of San Diego 2008a). No portion of the project site would be susceptible to landslides. As such, the proposed project would not exacerbate the potential for landslides to occur at the project site or surrounding area. Therefore, no impacts would occur, and no further discussion of landslides is warranted in the EIR.

b. Result in substantial soil erosion or the loss of topsoil?

No Impact. The paved project site is an existing ship repair yard that was constructed on artificial fill. None of the actions associated with the proposed project would disrupt any native soil or topsoil. In addition, consistent with the District's Jurisdictional Runoff Management Program (JRMP) (pursuant to State Water Resources Control Board Order No. R9-2013-0001, as amended by Order No. R9-2015-0001and R9-2015-0100 [NPDES Permit #CAS0109266, Municipal Permit]), the proposed project would be designed with Best Management Practices (BMPs) consistent with the District's BMP Design Manual, which requires the use of low-impact development BMPs, as well as source control and treatment control BMPs (District 2016). As

such, soil erosion is not anticipated to occur as a result of construction or operation at the project site. Therefore, no impact would occur, and further discussion in the EIR is not warranted.

c. Be located on geologic units or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less-than-Significant Impact. Refer to questions VI.a (iii) and (iv), respectively, for a discussion of potential impacts associated with liquefaction and landslides. Bay deposits and fill layers that underlie the project site could be unstable because of their liquefaction potential. The project site does not contain slopes exceeding a 25% grade, nor is it mapped within a landslide hazard zone in the City of San Diego's Seismic Safety Study (City of San Diego 2008a), and therefore would not be susceptible to on- or offsite landslides. There are several isolated pockets of soils that might liquefy (Terra Costa Consulting Group 2015). However, due to the general heterogeneous nature of the Quaternary terrace deposits, the impact associated with these layers is considered less than significant. Moreover, design and construction of the each of the landside proposed project elements, including Project Elements 2 (Pride of San Diego Wharf Replacement and Realignment), 6 (Pier 3 Lunchroom Wharf Replacement and Realignment), 10 (Central Tool Room Demolition and Reconstruction), 11 (New Production Building), 12 (Administration Office Building), and 13 (Pier 1 Restroom Renovation and/or Demolition), would be required to comply with all seismic-safety development requirements, including Title 24 standards of the current California Building Code. Because the proposed project would be engineered to eliminate the liquefaction hazard and would not exacerbate the potential for liquefaction to occur, impacts associated with liquefaction or other seismic-related ground failure would be less than significant. Due to these onsite conditions and mandatory compliance with applicable regulations, the proposed project would not exacerbate existing unstable conditions, and no further discussion is warranted in the EIR.

d. Be located on expansive soil, as defined in Section 1803.5.3 of the California Building Code (2016), creating substantial risks to life or property?

Less-than-Significant Impact. Expansive soils are fine-grained soils (generally high-plasticity clays) that can undergo a significant increase in volume with an increase in water content as well as a significant decrease in volume with a decrease in water content. Changes in the water content of highly expansive soils can result in severe distress for structures constructed on or against the soils. Underlying soils found on site are partially composed of clays and, as such, could be subject to expansion. Huerhuero-Urban land complex (2 to 9% slope) has a high shrink-swell behavior, Urban land has variable shrink-swell behavior, and Tidal flats have a high shrink-swell behavior (USDA 1973). Should any soil failure occur, risks to life or property associated with the proposed project may increase due to the construction of new structures. Construction of the proposed project would be subject to applicable standards of the current California Building Code (California Code of Regulations Title 24), and expansive soils would be removed and replaced with engineered soil. The project site is underlain by Urban Land, which is identified as having a variable shrink-swell potential (U.S. Department of Agriculture 1973). Because of the developed nature of the project site, it is likely that any expansive soils have been removed during previous development of the site. Therefore, construction and operation of the proposed project would not result in substantial risks to life or property as a result of being located on expansive soils. Impacts would be less than significant, and no further discussion is warranted in the EIR.

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?

No Impact. No septic tanks or alternative wastewater disposal systems are included as part of the proposed project; therefore, no impact would occur. No further discussion is warranted in the EIR.

VII. Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

Significance criteria established by State CEQA Guidelines, Appendix G.

Would the project:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Potentially Significant Impact. Implementation of the proposed project's various elements would generate greenhouse gas (GHG) emissions, primarily associated with off- and on-road equipment use. While the proposed project would result in no new berthing space, it would replace and improve facilities that would increase the efficiency of operations and allow for newer and larger Navy vessels to be accommodated, which may change operational activities long-term compared to existing conditions. These changes in GHG emissions could potentially, either directly or indirectly, have a significant impact on the environment by exceeding established thresholds for GHG emissions. Further discussion is warranted in the EIR. In addition, the EIR will consider the physical effects of climate change on the proposed project, including an analysis on sea level rise. The sea level rise analysis will identify any areas of potential impacts due to potential future increases in mean sea level rise (temporary coastal flooding, and permanent inundation) and if the project exacerbates potential impacts on the environment resulting from sea level rise or associated events (e.g., coastal flooding, wave overtopping, erosion, etc.).

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Potentially Significant Impact. The District has enacted a variety of policies and plans to reduce GHG emissions as part of its Climate Action Plan, including the implementation of shore power, equipment and truck replacement/retrofits, vessel speed reductions, and the Clean Truck Program. Implementation of the proposed project could increase GHG emissions during project construction and operations. Therefore, further discussion is warranted in the EIR.

VIII. Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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 it create a significant hazard to the public or the environment?	☒	☐	☐	☐
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Significance criteria established by State CEQA Guidelines, Appendix G.

Would the project:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less-than-Significant Impact. The proposed project would use heavy equipment to dredge sediments and would require demolition activities for several project elements, including Project Elements 1 (Pride of San Diego Drydock Dredging and Moorage), 4 (Pier 3 South Nearshore Dredging), 10 (Central Tool Room Demolition and Reconstruction), 11 (New Production Building), 12 (Administration Office Building), and 13 (Pier 1 Restroom Renovation and/or Demolition). Construction-related hazardous materials would be used

during project construction, including fuel, solvents, paints, oils, and grease. The proposed project would be required to comply with federal, state, and local regulations for the routine transport, use, and disposal of any hazardous materials. These regulations include the Resource Conservation and Recovery Act (RCRA); U.S. Department of Transportation (DOT) Hazardous Materials Regulations (Code of Federal Regulations [CFR] Title 49); California Health and Safety Code; and San Diego County Code, Title 6, Division 8, in combination with construction BMPs that would be implemented during project construction. Any accidental release of these materials due to spills or leaks would be cleaned up in the normal course of business, consistent with the above-mentioned regulations. Once construction is completed, operations would remain similar to existing conditions and the routine transport, use, and disposal of any hazardous materials would continue to occur in compliance with the above-mentioned federal, state, and local regulations. Therefore, impacts associated with the potential to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials would be less than significant, and further discussion in the EIR is not warranted.

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?

Potentially Significant Impact. A previous site assessment (Anchor QEA LLC 2016) indicates that copper, mercury, high-molecular weight polycyclic aromatic hydrocarbons, total polychlorinated biphenyls, and tributyltin may be present in sediment within portions of the project site. The presence of these hazardous materials could create a significant hazard to the public or the environment if they were to be disrupted during construction activities and released into the environment. Therefore, impacts are potentially significant, and further analysis is warranted in the EIR.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less-than-Significant Impact. No existing public schools have been identified within one-quarter mile of the project site. The closest public school to the project site is Perkins Elementary School, approximately one-half mile to the northwest across SR-75. As such, project construction and operation would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Therefore, impacts would be less than significant, and no further analysis is warranted in the EIR.

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 it create a significant hazard to the public or the environment?

Potentially Significant Impact. Based on a review of the California Department of Toxic Substances Control (DTSC) database (EnviroStor), it was determined that the project site is not included on a list of hazardous material sites (DTSC 2018). The State Water Resources Control Board (SWRCB) database (GeoTracker) identifies two sites with closed cases and two sites with open cases. The closed sites consist of a cleanup program case (Case #H09689-001) and one closed leaking underground storage tank cleanup site (Case #H09689-002) on the landside portion of the project site. The open cases include one site within the San Diego Bay, a shipyard sediment site (Case #2090005) near Pier 3 where the proposed Pier 3 mooring dolphin would be constructed, and a sediment delineation investigation (Case # 2090088) near the Pride of San Diego Drydock (SWRCB 2018). Given the open status of the two cases within the Bay, as well as the past presence of onsite contamination associated with the two closed cases, the potential exists for the proposed project to result in a significant hazard to the public or the environment. This is considered a potentially significant impact, and further discussion is warranted in the EIR.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

Less-than-Significant Impact. The project site is approximately 3 miles south of San Diego International Airport (SDIA) and 3.25 miles east of Naval Air Station (NAS) North Island. The project site is not within any accident potential zones for SDIA; however, it is within Review Area 2 of the SDIA Airport Influence Area, per the Airport Land Use Compatibility Plan (ALUCP) (SDIA 2014). The proposed project structures are similar in height as other structures in the project area. The San Diego County Regional Airport Authority is currently preparing the ALUCP for NAS North Island; therefore, it was not available for review. In accordance with Federal Aviation Regulations, Part 77, the Federal Aviation Administration (FAA) would be notified at least 45 days prior to construction because of the proximity of the site to a navigation facility. There are no other airports in the vicinity of the project site that could be affected by the proposed project. No further discussion of this issue is warranted in the EIR.

f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No Impact. As described under question VIII.e, the project site is over 3 miles from the closest private airstrip, NAS North Island. Therefore, no hazard impacts related to private airstrips would occur with implementation of the proposed project, and no further discussion is warranted in the EIR.

g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less-than-Significant Impact. Emergency response and evacuation is the responsibility of the police and fire service providers, as detailed in Section XIV*, Public Services*. The proposed project would replace aging structures, improve existing infrastructure, increase space utilization and increase efficiency of operations. These improvements would allow for newer and different classes of vessels to be moored and repaired on site; however, these changes are not expected to significantly alter existing site use or throughput. Additionally, all the proposed landside improvements would occur entirely within BAE's leasehold and would not extend off site, where they would potentially interfere with emergency response. As such, proposed project construction or operation would not impair implementation of or physically interfere with an approved emergency response plan.

The proposed project would be required to comply with applicable requirements set forth by the County of San Diego Office of Emergency Services (OES) Operational Area Emergency Plan, San Diego Harbor Police Department, City of San Diego Police Department, and City of San Diego Fire Department. OES coordinates emergency response at the local level in the event of a disaster, including fires. This emergency response coordination is facilitated by the Operational Area Emergency Operations Center and responding agencies to the proposed project site: the City of San Diego Police and Fire Departments and San Diego Harbor Police Department. Because the proposed project would not result in any changes to access in the surrounding area, impacts would be less than significant, and no further discussion is warranted in the EIR.

h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

No Impact. The City of San Diego is subject to both wildland and urban fires due to its climate, topography, and native vegetation (City of San Diego 2015). The extended drought characteristic of the region's Mediterranean climate and increasingly severe dry periods associated with global warming result in large areas of dry native vegetation that provide fuel for wildland fires. State law requires that all local jurisdictions identify very high fire hazard severity zones (VHFHSZ) within their areas of responsibility (California Government Code Section 51175–51189). Inclusion within these zones is based on vegetation density, slope severity, and other relevant factors that contribute to fire severity.

According to the VHFHSZ Maps prepared by the City in collaboration with the California Department of Forestry and Fire Protection, the project site is not within or adjacent to wildland fire hazard area (City of

San Diego 2009). The project site is located on San Diego Bay, near downtown San Diego, and is covered with impermeable surfaces. There are no wildlands or heavily vegetated areas in proximity to the project site, and, as such, replacement of aging structures, improvement to existing infrastructure, and increased efficiency of operations would not exacerbate the potential to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. No impacts would occur, and no further discussion is warranted in the EIR.

IX. Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Violate Regional Water Quality Control Board water quality standards or waste discharge requirements?	☒	☐	☐	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater discharge such that there would be a net deficit in the aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
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 substantially increase the rate or amount of surface runoff in a manner that would result in substantial erosion or siltation on or off site?	☐	☐	☒	☐
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site?	☐	☐	☒	☐
e. 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?	☒	☐	☐	☐
f. Otherwise substantially degrade water quality?	☒	☐	☐	☐
g. Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other hazard delineation map?	☐	☐	☐	☒
h. Place within 100-year flood hazard area structures that would impede or redirect flood flows?	☒	☐	☐	☐
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.	☐	☐	☒	☐
j. Cause inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

Significance criteria established by State CEQA Guidelines, Appendix G.

Would the project:

a. Violate Regional Water Quality Control Board water quality standards or waste discharge requirements?

Potentially Significant Impact. The potential impacts of construction activities on water quality generally concern sediments, turbidity, and pollutants associated with sediments. Construction-related activities that expose and move soils are responsible primarily for sediment releases and associated turbidity impacts on water quality. The proposed project would involve soil disturbance from activities such as dredging in the Bay and utility work, as well as grading and repaving related to building demolition and construction. Demolition includes removal of existing pavement, structures, mooring dolphins, concrete piles, and any utilities. Construction activities also include repaving the project site with asphalt concrete pavement. These project activities could be impacted by wind and rain leading to erosion of onsite soil and could increase the amount of suspended solids discharged in storm flows. Removal and replacement of the concrete piles would also result in suspended solids in the Bay during these activities. Other pollutants of concern are toxic chemicals from heavy equipment or construction-related materials. Non-sediment contaminants that could enter runoff from the construction site include metals, petroleum products, and trash. Concrete/asphalt and sanitary wastes are other common sources of potentially harmful materials on construction sites. Wash water from equipment and tools and other waste disposed of or spilled on the construction site can lead to seepage of pollutants into watercourses and groundwater. Also, construction chemicals may accidentally spill into watercourses. The impact of toxic construction-related materials on water quality would vary, depending on the quantity, duration, and timing of activities. All of these potential construction-related contaminants could contribute to the degradation of water quality. In-water construction work associated with the proposed project may result in direct discharges into the Bay. During project operations, newer and larger classes of vessels could be accommodated at the site, which would potentially result in changes to ship repair activities and use of associated chemicals. Because there is a potentially significant impact related to water quality during construction and operation, further discussion is warranted in the EIR.

b. Substantially deplete groundwater supplies or interfere substantially with groundwater discharge such that there would be a net deficit in the aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

Less-than-Significant Impact. Because of the proposed project's proximity to the Bay, groundwater at the project site is saline from saltwater intrusion, and, therefore, it is not used as a groundwater supply source or for recharge. Consequently, the proposed project would not impact the groundwater table level or recharge activities. Impacts related to lowering a groundwater table and interfering with groundwater recharge would be less than significant, and no further discussion of this subject is warranted in the EIR.

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 substantially increase the rate or amount of surface runoff in a manner that would result in substantial erosion or siltation on or off site?

Less-than-Significant Impact. The proposed project would include the redevelopment of 5,000 square feet of impervious surface collectively, on an existing site of 10,000 square feet of impervious surfaces. While the proposed project would replace aging structures and add a new 3-story production building with a 16,475-square-foot footprint, the impervious surfaces associated with the site would remain consistent with existing conditions because the majority of the site is currently impervious. The new building would replace existing impervious surfaces. The proposed project would increase space utilization and increase efficiency of operations, but would not substantially alter the existing drainage pattern of the site as the project site would continue to discharge to the Bay and would not increase the rate or amount of surface runoff. Also, the proposed project would be required to comply with the District's Municipal Stormwater Permit, Article 10 (Stormwater Management and Discharge Control Ordinance), and the JRMP. The proposed project is considered a priority development project (PDP) and is required to implement pollutant control BMPs, following the hierarchy described in the District's BMP Design Manual (retention, partial

retention with biofiltration, biofiltration, or flow-through with participation in an Alternative Compliance Program). Stormwater pollutant control BMPs are engineered facilities that are designed to retain (i.e., intercept, store, infiltrate, evaporate, and evapotranspire), biofilter, and/or provide flow-through treatment of stormwater runoff generated on the project site. Minimum BMPs consistent with the District BMP Design Manual require the use of site design BMPs, source control, and pollutant control BMPs. Potential increases in peak flows for storm events would be managed through the use of retention BMPs for stormwater runoff generated on the project site. The JRMP requires a post-construction Storm Water Quality Management Plan be prepared for all PDPs to identify the project-specific design BMPs and source control and pollutant control BMPs applicable to the project. Impacts would be less than significant, and no further analysis is warranted in the EIR.

d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site?

Less-than-Significant Impact. Refer to question IX.c, above. The impervious surfaces associated with the site would remain consistent with existing conditions as the majority of the site currently consists of impervious surfaces. As such, the proposed project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site. In addition, the project site discharges directly to the Bay, further reducing the potential to result in flooding on or off site. Impacts would be less than significant, and no further analysis is warranted in the EIR.

e. 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?

Potentially Significant Impact. As previously discussed under question IX.a, the potential construction-related contaminants (e.g., sediments, turbidity, metals, petroleum products, trash, concrete/asphalt, and sanitary wastes) could contribute to the degradation of water quality during construction activities. In-water construction work associated with the proposed project may result in direct discharges into the Bay. Similarly, changes in operations could result in an increased usage of chemicals associated with ship repair activities. As such, the proposed project would have the potential to provide substantial additional sources of polluted runoff. Impacts would be potentially significant, and further analysis is warranted in the EIR.

Refer to question IX.c, above. The impervious surfaces associated with the site would remain consistent with existing conditions as the majority of the site currently consists of impervious surfaces. The proposed project site would continue to discharge directly to the Bay. As such, the proposed project would not substantially increase the amount of surface runoff that could exceed the capacity of existing or planned stormwater drainage systems. Impacts would be less than significant, and no further analysis is warranted in the EIR on this portion of the threshold.

f. Otherwise substantially degrade water quality?

Potentially Significant Impact. As discussed under question IX.a, above, construction and operation of the proposed project would have the potential to directly introduce pollutants into surface bodies of water (or storm drains), causing significant water quality impacts. Therefore, further analysis of this issue is warranted in the EIR.

g. Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other hazard delineation map?

No Impact. Although the proposed project site is located within an area that is designated as “100 Year Floodplain” by the Federal Emergency Management Agency (FEMA 2012), the proposed project does not involve the construction of any housing or other type of structure suitable for human habitation. Therefore, no impacts related to housing within a 100-year flood hazard area would occur, and no further discussion is warranted in the EIR.

h. Place within 100-year flood hazard area structures that would impede or redirect flood flows?

Potentially Significant Impact. The proposed project involves the maintenance, repair, and replacement of waterfront infrastructure within San Diego Bay, including the addition of new or replaced buildings in potentially modified locations. The new and replacement structures would be constructed within a 100-year flood hazard area and could impede or redirect flood flows; therefore, further discussion of this issue is warranted in the EIR.

i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

Less-than-Significant Impact. Dam failures are rated as a low-probability, high-loss event. Only two major dam failures have been recorded in San Diego County. These occurred in 1916 and were caused by a flood event (County of San Diego 2017). The project site is not identified within a risk zone of a potential dam failure (County of San Diego 2017). No areas in the San Diego region are in a levee flood protection zone (California Department of Water Resources 2018). Thus, it is highly unlikely that the proposed project would expose people or structures to a significant risk of loss, injury, or death involving flooding as a result of the failure of a levee or dam. Impacts would be less than significant, and no further analysis is warranted in the EIR.

j. Cause inundation by seiche, tsunami, or mudflow?

Less-than-Significant Impact. Although the project site is within a designated high-risk zone for a tsunami, the likelihood that an event would occur during the 5-year construction period is low. If such an event were to occur, the likelihood that it would affect the project site is also low. The project site is located on the Bayfront but approximately 2 miles from the Pacific Ocean. Coronado is located between the site and the ocean. Moreover, the project site is located at approximately 8 feet MLLW. Therefore, considering the distance from the ocean, the buffering provided by landmass, and the height above sea level, the potential for hazards associated with direct wave action in the event of a storm surge, tsunami, or seiche is low. Conditions under the operational phase of the proposed project would be similar to the existing conditions and would not increase the potential of site inundation. Although inundation from a tsunami or seiche is possible, it is unlikely; if it were to occur, damage would most likely be limited to ground-floor water damage. People would be given warning to evacuate the project site by the West Coast and Alaska Tsunami Warning Center, which monitors earthquakes and issues tsunami warnings when a tsunami is forecast to occur. Consequently, although inundation from a tsunami or seiche is reasonably foreseeable, any associated impacts would be less than significant, and no further analysis is warranted in the EIR.

The potential for large-scale slope instability at the site that could lead to mudflow is not present at the project site. The project site is located on flat topography. Impacts would be less than significant, and no further discussion is warranted in the EIR.

X. Land Use and Planning

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	☒
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☒	☐	☐	☐
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☒	☐	☐	☐

Significance criteria established by State CEQA Guidelines, Appendix G.

Would the project:

a. Physically divide an established community?

No Impact. The proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase efficiency of operations within an existing ship repair yard on San Diego Bay. The proposed project would not expand the physical landside boundaries of the ship repair yard or develop areas outside of its current landside boundaries and expand into any adjacent communities. All the landside improvements would occur entirely within BAE Systems' leasehold. Therefore, the project would not physically divide an established community, and no impacts would occur. No further analysis is warranted in the EIR.

b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

Potentially Significant Impact. The PMP is the guiding land use policy document for all areas under the District's jurisdiction. The proposed project is located within Planning District 4, which has been identified as the only area in the entire San Diego region with an established waterfront industrial shipping operation. The proposed project is required to be consistent with the Public Trust Doctrine and the Port Act and applicable provisions of the California Coastal Act. Three project elements are located either partially (Project Elements 1 and 8) or entirely (Project Element 5) within State Lands Commission (SLC) jurisdiction and are outside of the District's jurisdiction, requiring approval from SLC and the California Coastal Commission. Therefore, further analysis is needed to determine if the proposed project would have the potential to result in inconsistencies with the California Coastal Act, Port Master Plan, and any other relevant plans that have jurisdiction over the project.

c. Conflict with any applicable habitat conservation plan or natural community conservation plan?

Potentially Significant Impact. As discussed under question IV.f, the proposed project would occur outside the boundaries of the City of San Diego MHPA, as designated in the City's MSCP Subarea Plan. Additionally, no designated MHPA is present adjacent to the project site. As such, the proposed project would not conflict with a habitat conservation plan or natural community conservation plan.

The District and the U.S. Navy Southwest Division maintain the INRMP, which aims to ensure the long-term health, recovery, and protection of San Diego Bay's ecosystem. In-water work associated with the proposed project has the potential to result in significant impacts on biological resources of the San Diego Bay. Therefore, development of the proposed project will be reviewed with the goals and intent of the INRMP and a more detailed analysis will be provided in the EIR.

XI. Mineral Resources

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Significance criteria established by State CEQA Guidelines, Appendix G.

Would the project:

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?

No Impact. The project site, an area characterized by marine-related industrial activities, does not contain any known mineral resources. In addition, the project site is underlain by artificial fill material. No commercial mining operations exist on the project site or in the immediate vicinity. The project site and the surrounding area are not designated or zoned as land with the availability of mineral resources. In addition, the project site does not contain aggregate resources and is not located in a mineral resource zone that contains important resources. In accordance with guidelines established by the State Mining and Geology Board, mineral deposits in western San Diego County have been classified into Mineral Resource Zones (MRZ). According to the Conservation Element of the City of San Diego's General Plan (City of San Diego 2008b), the project site is mapped within the MRZ-1 classification. The MRZ-1 classification identifies areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that there is little likelihood for their presence (City of San Diego 2016a) Therefore, the proposed project would not result in a loss of known mineral resources. No impact would occur, and no further analysis is warranted in the EIR.

b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. See question XI.a. The project site is underlain by artificial fill material. The PMP does not identify any mineral resources in the area or designated plans for mineral resource extraction. The project site and the surrounding area do not contain locally important mineral resources. Therefore, implementation of the proposed project would not result in the loss of availability of a locally important mineral resource recovery site, and no impact would occur. No further analysis is warranted in the EIR.

XII. Noise

Would the project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a.	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☒	☐	☐	☐
b.	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐
c.	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d.	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☐
e.	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f.	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Significance criteria established by State CEQA Guidelines, Appendix G.

Would the project:

a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Potentially Significant Impact. The closest noise-sensitive receptors to the proposed project are homes, schools, and a park. Although these receptors are relatively far from the project site (more than 1,000 feet), the potential exists for project construction to result in significant impacts due to the proposed high-intensity construction activities (i.e., pile driving), as well as limited 24-hour construction activities (i.e., dredging) that would occur partly outside of the daytime hours typically permitted by the City of San Diego. Noise levels during project construction will be analyzed in the EIR and evaluated relative to the construction noise standards provided in the City of San Diego Municipal Code.

Due to the project's waterfront location and the proposed in-water construction activities, there is also the potential for the proposed project to result in significant noise impacts on sensitive biological resources (birds, fish, and/or marine mammals). Therefore, noise levels (including underwater noise [hydroacoustic] levels) will also be evaluated for biological resources and addressed within the EIR's *Biological Resources* section.

Once construction is completed, the improvements would allow BAE Systems to improve operational efficiency and service newer and different classes of vessels that cannot be accommodated under existing conditions. As a result, the total number of ship repair days per year at the site would increase. However, the changes would not lead to additional simultaneous vessel work and would not increase the number of

people on-site. In fact, the worst-case (largest) total on-site vessel crew and labor force size would decrease under the proposed project. Consequently, the general types of operational activities (i.e., vessel service and repair) at the project site would remain the same as those that currently occur, and the overall intensity of the operations would not increase. This, combined with the large distances to the nearest noise-sensitive receptors, means that operational noise levels (including BAE-related traffic noise in the surrounding community) would not change appreciably at the nearest receptors, and the operational noise impacts would be less than significant. As a result, a quantitative analysis of operational noise levels is not necessary and a brief qualitative discussion will be included in the EIR.

b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Potentially Significant Impact. The primary source of groundborne vibration during project construction would be pile driving. Lesser vibration-generating activities would include demolition, dredging, and excavation. Although perceptible groundborne vibration or noise generated by project construction would most likely not propagate to surrounding residential uses or other sensitive receptors, the possibility of vibration-related damage to nearby buildings presents a potentially significant impact. Therefore, predicted vibration levels during project construction will be evaluated in the EIR.

As discussed under question XII.a, operational activities at the project site would remain essentially unchanged from those that currently occur. As a result, operational groundborne vibration levels would not change appreciably and would remain imperceptible at the nearest sensitive receptors due to the large propagation distances. Therefore, operational vibration impacts would be less than significant, and no further analysis of operational groundborne vibration is warranted in the EIR.

c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less-than-Significant Impact. As described under question XII.a, the proposed project would not increase permanent ambient noise levels because long-term operational activities would not change substantially. The general types of operational activities (i.e., vessel service and repair) at the project site would remain the same as those that currently occur, and the overall intensity of the operations would not increase. This, combined with the large distances to the nearest noise-sensitive receptors, means that operational noise levels (including BAE-related traffic noise in the surrounding community) would not change appreciably at the nearest receptors. As a result, impacts would be less than significant, and a quantitative analysis of operational noise levels is not necessary. A brief qualitative discussion will be included in the EIR.

d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Potentially Significant Impact. As described under question XII.a, construction–related activities could result in a temporary or periodic increase in ambient noise levels. Therefore, impacts from construction noise are potentially significant, and further analysis is warranted in the EIR.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The closest air facilities to the project site are SDIA and NAS North Island. SDIA is a public airport approximately 3 miles from the project site with an adopted airport land use plan. NAS is a private airport approximately 3.25 miles from the site without an adopted airport land use plan. Based on the noise contour maps for both of these facilities (Ricondo & Associates 2014 and Onyx Group 2011, respectively), the project site is outside of their designated noise contours (the minimum noise contour value is 60 community noise equivalent level decibels). In addition, the proposed project would not change the operations of SDIA or NAS North Island or otherwise affect the existing aircraft noise environment in the project vicinity. The proposed project also would not create any new noise-sensitive receptors that could

be affected by aircraft noise. Therefore, the proposed project would not expose people residing or working in the project area to excessive airport noise levels, and no further discussion is warranted in the EIR.

f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. As described under issue XII.e, the project site is outside of the designated noise contours for NAS North Island. Therefore, no impacts related to private airstrips would occur with implementation of the proposed project, and no further discussion is warranted in the EIR.

XIII. Population and Housing

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c. Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Significance criteria established by State CEQA Guidelines, Appendix G.

Would the project:

a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less-than-Significant Impact. The proposed project would not construct any homes or commercial uses, or extend roads or other infrastructure that could induce substantial population growth. Construction activities would result in the generation of temporary construction jobs. However, the additional jobs are expected to be filled by people who currently live in the San Diego region. The jobs would not result in the relocation of any population. In addition, none of the operational changes associated with the proposed project, which are targeted to improving efficiency of operations, would create new jobs. Therefore, the proposed project would not directly or indirectly induce substantial population growth through the creation of new homes or businesses in the San Diego region. Impacts would be less than significant, and no further discussion is warranted in the EIR.

b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact. The project site is a working ship repair yard on San Diego Bay and does not include residential housing. As such, no housing would be displaced with implementation of the proposed project. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

c. Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?

No Impact. The project site is a working ship repair yard on San Diego Bay and does not contain any permanent residents. The proposed project involves the replacement of aging structures, improvement of existing infrastructure, increased space utilization, and increased efficiency of operations. Implementation of the proposed project would not displace people or require the construction of replacement housing elsewhere. Therefore, no impact would occur, and no further discussion is warranted in the EIR.

XIV. Public Services

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Fire protection?	☐	☐	☒	☐
b. Police protection?	☐	☐	☒	☐
c. Schools?	☐	☐	☐	☒
d. Parks?	☐	☐	☒	☐
e. Other public facilities?	☐	☐	☐	☒

Significance criteria established by State CEQA Guidelines, Appendix G.

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

a. Fire protection?

Less-than-Significant Impact. The project site is served by the City of San Diego Fire-Rescue Department (SDFD) and San Diego Harbor Police Department (HPD) for fireboat operations. The proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase efficiency of operations. Construction activities and operational changes associated with the proposed project would not generate new or increased demands on fire protection. Therefore, the proposed project would not result in increased demand that would require new or physically altered fire protection facilities; impacts would be less than significant. No further discussion is warranted in the EIR.

b. Police protection?

Less-than-Significant Impact. The San Diego HPD provides police protection services to the project site. The proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase efficiency of operations at the project site. Construction activities and operational changes associated with the proposed project would not generate new or increased demands on police protection. Therefore, the proposed project would not result in increased demand that would require new or physically altered police protection facilities; impacts would be less than significant. No further discussion is warranted in the EIR.

c. Schools?

No Impact. Physical impacts on school facilities and services are typically associated with population in-migration and growth, which increase the demand for schools and result in the need for new or expanded facilities, the construction of which may result in physical impacts on the environment. As discussed above under question XIII.a, the proposed project would have a less-than-significant effect on population growth. Jobs generated during construction of the proposed project would be drawn from the local workforce, and no new jobs would be generated during project operations. Therefore, the proposed project would not result in increased demand that would require the need for new or physically altered school facilities; no impact would occur. No further discussion is warranted in the EIR.

d. Parks?

Less-than-Significant Impact. The project site is in an area consisting predominantly of industrial and maritime uses. No park facilities are within or immediately adjacent to the project site that would be physically affected. As discussed above under question XIII.a, the proposed project would have a less-than-significant effect on population growth. Jobs generated during construction of the proposed project would be drawn from the local workforce, and no new jobs would be generated during project operations. Therefore, the proposed project would not result in an increased demand requiring the need for new or physically altered park facilities, and any related impact would be less than significant. No further discussion is warranted in the EIR.

e. Other public facilities?

No Impact. The proposed project would not result in adverse impacts on other public facilities. As discussed above, physical impacts on public services are usually associated with in-migration and population growth, which increase the demand for public services and facilities. The proposed project would not increase the local population. Although additional employees are anticipated during construction, they are not expected to increase the use of existing public services and facilities to the extent that new or expanded facilities would be necessary. Therefore, the proposed project would not result in increased demand that would require the need for new or physically altered public facilities. No impact would occur, and no further discussion in the EIR is warranted.

XV. Recreation

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a.	Would the 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?	☐	☐	☒	☐
b.	Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Significance criteria established by State CEQA Guidelines, Appendix G.

a. Would the 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?

Less-than-Significant Impact. An increase in the use of existing parks and recreational facilities typically results from an increase in the number of housing units or residents in an area. The proposed project would not result in an increase in the number of housing units or residents in the project vicinity. As discussed above under question XIV.d, the project site is in an area consisting predominantly of industrial and maritime uses, and no park facilities are within or immediately adjacent to the project site. Although additional employees are anticipated during construction, they are not expected to heavily use the existing neighborhood or regional parks or any other recreational facilities. In addition, none of the operational changes associated with the proposed project would create new jobs. Impacts would be less than significant, and no further discussion is warranted in the EIR.

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

No Impact. The proposed project does not include the development of any recreational facilities. The proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase efficiency of operations at the project site. In addition, as described under question XV.a, the project would not require the expansion of existing recreational facilities. Therefore, the proposed project would not require construction or expansion of recreational facilities that might have an adverse physical effect on the environment. As a result, no impact would occur, and no further discussion is warranted in the EIR.

XVI. Transportation/Traffic

Would the project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a.	Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation systems, including but not limited to intersections, streets, highways and freeways, pedestrians and bicycle paths, and mass transit?	☒	☐	☐	☐
b.	Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the country congestion management agency for designated roads or highways?	☐	☐	☐	☒
c.	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☒	☐
d.	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e.	Result in inadequate emergency access?	☐	☐	☐	☒
f.	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☒	☐
g.	Result in inadequate parking supply?	☒	☐	☐	☐

Significance criteria established by State CEQA Guidelines, Appendix G.

Would the project:

a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation systems, including but not limited to intersections, streets, highways and freeways, pedestrians and bicycle paths, and mass transit?

Potentially Significant Impact. Implementation of the various proposed project elements would generate truck trips (materials/equipment delivery and waste hauling) and worker trips that would access the project site. Increased vehicle trips associated with the proposed project could potentially conflict with local policies that measure the effectiveness of the circulation system. A traffic impact study will be prepared for the proposed project and potential traffic impacts will be analyzed in the EIR.

b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the country congestion management agency for designated roads or highways?

No Impact. The designated congestion management agency for the San Diego region is SANDAG. In 2009, the San Diego region elected to be exempt from the state Congestion Management Plan and, since this decision, SANDAG has been abiding by 23 CFR 450.320 to ensure the region's continued compliance with the federal congestion management process. *San Diego Forward: The Regional Plan* (Regional Plan), the region's Regional Transportation Plan and Sustainable Communities Strategy, meets the requirements of 23 CFR 450.320 (SANDAG 2015).

Therefore, to determine if the proposed project would conflict with an applicable congestion management program, the proposed project was reviewed for consistency with the Regional Plan, which is a land use and transportation planning document that discusses land use policy at a very general level. The Regional Plan mostly incorporates the land use policies of local jurisdictions and focuses on transportation infrastructure and management programs to support those policies. The project does not propose any changes to the existing land or water use designations of the project site or transportation network that could conflict with the Regional Plan. Therefore, no impact would occur, and no further analysis is warranted in the EIR.

c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

Less-than-Significant Impact. The project site is approximately 3 miles south of SDIA and 3.25 miles east of NAS North Island. The project site is within Review Area 2 of the SDIA Airport Influence Area, per the ALUCP (Airport Land Use Commission 2014). The San Diego County Regional Airport Authority is currently preparing the ALUCP for NAS North Island; therefore, it was not available for review. The proposed project structures are similar in height as other structures in the project area. In accordance with Federal Aviation Regulations, Part 77, the FAA would be notified at least 45 days prior to construction because of the proximity of the site to a navigation facility. There are no other airports in the vicinity of the project site that could be affected by the proposed project. Therefore, impacts would be less than significant, and no further discussion of this issue is warranted in the EIR.

d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. The proposed project does not involve any design modifications to existing street segments or intersections, nor would it change any driveways that provide access to the project site. Additionally, the project site is situated in an area consisting predominantly of industrial and maritime uses. The proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase efficiency of operations within an existing ship repair yard on San Diego Bay. The project site would continue to operate as a ship repair yard upon project completion, which is compatible with the surrounding land uses. Therefore, the proposed project does not have the potential to increase traffic hazards to motorists or create an incompatible traffic-related use. No impacts would occur, and no further discussion of this issue is warranted in the EIR.

e. Result in inadequate emergency access?

No Impact. Construction of the proposed project would not require any temporary closures of public roadways or driveways that could impede emergency access either within the District's jurisdiction or along streets under the jurisdiction of the City of San Diego. Access to the site from E. Belt Street would be maintained throughout project construction. Additionally, there are no components of the proposed project that would result in inadequate emergency access during project operations. No impacts on emergency access would occur, and no further discussion of this issue is warranted in the EIR.

f. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

Less-than-Significant Impact. The project site is an operating ship repair yard with restricted access. The proposed project would not increase the number of permanent employees that could increase the use of alternative transportation facilities serving the project site. Additionally, there are no public transit, bicycle, or pedestrian facilities within the project site, nor would the proposed project result in changes to any offsite alternative transportation facilities. Therefore, implementation of the proposed project would not conflict with any adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. Impacts would be less than significant, and no further discussion is warranted in the EIR.

g. Result in inadequate parking supply?

Potentially Significant Impact. BAE Systems currently maintains a parking capacity of approximately 1,572 spaces with an option of 200 additional parking spaces for employees, customers, and visitors (BAE Systems pers. comm.). Construction of the various project elements would occur over several phases, with the peak of construction occurring between March and April 2020 when construction of Project Elements 3 (Fender System Repair and Replacement), 4 (Pier 3 South Nearshore Dredging), and 5 (Pier 3 Mooring Dolphin) would overlap. At the peak of project construction, approximately 21 daily construction workers would access and park at the project site. As such, there is a potential that the project site would not be able to accommodate parking for construction worker vehicles. The lack of sufficient parking during construction would be a potentially significant impact and further analysis is warranted in the EIR.

BAE Systems currently has 1,808 individuals reporting to the ship repair yard across three 8-hour shifts. These individuals consist of a mix of BAE personnel, Navy personnel, and customers. During project operations, none of the proposed project elements would increase the number of permanent employees on site. Project Elements 1 (Pride of San Diego Drydock Dredging and Moorage), 4 (Pier 3 Nearshore Dredging), and 5 (Pier 3 Mooring Dolphin) would allow BAE Systems to improve operational efficiency and servicing of newer and different classes of vessels. With the addition of a supplemental mooring dolphin and near-shore dredging at Pier 3, the ship repair yard would be able to moor larger naval and commercial vessels at the Pier 3 South berth. Based on the changes to the mooring capacity at Pier 3, the total number of employees on site could change depending on the specific ship mix at the site. For example, commercial vessels do not generally carry a large crew, while large naval vessels occasionally do. The specific ship mix that the facility could support is dependent upon the size of the vessel moored and its effects on adjacent berths. When a larger navy ship is moored at Pier 3 South, the potential berthing capacity of the site would be reduced by two vessels, resulting in a corresponding reduction in crew and labor compared to existing conditions. As such, because the proposed project would not add any new permanent employees and, at times, would reduce the number of employees at the ship repair yard compared to existing conditions, project operations would not result in an inadequate parking supply that could have secondary environmental effects. Therefore, the proposed project's impact on parking supply during operations would be less than significant. However, operation-related parking will be discussed in the EIR.

XVII. Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code 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:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☐	☒
b. 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 Public Resources Code 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.	☐	☐	☐	☒

Significance criteria established by State CEQA Guidelines, Appendix G.

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code 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:

a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

No Impact. Pursuant to Assembly Bill (AB) 52, tribes can request to be notified of projects in particular geographies. However, at present, no Native American tribes have requested consultation for environmental review projects under CEQA within the District's jurisdiction. Tribal Cultural Resources (TCRs) are a defined class of resources under Section 1 of AB 52. TCRs include sites, features, places, cultural landscapes, and sacred places or objects that have cultural value or significance to a tribe.

A search of the Native American Heritage Commission's Sacred Lands File conducted on August 13, 2018, revealed that there are no known Sacred Lands in or near the project area. A record search conducted on April 25, 2017, by South Coastal Information Center located on the San Diego State University campus revealed that no cultural resources have been recorded in the project area. Furthermore, the project area is entirely constructed of fill, and historic maps indicated that the shoreline was located east of the project area in 1857. Therefore, the proposed project would not cause a substantial adverse change in the significance of a TCR, and no impacts would occur. No further discussion is warranted in the EIR.

b. 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 Public Resources Code 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.

No Impact. Pursuant to PRC Section 21080.3.1 (AB 52), California Native American tribes traditionally and culturally affiliated with the project area can request notification of projects in their traditional cultural territory. No tribes have requested consultation for projects subject to CEQA within the District's jurisdiction.

The District has determined that no impacts would occur on TCRs given the lack of substantial evidence and criteria set forth in subdivision (c) of PRC Section 5024.1. However, in the event that a TCR is unexpectedly identified during the course of the proposed project, and the District determines that the project may cause a substantial adverse change to a TCR, the District will rely on measures described in the Public Resources Code that, if the District determines to be feasible, may avoid or minimize the significant adverse impacts (PRC Section 21084.3 (b)).

XVIII. Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e. 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?	☐	☐	☒	☐
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐
h. Result in the wasteful, inefficient, or unnecessary use of energy or require or result in the construction of new energy system infrastructure or the expansion of existing infrastructure, the construction of which could cause significant environmental effects?	☒	☐	☐	☐

Significance criteria established by State CEQA Guidelines, Appendix G.

Would the project:

a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Less-than-Significant Impact. Wastewater treatment service is provided to the project site by the Metropolitan Sewerage System, which is owned and operated by the City of San Diego Public Utilities Department's (PUD's) Wastewater Branch. The Metropolitan Sewerage System serves the City's water customers as well as 12 cities and agencies with a service area of approximately 450 square miles and service population of approximately 2.2 million. The Metropolitan Sewerage System collects, treats, and disposes of approximately 180 million gallons per day (mgd) of wastewater. Planned improvements will increase wastewater treatment capacity to serve an estimated population of 2.9 million through the year

2050, when nearly 340 mgd of wastewater would be generated (City of San Diego 2016b). Three treatment plants treat wastewater generated in the Metro System, including the North City Water Reclamation Plant, South Bay Water Reclamation Plant, and Point Loma Wastewater Treatment Plant. The Point Loma plant currently treats the wastewater generated by the project site and has a treatment capacity of 240 mgd and a peak wet weather capacity of 432 mgd (City of San Diego 2016b).

As discussed above under question XIII.a, the proposed project would not increase population; the jobs generated during project construction would be drawn from the local workforce that is currently served by existing wastewater treatment facilities, and no new jobs would be generated during project operations. Project-generated wastewater requiring treatment would be limited to onsite construction personnel and activities. These activities, primarily limited to personal wastewater, would not generate a significant amount of new wastewater requiring treatment. Such minimal wastewater generated would not exceed the requirements of any wastewater treatment facilities. Additionally, none of the operational changes associated with the proposed project would generate new sources of wastewater. Therefore, impacts would be less than significant, and no further discussion is warranted in the EIR.

b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less-than-Significant Impact. As discussed above under question XVIII.a, the proposed project would generate minimal wastewater during construction. Additionally, the proposed project would replace the existing potable water feeds. None of the operational changes associated with the proposed project would generate new sources of water or wastewater or the expansion of these existing utilities. Similarly, water use would increase minimally during project construction, and no new sources of water use are anticipated during project operations compared to existing conditions. Therefore, the proposed project would not substantially increase the amount of water or wastewater requiring treatment, and would not require the need for new or improved water or wastewater treatment facilities. Impacts would be less than significant, and no further discussion is warranted in the EIR.

c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less-than-Significant Impact. The proposed project would not result in a change to existing stormwater flows or drainage patterns, or result in other stormwater discharges during construction that would require new or upgraded stormwater drainage facilities. The proposed project would increase space utilization and increase efficiency of operations, but would not substantially alter the existing drainage pattern of the site because the project site would continue to discharge to the Bay and would not increase the rate or amount of surface runoff as the impervious surfaces would remain similar. Construction of the proposed project would be required to comply with the District's Municipal Stormwater Permit, Article 10 (Stormwater Management and Discharge Control Ordinance), and the JRMP. The proposed project is considered a PDP and is required to implement pollutant control BMPs, following the hierarchy described in the District's BMP Design Manual (retention, partial retention with biofiltration, biofiltration, or flow-through with participation in an Alternative Compliance Program).

As discussed above under question IX.e, during project operations, the impervious surfaces associated with the site would remain consistent with existing conditions because the majority of the site currently consists of impervious surfaces. The proposed project site would continue to discharge directly to the Bay. As such, the proposed project would not substantially increase the amount of surface runoff that could exceed the capacity of existing or planned stormwater drainage systems, requiring the construction of new or expansion of existing storm drain facilities. Additionally, it is anticipated that relevant proposed project elements would incorporate existing BMPs, including the Storm Water Diversion System, or modify/develop project-specific BMPs as appropriate. The diversion system consists of 36 catch basins and associated piping, and secondary containment. Additional system capacity would not be required. Therefore, impacts would be less than significant, and no further analysis is warranted in the EIR.

d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Less-than-Significant Impact. Potable water would be provided to contractors on site during various project activities including demolition activities to limit fugitive dust propagation, concrete preparation and placement, and other general use. Dredge and utility projects do not require potable water use. Approximately 150,000 gallons of water would be required for construction of the proposed project.

The proposed project includes the replacement of the existing Pier 3 restroom facilities requiring the provision of utilities and related infrastructure, including potable water. However, there would not be a substantial change in water use because operations would remain similar to existing operations. In fact, the worst-case (largest) total on-site vessel crew and labor force size would decrease under the proposed project. No other components of the proposed project would require potable water during project operations. Therefore, impacts on water supplies would be less than significant, and no further discussion is warranted in the EIR.

e. 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?

Less-than-Significant Impact. As discussed above in questions XVIII.a and XVIII.b, the proposed project would not generate a substantial amount of new wastewater from construction activities. Additionally, none of the operational changes associated with the proposed project would generate new sources of wastewater. Therefore, the proposed project would not substantially increase the amount of wastewater requiring treatment that would have the potential to affect the wastewater treatment capacity of the Point Loma Wastewater Treatment Plant. Impacts would be less than significant, and no further discussion is warranted in the EIR.

f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less-than-Significant Impact. Eight of the project elements require demolition of existing structures and disposal of the subsequent debris. The construction waste generated from this demolition would be transported from the site and disposed of at the Miramar Landfill in the city of San Diego or Otay Landfill in the city of Chula Vista. It is anticipated that a minimum of 65 percent of the construction waste would be recycled in accordance with the City of San Diego Construction and Demolition (C&D) Debris Deposit Ordinance. Scrap steel generated during demolition and construction would be handled through BAE Systems' facility scrap recycling program and, therefore, would not be disposed of at a landfill. Additionally, dredged sediment designated for upland disposal would be transported to Otay Landfill in the city of Chula Vista. Furthermore, because the proposed project would not increase the number of employees at the site, none of the operational changes associated with the proposed project would generate new sources of solid waste requiring disposal at Miramar Landfill. Therefore, impacts would be less than significant, and no further discussion is warranted in the EIR.

g. Comply with federal, state, and local statutes and regulations related to solid waste?

Less-than-Significant Impact. When first enacted, AB 939 required every city and county in the state to prepare a Source Reduction and Recycling Element in its Solid Waste Management Plan to identify how each jurisdiction planned to meet mandatory State waste diversion goals of 25% by the year 1995 and 50% by the year 2000. AB 939 also established the California Integrated Waste Management Board, the State agency designated to oversee, manage, and track California's solid waste generation each year. In order to further the goals of AB 939, statewide strategies to achieve a 75% reduction goal by 2020 were established with the adoption of AB 341 in May 2012, the main component of which implemented mandatory commercial recycling by certain businesses and public entities. Additionally, the City of San Diego C&D Debris Deposit Ordinance requires that the majority of construction, demolition, and remodeling projects requiring building, combination, and demolition permits pay a refundable C&D Debris Recycling Deposit and divert at least 65% of their debris by recycling, reusing, or donating usable materials.

Eight of the project elements require demolition of existing structures and disposal of the subsequent debris. The construction waste generated from this demolition would be transported from the site and disposed of at the Miramar Landfill in the city of San Diego or Otay Landfill in the city of Chula Vista. It is anticipated that a minimum of 65 percent of the construction waste would be recycled in accordance with the City of San Diego C&D Debris Deposit Ordinance. Additionally, dredged sediment designated for upland disposal would be transported to Otay Landfill in the city of Chula Vista. Furthermore, because the proposed project would not increase the number of employees at the site, none of the operational changes associated with the proposed project would generate new sources of solid waste requiring disposal at Miramar Landfill. Therefore, the proposed project would have a less-than-significant impact related to compliance with federal, state, and local solid waste statutes and regulations. No further analysis is warranted in the EIR.

h. Result in the wasteful, inefficient, or unnecessary use of energy or require or result in the construction of new energy system infrastructure or the expansion of existing infrastructure, the construction of which could cause significant environmental effects?

Potentially Significant Impact. Project construction would primarily consume diesel fuel through operation of heavy-duty construction equipment, material deliveries, and debris hauling; gasoline associated with worker commutes; and minor amounts of electricity associated with operation of electrically powered construction equipment. Construction-related energy use would represent a small demand on local and regional fuel and electricity supplies that could be easily accommodated by fuel suppliers. Moreover, this demand for fuel would have no noticeable effect on peak or baseline demands for energy. Therefore, construction of the proposed project would not result in a wasteful, inefficient, and unnecessary usage of direct or indirect energy.

However, operational changes associated with the proposed project could result in increased electrical demand from newer and larger classes of vessels being repaired at the site. As such, the proposed project would potentially increase energy use compared to existing conditions once operational. In addition, construction of Project Element 14 (Main Electric Utility Service Update) would require relocating the existing San Diego Gas & Electric electrical main, as well as replacing and upgrading electrical distribution equipment to ensure reliability and fault interruption to protect site infrastructure. Construction of these improvements would have the potential to result in significant environmental effects. Therefore, impacts would be potentially significant, and further analysis of these issues will be provided in the EIR's *Greenhouse Gas Emissions* section.

XIX. Mandatory Findings of Significance

Would the project?	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? (*Cumulatively considerable* means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☒	☐	☐	☐
c. Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

Significance criteria established by State CEQA Guidelines, Appendix G.

Would the project:

a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

Potentially Significant Impact. In-water work would occur in the Bay, which would cause potential impacts on biological resources such as fish, green sea turtles, and marine mammal species. Therefore, further analysis of the proposed project's potential biological resources is warranted in the EIR.

Regarding cultural resources, the entire project area consists of constructed fill or water. Analysis of historic maps shows that the historic shoreline was located to the east of the project area in 1857; therefore, no native soil is present in the project area. Additionally, although several buildings and structures at the project site that would be physically altered by the proposed project incorporate elements that are 50 years old or older, those buildings and structures have been subject to substantial alteration. As such, these built resources do not maintain historical integrity with respect to a discernable period of potential significance 50 years ago or earlier. Therefore, impacts on cultural resources, would be less than significant, and no further analysis is warranted in the EIR.

b. Does the project have impacts that are individually limited, but cumulatively considerable? (Cumulatively considerable means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Potentially Significant Impact. State CEQA Guidelines Section 15130 requires a discussion of the cumulative impacts of a project when the project's incremental effect is "cumulatively considerable," meaning that the project's incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects. The cumulative impacts discussion does not need to provide as much detail as is provided in the analysis of project-specific impacts and should be guided by the standards of practicality and reasonableness.

As determined by this Initial Study, there may be potentially significant effects related to air quality, biological resources, paleontological resources, GHG emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, noise and vibration, and transportation and traffic. Therefore, the project's potential contribution to cumulative impacts related to these resources will be discussed in the EIR.

Given that the project would have no impact on aesthetics, agriculture and forestry resources, cultural resources, geologic hazards and soils, mineral resources, or tribal cultural resources, it was determined that the proposed project would have no potential to result in cumulative impacts related to these resource areas. Further discussion of the cumulative effect on these resources is not warranted in the EIR.

c. Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?

Potentially Significant Impact. Based on the analysis above, the proposed project has the potential to result in significant impacts on air quality, biological resources, GHG emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, noise and vibration, and transportation and traffic. As such, the project has the potential to result in environmental impacts that could cause substantial adverse effects on human beings, either directly or indirectly. Therefore, further discussion is warranted in the EIR.

References

Anchor QEA, LLC. 2016. *North Shipyard Remedial Action Plan Implementation Report San Diego Shipyard Sediment Site*.

BAE Systems. Personal communication with BAE Systems on June 15, 2018.

California Air Resources Board (CARB). 2005. *Air Quality And Land Use Handbook: A Community Health Perspective.* Available: https://www.arb.ca.gov/ch/handbook.pdf. Accessed: August 31, 2018.

California Department of Conservation (DOC). 2003. *Earthquake Fault Zones: Point Loma Quadrangle*. Published May.

———. 2013. *San Diego County Williamson Act 2013/2014.* Available: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/San_Diego_w_13_14_WA.pdf. Accessed: August 8, 2018.

———. 2016. *San Diego County Important Farmland 2016, Sheet 1 of 2*. Published May.

California Department of Fish and Wildlife (CDFW). 2018. *California Natural Diversity Database*. August 21, 2018.

California Department of Toxic Substances Control (DTSC). 2018. EnviroStor. Available: https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=2205+e+belt+street+san+diego+ca.

California Department of Transportation (DOT). 2018. *Route 75 - Scenic Highway*. Available: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/route75.htm.

California Department of Water Resources (DWR). 2018. *Levee Flood Protection Zone (LFPZ).* Available: http://gis.lfpz.water.ca.gov/lfpz/. Accessed: September 3, 2018.

California Native Plant Society (CNPS). 2018. *Inventory Of Rare And Endangered Plants* (Online Edition, V8-02). California Native Plant Society. Sacramento, CA. Available: http://www.rareplants.cnps.org/advanced.html Accessed: August 21, 2018.

City of San Diego. 1997. Multiple Species Conservation Program (MSCP Subarea Plan). Available: https://www.sandiego.gov/sites/default/files/legacy//planning/programs/mscp/pdf/subareafullversion.pdf.

———. 2008a. *Seismic Safety Study Geologic Hazards and Faults*. Available: http://archive.sandiego.gov/development-services/industry/hazards/pdf/geo13.pdf. Accessed: August 6, 2018.

———. 2008b. *General Plan: Conservation Element*. Planning Department. Available: http://www.sandiego.gov/planning/genplan/pdf/2012/ce120100.pdf. Accessed: August 22, 2018.

———. 2009. *Very High Fire Hazard Severity Zone Map*. Available: https://www.sandiego.gov/sites/default/files/legacy/fire/pdf/maps/grid11.pdf. Accessed: August 20, 2018.

———. 2015. *General Plan: Public Facilities, Services and Safety Element.* Planning Department. Available: http://www.sandiego.gov/planning/genplan/. Accessed: August 6, 2018.

———. 2016a. *California Environmental Quality Act Significance Determination Thresholds*. Development Services Department. July.

———. 2016b. *2015 Urban Water Management Plan*. June 2016.

County of San Diego. 2017. *Multi-Jurisdictional Hazard Mitigation Plan.* October.

Federal Emergency Management Agency (FEMA). 2012 Floodplain GIS Data. Available: https://msc.fema.gov/portal/search?AddressQuery=2205%20E%20Belt%20Street%20San%20Diego%2C%20CA%2092113#searchresultsanchor.

Kennedy and Tan. 2008. Geologic Map of the San Diego 30'x60' Quadrangle, California. California Geological Survey, Regional Geologic Map No. 3, 1:100,000 scale.

National Environmental Title Research, LLC (NETR). 2018. *Historic Aerial Views of BAE Systems Site, 1953, 1966, 1980, 1981, 1989, 1994, 1996, 2002, 2003, 2005, 2009, 2014*. Available: https://www.historicaerials.com. Accessed: August 8, 2018.

National Oceanic and Atmospheric Administration (NOAA). 2014. *California Eelgrass Mitigation Policy and Implementing Guidelines.* October. Available: http://www.westcoast.fisheries.noaa.gov/publications/habitat/california_eelgrass_mitigation/Final%20CEMP%20October%202014/cemp_oct_2014_final.pdf.

Onyx Group. 2011. *Air Installation Compatible Use Zones (AICUZ) Study Update for NAS North Island and Naval Outlying Landing Field Imperial Beach*. *Figure 4-8.*

Ricondo & Associates. 2014. *San Diego International Airport, Airport Land Use Compatibility Plan (ALUCP). Exhibit 2-1.*

San Diego Association of Governments (SANDAG). 2015. *San Diego Forward; The Regional Plan.* October 2015. Available: http://sdforward.com/pdfs/Final_PDFs/The_Plan_combined.pdf. Accessed: August 14, 2018.

San Diego County Regional Airport Authority, Airport Land Use Commission. San Diego International Airport (SDIA). 2014. *Airport Land Use Compatibility Plan*. Adopted April 3, 2014, Amended May 1, 2014. Available: http://www.san.org/Portals/0/Documents/Land%20Use%20Compatibility/SDIA/SDIA%20Factor%20Maps%20and%20Matrices.pdf. Accessed: August 8, 2018.

San Diego Unified Port District (District). 2013. *Integrated Natural Resources Management Plan*. September. Available: https://www.Portofsandiego.Org/Document/Environment/Natural-Resources/5730-Inrmp-September-2013/File.html.

———. 2015. *Pier 1 North Drydock, Associated Real Estate Agreements, and Removal of Cooling Tunnels Project Draft EIR*. April 2015.

———2017. *Port Master Plan*. August.

State Water Resources Control Board (SWRCB). 2018. GeoTracker. Available: http://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=2205+e+belt+street+san+diego. Accessed: August 8, 2018.

Terra Costa Consulting Group Inc. 2015. *Final Geotechnical Investigation. Pier 1 North, Large Dry Dock.* October.

Tetra Tech, Inc. 2016. *Historical Study of Shipyard Sites on the San Diego Waterfront, Cesar E. Chavez Parkway to Sicard Street, San Diego, California*. September. Prepared for the San Diego Unified Port District, San Diego, California.

U.S. Department of Agriculture. 1973. *Soil Survey of San Diego Area, California*. USDA Soil Conservation Service. December.

Document Preparation

Consistent with State CEQA Guidelines Section 15063 (d) (6), the following section provides a listing of the persons who prepared this Initial Study and those persons who participated in its review.

Table IS-1. Lead Agency – Unified Port of San Diego

Name and Affiliation	Title
Real Estate and Development Services	
Wileen Manaois	Director, Development Services
Joseph Smith	Department Manager, Development Services
Kelly Czechowski	Senior Planner, Development Services
Kenneth Sorenson	Project Review Associate, Development Services
Amber Jensen	Asset Manager, Real Estate
Planning and Green Port	
Eileen Maher	Principal
Paul Brown	Program Manager
Office of the General Counsel	
Rebecca Harrington	Senior Deputy General Counsel

Table IS-2. List of Initial Study Preparers and Contributors

Company Affiliation and Name	Role and/or Technical Section
ICF	
Charlie Richmond	Project Director
Elizabeth Doalson	Project Manager
Tristan Evert	Environmental Planner
Claudia Watts	Environmental Planner
Matt McFalls	Air Quality and Greenhouse Gas Emissions
Karen Crawford	Technical Director, Cultural Resources
Karolina Chmiel	Cultural Resources (Pre-Historic)
Tim Yates, Ph.D.	Cultural Resources (Historic)
Jonathan Higginson	Noise and Vibration
David Duncan	Graphics/GIS
Ken Cherry	Editor
Dudek	
Matt Valerio	Senior Environmental Project Manager

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Appendix B

Comments Received on the Notice of Preparation

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Gavin Newsom
Governor

Kate Gordon
Director

Notice of Preparation

March 7, 2019

To: Reviewing Agencies

Re: BAE Systems Waterfront Improvement Project
SCH# 2019039040

Attached for your review and comment is the Notice of Preparation (NOP) for the BAE Systems Waterfront Improvement Project draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Joseph Smith
San Diego Unified Port District
P.O. Box 120488
San Diego, CA 92112-0488

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH# 2019039040
Project Title BAE Systems Waterfront Improvement Project
Lead Agency San Diego Unified Port District

Type NOP Notice of Preparation

Description The proposed project would replace aging structures, improve existing infrastructure, and increase space utilization, and increase efficiency of operations at the existing BAE systems Sand Diego Ship repair yard. While these improvements would allow for newer and different classes of vessels to be moored and repaired on site, the proposed improvements are not expected to increase the number of vessels serviced as no new berthing space would be provided and the mooring of new, larger vessels would reduce the number of other vessels that could be concurrently moored at the ship repair yard. The proposed project includes 15 distinct project elements designed to improve efficiency and functionality of the existing BAE Systems San Diego Ship Repair Yard.

Lead Agency Contact

Name Joseph Smith
Agency San Diego Unified Port District
Phone 619-686-6597 **Fax**
email
Address P.O. Box 120488
City San Diego **State** CA **Zip** 92112-0488

Project Location

County San Diego
City San Diego
Region
Cross Streets East Belt Street and Sampson Street
Lat / Long 32° 41' 33.6" N / 117° 08' 38.4" W
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways 5, 75, 15, 94, 282
Airports SDIA
Railways BNSF, Amtrak
Waterways San Diego Bay, Chollas Creek
Schools Perkins ES, Burbank ES
Land Use Marine Related Industrial, Specialized Berthing

Project Issues Air Quality; Biological Resources; Coastal Zone; Drainage/Absorption; Flood Plain/Flooding; Noise; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Wetland/Riparian; Landuse; Cumulative Effects; Other Issues

Reviewing Agencies Resources Agency; Department of Fish and Wildlife, Region 5; Department of Fish and Wildlife, Marine Region; Native American Heritage Commission; Public Utilities Commission; State Lands Commission; Caltrans, Division of Aeronautics; California Highway Patrol; Caltrans, District 11; Air Resources Board, Major Industrial Projects; State Water Resources Control Board; Regional Water Quality Control Board, Region 9; Department of Boating and Waterways; San Diego River Conservancy

Date Received 03/07/2019 **Start of Review** 03/07/2019 **End of Review** 04/05/2019

Note: Blanks in data fields result from insufficient information provided by lead agency

Print Form

Appendix C

Notice of Completion & Environmental Document Transmittal

2019039040

SCH #

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

Project Title: BAE Systems Waterfront Improvement Project

Lead Agency: San Diego Unified Port District | Contact Person: Joseph Smith

Mailing Address: Post Office Box 120488 | Phone: 619-686-6597

City: San Diego | Zip: 92112 | County: San Diego

Project Location: County: San Diego | City/Nearest Community: San Diego

Cross Streets: East Belt Street and Sampson Street | Zip Code: 92113

Longitude/Latitude (degrees, minutes and seconds): 32 ° 41 ' 33.6 " N / 117 ° 08 ' 38.4 " W | Total Acres: 35.8

Assessor's Parcel No.: N/A | Section: N/A | Twp.: N/A | Range: N/A | Base: N/A

Within 2 Miles: State Hwy #: 5, 75, 15, 94, 282 | Waterways: San Diego Bay, Chollas Creek

Airports: SDIA | Railways: BNSF, Amtrak | Schools: Perkins ES, Burbank ES

Governor's Office of Planning & Research

MAR 07 2019

STATE CLEARINGHOUSE

Document Type:

CEQA: ☒ NOP ☐ Draft EIR ☐ Early Cons ☐ Supplement/Subsequent EIR ☐ Neg Dec (Prior SCH No.) ☐ Mit Neg Dec Other:

NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI Other: ☐ Joint Document ☐ Final Document ☐ Other:

Local Action Type:

☐ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan
☐ Rezone ☐ Prezone ☐ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☒ Redevelopment ☒ Coastal Permit ☐ Other:

Development Type:

☐ Residential: Units ____ Acres ____
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☐ Commercial: Sq.ft. ____ Acres ____ Employees ____
☒ Industrial: Sq.ft. 137,500 Acres ____ Employees ____
☐ Educational: ____
☐ Recreational: ____
☐ Water Facilities: Type ____ MGD ____
☐ Transportation: Type ____
☐ Mining: Mineral ____
☐ Power: Type ____ MW ____
☐ Waste Treatment: Type ____ MGD ____
☐ Hazardous Waste: Type ____
☐ Other: Dredging (107,800 cy)

Project Issues Discussed in Document:

☐ Aesthetic/Visual
☐ Agricultural Land
☒ Air Quality
☐ Archeological/Historical
☒ Biological Resources
☒ Coastal Zone
☒ Drainage/Absorption
☐ Economic/Jobs
☐ Fiscal
☒ Flood Plain/Flooding
☐ Forest Land/Fire Hazard
☐ Geologic/Seismic
☐ Minerals
☒ Noise
☐ Population/Housing Balance
☐ Public Services/Facilities
☐ Recreation/Parks
☐ Schools/Universities
☐ Septic Systems
☐ Sewer Capacity
☐ Soil Erosion/Compaction/Grading
☐ Solid Waste
☒ Toxic/Hazardous
☒ Traffic/Circulation
☒ Vegetation
☒ Water Quality
☐ Water Supply/Groundwater
☒ Wetland/Riparian
☐ Growth Inducement
☒ Land Use
☒ Cumulative Effects
☒ Other: GHG, Energy

Present Land Use/Zoning/General Plan Designation:

Marine Related Industrial, Specialized Berthing

Project Description: *(please use a separate page if necessary)*

The proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase efficiency of operations at the existing BAE Systems San Diego Ship Repair Yard. While these improvements would allow for newer and different classes of vessels to be moored and repaired on site, the proposed improvements are not expected to increase the number of vessels serviced as no new berthing space would be provided and the mooring of new, larger vessels would reduce the number of other vessels that could be concurrently moored at the ship repair yard. The proposed project includes 15 distinct project elements designed to improve efficiency and functionality of the existing BAE Systems San Diego Ship Repair Yard.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

NOP Distribution List

County: San Diego SCH# 2019039040

sources Agency

Resources Agency
Nadell Gayou

- [■] **Dept. of Boating & Waterways**
  Denise Peterson
- [ ] **California Coastal Commission**
  Allyson Hitt
- [ ] **Colorado River Board**
  Elsa Contreras
- [ ] **Dept. of Conservation**
  Crina Chan
- [ ] **Cal Fire**
  Dan Foster
- [ ] **Central Valley Flood Protection Board**
  James Herota
- [ ] **Office of Historic Preservation**
  Ron Parsons

Dept of Parks & Recreation
Environmental Stewardship Section

- [ ] **S.F. Bay Conservation & Dev't. Comm.**
  Steve Goldbeck
- [ ] **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou

Fish and Game

- [ ] **Depart. of Fish & Wildlife**
  Scott Flint
  Environmental Services Division
- [ ] **Fish & Wildlife Region 1**
  Curt Babcock
- [ ] **Fish & Wildlife Region 1E**
  Laurie Harnsberger
- [ ] **Fish & Wildlife Region 2**
  Jeff Drongesen
- [ ] **Fish & Wildlife Region 3**
  Craig Weightman
- [ ] **Fish & Wildlife Region 4**
  Julie Vance
- [■] **Fish & Wildlife Region 5**
  Leslie Newton-Reed
  Habitat Conservation Program
- [ ] **Fish & Wildlife Region 6**
  Tiffany Ellis
  Habitat Conservation Program
- [ ] **Fish & Wildlife Region 6 I/M**
  Heidi Calvert
  Inyo/Mono, Habitat Conservation Program
- [■] **Dept. of Fish & Wildlife M**
  William Paznokas
  Marine Region

Other Departments

- [ ] **California Department of Education**
  Lesley Taylor
- [ ] **OES (Office of Emergency Services)**
  Monique Wilber
- [ ] **Food & Agriculture**
  Sandra Schubert
  Dept. of Food and Agriculture
- [ ] **Dept. of General Services**
  Cathy Buck
  Environmental Services Section
- [ ] **Housing & Comm. Dev.**
  CEQA Coordinator
  Housing Policy Division

Independent Commissions,Boards

- [ ] **Delta Protection Commission**
  Erik Vink
- [ ] **Delta Stewardship Council**
  Anthony Navasero
- [ ] **California Energy Commission**
  Eric Knight
- [■] **Native American Heritage Comm.**
  Debbie Treadway
- [■] **Public Utilities Commission**
  Supervisor
- [ ] **Santa Monica Bay Restoration**
  Guangyu Wang
- [■] **State Lands Commission**
  Jennifer Deleong
- [ ] **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Cal State Transportation Agency CalSTA

- [■] **Caltrans - Division of Aeronautics**
  Philip Crimmins
- [ ] **Caltrans – Planning HQ LD-IGR**
  Christian Bushong
- [■] **California Highway Patrol**
  Suzann Ikeuchi
  Office of Special Projects

Dept. of Transportation

- [ ] **Caltrans, District 1**
  Rex Jackman
- [ ] **Caltrans, District 2**
  Marcelino Gonzalez
- [ ] **Caltrans, District 3**
  Susan Zanchi
- [ ] **Caltrans, District 4**
  Patricia Maurice
- [ ] **Caltrans, District 5**
  Larry Newland
- [ ] **Caltrans, District 6**
  Michael Navarro
- [ ] **Caltrans, District 7**
  Dianna Watson
- [ ] **Caltrans, District 8**
  Mark Roberts
- [ ] **Caltrans, District 9**
  Gayle Rosander
- [ ] **Caltrans, District 10**
  Tom Dumas
- [■] **Caltrans, District 11**
  Jacob Armstrong
- [ ] **Caltrans, District 12**
  Maureen El Harake

Cal EPA

Air Resources Board

- [ ] **Airport & Freight**
  Jack Wursten
  - [ ] **Transportation Projects**
    Nesamani Kalandiyur
  - [■] **Industrial/Energy Projects**
    Mike Tollstrup
- [ ] **California Department of Resources, Recycling & Recovery**
  Kevin Taylor/Jeff Esquivel
- [ ] **State Water Resources Control Board**
  Regional Programs Unit
  Division of Financial Assistance

State Water Resources Control Board
Cindy Forbes – Asst Deputy
Division of Drinking Water

- [ ] **State Water Resources Control Board**
  Div. Drinking Water #_____
- [■] **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- [ ] **State Water Resouces Control Board**
  Phil Crader
  Division of Water Rights
- [ ] **Dept. of Toxic Substances Control Reg. #_____**
  CEQA Tracking Center
- [ ] **Department of Pesticide Regulation**
  CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- [ ] **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- [ ] **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] **RWQCB 3**
  Central Coast Region (3)
- [ ] **RWQCB 4**
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] **RWQCB 5S**
  Central Valley Region (5)
  - [ ] **RWQCB 5F**
    Central Valley Region (5)
    Fresno Branch Office
  - [ ] **RWQCB 5R**
    Central Valley Region (5)
    Redding Branch Office
- [ ] **RWQCB 6**
  Lahontan Region (6)
  - [ ] **RWQCB 6V**
    Lahontan Region (6)
    Victorville Branch Office
- [ ] **RWQCB 7**
  Colorado River Basin Region (7)
- [ ] **RWQCB 8**
  Santa Ana Region (8)
- [■] **RWQCB 9**
  San Diego Region (9)

- [ ] **Other** _____

_____

_____

- [■] San Diego Conservancy

Last Updated 5/22/18

DEPARTMENT OF TRANSPORTATION
DISTRICT 11
4050 TAYLOR STREET, MS-240
SAN DIEGO, CA 92110
PHONE (619) 688-6075
FAX (619) 688-4299
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

04/02/2019

11-SD-I-5
PM 13.7
BAE Systems Waterfront Improvement Project
SCH#2019039040

Mr. Joseph Smith
Department Manager
San Diego Unified Port District
P.O. Box 120488
San Diego, CA 92112

Dear Mr. Smith:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the Notice of Preparation of a Draft Environmental Impact Report for the BAE Systems Waterfront Improvement Project located near Interstate 5 (I-5). The mission of Caltrans is to provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability. The Local Development-Intergovernmental Review (LD-IGR) Program reviews land use projects and plans to ensure consistency with our mission and state planning priorities.

Caltrans has the following comments:

Traffic Impact Study

A traffic impact study (TIS) is necessary to determine this proposed project's near-term and long-term impacts to the State facilities – existing and proposed – and to propose appropriate mitigation measures.

- Please include ramp intersections at Route I-5 and/S 28th Street. The geographic area examined in the TIS should also include, at a minimum, all regionally significant arterial system segments and intersections, including State highway facilities where the project will add over 100 peak hour trips. State highway facilities that are experiencing noticeable delays should be analyzed in the scope of the traffic study for projects that add 50 to 100 peak hour trips.
- A focused analysis may be required for project trips assigned to a State highway facility that is experiencing significant delay, such as where traffic queues exceed ramp storage capacity.
- In addition, the TIS could also consider implementing vehicles miles traveled (VMT) analysis into their modeling projections.

- Any increase in goods movement operations and its impacts to State highway facilities should be addressed in the TIS.
- The data used in the TIS should not be more than 2 years old.
- Please provide Synchro Version 10 files.
- Early coordination is recommended.

Traffic Control Plan/Hauling

The California Department of Transportation (Caltrans) has discretionary authority with respect to highways under its jurisdiction and may, upon application and if good cause appears, issue a special permit to operate or move a vehicle or combination of vehicles or special mobile equipment of a size or weight of vehicle or load exceeding the maximum limitations specified in the California Vehicle Code. The Caltrans Transportation Permits Issuance Branch is responsible for the issuance of these special transportation permits for oversize/overweight vehicles on the State Highway System. Additional information is provided online at:
http://www.dot.ca.gov/trafficops/permits/index.html

A Traffic Control Plan is to be submitted to Caltrans District 11, including the interchanges at Route 5 and S 28th Street, at least 30 days prior to the start of any construction. Traffic shall not be unreasonably delayed. The plan shall also outline suggested detours to use during closures, including routes and signage.

Potential impacts to the highway facilities (Route 5) and traveling public from the detour, demolition and other construction activities should be discussed and addressed before work begins.

If you have any questions, please contact Roger Sanchez Rangel, of the Caltrans Development Review Branch, at (619) 688-6494 or by e-mail sent to roger.sanchez-rangel@dot.ca.gov.

Sincerely,

Melina Pereira

MELINA PEREIRA, Acting Branch Chief
Local Development and Intergovernmental Review Branch

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691 Phone (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

April 2, 2019

Joseph Smith
San Diego Unified Port District
P.O. Box 120488
San Diego, CA 92112-0488

RE: SCH# 2019039040 BAE Systems Waterfront Improvement Project, San Diego County

Dear Mr. Smith:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
    a. A brief description of the project.
    b. The lead agency contact information.
    c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
    d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).
    a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
    a. Alternatives to the project.
    b. Recommended mitigation measures.
    c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
    a. Type of environmental review necessary.
    b. Significance of the tribal cultural resources.
    c. Significance of the project's impacts on tribal cultural resources.
    d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
    a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
    b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
    a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
    b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
    a. Avoidance and preservation of the resources in place, including, but not limited to:
        i. Planning and construction to avoid the resources and protect the cultural and natural context.
        ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
    b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
        i. Protecting the cultural character and integrity of the resource.
        ii. Protecting the traditional use of the resource.
        iii. Protecting the confidentiality of the resource.
    c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
    d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).
    e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
    f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
    a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
    b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
    c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
    a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
    b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
    a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
    b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
    c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Steven.Quinn@nahc.ca.gov.

Sincerely,

for Steven Quinn
Associate Governmental Program Analyst

cc: State Clearinghouse

Evert, Tristan

From: Joseph Smith <jdsmith@portofsandiego.org>
Sent: Monday, April 8, 2019 2:46 PM
To: Doalson, Elizabeth
Cc: Matthew Valerio; Richmond, Charlie
Subject: FW: Notice of Preparation of a Draft EIR for BAE Systems Waterfront Improvement Project

NOP Comment

From: Adams, Loni@Wildlife <Loni.Adams@wildlife.ca.gov>
Sent: Monday, April 8, 2019 2:43 PM
To: Joseph Smith <jdsmith@portofsandiego.org>
Cc: Lasiter, Melody@Coastal <melody.lasiter@coastal.ca.gov>; Jonathan_d_snyder@fws.gov; Bryant Chesney - NOAA Federal <bryant.chesney@noaa.gov>
Subject: Notice of Preparation of a Draft EIR for BAE Systems Waterfront Improvement Project

Dear Mr. Smith:

The Department of Fish and Wildlife (Department) has received your Notice of Preparation of a Draft Environmental Impact Report (Draft EIR) for BAE Systems Waterfront Improvements Project. The Department has the following preliminary comments that we believe should be addressed or analyzed in the Draft EIR:

1. The San Diego Bay (Bay) is considered locally and regionally important to fish and wildlife, and a significant State area of habitat for Eelgrass beds (Zostera marina). This includes State fully protected and endangered California least tern (nesting and foraging habitat), California brown pelicans, Peregrine falcons as well as federally protected Green sea turtles and marine mammals. The Bay provides habitat for numerous sport and commercially important fish/invertebrate species managed by the State. Finally, the Bay and Eelgrass beds provides significant calm waters and habitat essential for sensitive and/or locally rare resident and migratory fish and bird species (listed and/or non-listed). These species and Bay habitats should be comprehensively identified with recent or future field surveys and monitoring studies as appropriate and fully analyzed for physical and behavioral impacts as applicable. Any potential temporary or permanent impacts to State fully protected species and their habitats should be considered for full impact avoidance as feasible (i.e. timing construction phases to avoid the breeding/nesting or spawning season).

2. For marine habitat losses in general, avoidance is preferred as feasible. The area of unavoidable habitat losses should be minimized to the maximum extent. If net

areal losses are unavoidable, they should be compensated through proposed mitigation, monitoring and reporting plans with proposed mitigation sites managed in perpetuity. Proposed losses or habitat conversions due to dredging/fill, additional pile fill if any, and loss from overwater structure (Bay surface water losses or seabird foraging habitat losses), and impacts to eelgrass/soft bottom benthic habitats and water column due to shading should be fully analyzed for each alternative. The Department advocates for construction designs/technologies and project alternatives that have the least net native habitat losses and/or the least degradation effects. We don't consider artificial hard structure area (i.e. piles and rip rap) in offsetting net losses to native habitats and substrates (i.e. soft bottom) unless otherwise agreed upon by the Department and other natural resource agencies.

As described in State CEQA Guidelines Section 15370, mitigation includes:

- avoiding the impact altogether by not taking a certain action or parts of an action;
- minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- rectifying the impact by repairing, rehabilitating, or restoring the impacted environment;
- reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
- compensating for the impact by replacing or providing substitute resources or environments.

3. Operational impacts that may result from the ongoing activities, (i.e. additional or increased impacts such as turbidity/sedimentation, underwater noise and marine habitat degradation over time should be fully analyzed for this individual project and cumulatively. The project impacts may be cumulatively significant taking into consideration with other past, proposed and future projects/operations.

4. The latest underwater noise studies should be reviewed for construction/pile driving noises. The newest feasible technologies to avoid or significantly reduce noise impacts (studies related to physical, behavior stress to fish, invertebrates, marine mammals, turtles are available) should be used such as pile driving containments especially if piles are driven during C. least tern bird breeding season.

5. Seabird forage fish (seabird forage habitat) is likely abundant in the project area due to known eelgrass beds identified for the recently proposed HII San Diego Shipyard Wharf Repair Project. If avoiding the C. least tern breeding/nesting season is feasible for most if not all of the pile driving portion of the project, and turbidity/noise abatement technologies are feasible, then these mitigation measures should be considered as precautionary protection measures to protect the foraging habitat for this State fully protected species.

6. The Department would like to be included in any project coordination meetings, review of draft or final documents as it relates to biological resources, mitigation,

monitoring and reporting plans so that we have an opportunity to review, make comments, provide references, and be present for project scoping and sites visits. Specifically, we would appreciate being included in inter-agency collaborations to primarily avoid and/or minimize unavoidable project and cumulative impacts to biological resources and marine ecosystems within or adjacent to the project area.

7. Proposed eelgrass compensation plans that may include transplanting of eelgrass to mitigation sites should be coordinated as early as possible with Loni Adams of the Department in order to determine if a Scientific Collectors Permit or a Letter of Authorization for transplanting is required.

The Department may have additional comments in the future. Feel free to contact me if you have any questions.

Sincerely,

Loni Adams
Marine Environmental Scientist
California Department of Fish and Wildlife
Marine Region
3883 Ruffin Rd.
San Diego, CA 92123
858-627-3985 office
loni.adams@wildlife.ca.gov

The City of SAN DIEGO
Planning Department

April 8, 2019

Joseph Smith, Department Manager
Development Services Department
San Diego Unified Port District
3165 Pacific Highway
San Diego, CA 92101

Subject: **CITY OF SAN DIEGO COMMENTS ON THE NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE BAE SYSTEMS WATERFRONT IMPROVEMENT PROJECT (UPD #EIR-2018-197)**

Dear Mr. Smith:

The City of San Diego (City) Planning Department has received the Notice of Preparation (NOP) prepared by the San Diego Unified Port District (District) and distributed it to applicable City departments for review. The City, as a Responsible Agency under CEQA, has reviewed the NOP and appreciates this opportunity to provide comments to the District. The City looks forward to continued coordination with the District and other local, regional, state, and federal agencies. In response to this request for public comments, the City has the following comments on the NOP for your consideration.

• • •

TRANSPORTATION & STORM WATER DEPARTMENT – MARK G. STEPHENS, ASSOCIATE PLANNER – MGStephens@sandiego.gov, 858-541-4361

1. **Initial Study/Environmental Checklist: IX. Hydrology and Water Quality (Pages 25-28).** The narrative should address the proposed work being done in accordance with the San Diego Bay Watershed Management Area Water Quality Improvement Plan (WQIP) and the Regional Municipal Separate Storm Sewer System (MS4) Permit (Order No. R9-2013-0001, as amended by Order No. R9-2015-0001 and R9-2015-0100) to the extent they (and any successor documents) apply.
2. Water quality is recognized as a potentially significant impact area and using a storm water diversion system to redirect storm water to the City's municipal sanitary sewer system is anticipated, among other best management practices (BMPs). The varied array of proposed project elements and activities warrants broad coverage of these potential impacts.
3. Results of San Diego Regional Water Quality Control Board Investigative Order R9-2017-0083, which directed BAE Systems San Diego Ship Repair, Inc. and San Diego Gas and Electric Company to submit technical reports pertaining to an investigation

of sediment chemistry in San Diego Bay to the north of BAE Systems, should be included among potential information sources.

DEVELOPMENT SERVICES DEPARTMENT – ISMAIL ELHAMAD, ASSOCIATE TRAFFIC ENGINEER – IElhamad@sandiego.gov, 619-446-5494

1. The Transportation Impact Analysis in the DEIR should follow the guidelines of the *City of San Diego Traffic Impact Study Manual, July 1998*, including various scenarios to be included, for all transportation facilities within the City of San Diego evaluated.
2. The Transportation Impact Analysis in the DEIR should apply the *City of San Diego Significance Determination Thresholds, July 2016* for all transportation facilities within the City of San Diego evaluated.
3. The DEIR should include alternatives that avoid or lessen expected transportation/circulation/parking impacts, including at least one alternative that would avoid unmitigated significant impacts to the City of San Diego's transportation facilities.
4. Potentially impacted transportation facilities within the City of San Diego should be evaluated, and significant traffic impacts to these transportation facilities should be mitigated.
5. The DEIR should analyze the separate phases of the project with approximate timelines for each phase.
6. The DEIR should evaluate opportunities for enhanced access to the site via transit, bicycle, pedestrian or other modes.
7. The DEIR transportation impact analysis should include analysis of all anticipated construction traffic impacts, especially any additional impacts if staging cannot be accommodated onsite.
8. Pursuant to SB 743, we recommend a Vehicle Miles Traveled (VMT) analysis be included in the transportation impact analysis and DEIR.

ENVIRONMENTAL SERVICES DEPARTMENT – LISA WOOD, PRINCIPAL PLANNER – LFWood@sandiego.gov, 858-573-1236

1. The City requests the District consider solid waste impacts.

• • •

Thank you for the opportunity to provide comments on the NOP. Please contact me directly if there are any questions regarding the contents of this letter or if the District would like to meet with City staff to discuss our comments. Please feel free to contact Rebecca Malone, Senior Planner, directly via email at RMalone@sandiego.gov or by phone at 619-446-5371.

Sincerely,

Heidi Vonblum, Program Manager
Planning Department

RM/ep

cc: Reviewing Departments (via email)
Review and Comment online file

Evert, Tristan

From: Joseph Smith <jdsmith@portofsandiego.org>
Sent: Friday, April 5, 2019 2:40 PM
To: Doalson, Elizabeth; Matthew Valerio
Cc: Richmond, Charlie
Subject: Fwd: BAE Systems Waterfront Improvement Project NOP - SANDAG Comments

NOP comment

Begin forwarded message:

> **From:** "Hentrich, Katie" <Katie.Hentrich@sandag.org>
> **Date:** April 5, 2019 at 10:46:59 AM PDT
> **To:** "jdsmith@portofsandiego.org" <jdsmith@portofsandiego.org>
> **Cc:** "Litchney, Seth" <Seth.Litchney@sandag.org>
> **Subject: BAE Systems Waterfront Improvement Project NOP - SANDAG Comments**
>
> Dear Mr. Smith,
>
> Thank you for the opportunity to comment on the Port of San Diego's BAE Systems Waterfront Improvement Project Notice of Preparation (NOP). The San Diego Association of Governments (SANDAG) is submitting the following comments:
>
> - Please consider transportation demand management (TDM) strategies to mitigate potential traffic and parking impacts associated with construction of the project. TDM measures reduce drive-alone trips by encouraging the use of transportation alternatives such as vanpool, carpool, transit, and biking. TDM strategies could include:
>
> - Encouraging employees and construction workers to carpool or vanpool to work. Providing priority and designated parking spaces for those who carpool or vanpool to work. Providing priority and designated parking spaces for those who carpool or vanpool may also further incentivize employees to rideshare to work. The SANDAG Vanpool Program provides a subsidy of up to $400 per month for vanpooling.
>
> - Providing discounted transit passes to employees and construction workers to encourage transit ridership and reduce demand for parking.
>
> - Providing secure bike parking facilities and on-site bike amenities like showers and lockers. Given the proximity to the Bayshore Bikeway, ensure that waterfront improvements help facilitate safe and convenient access to regional bike facilities to encourage biking to work.
>
> - Please consider partnering with the SANDAG TDM program, iCommute, to take advantage of regional TDM programs and services. This includes the SANDAG Vanpool Program, Guaranteed Ride Home service, support for carpool, transit, and bike encouragement programs. More information on available regional TDM programs can be accessed through www.iCommuteSD.com.
>
> If you have any questions, please contact me or Seth Litchney (seth.litchney@sandag.org).

Sincerely,

Katie Hentrich
Associate Regional Energy/Climate Planner

SANDAG
(619) 595-5609
401 B Street, Suite 800, San Diego, CA 92101

Facebook | Twitter | YouTube | Instagram
SANDAG *offices are open Tuesday-Friday and every other Monday from 8 a.m.-5 p.m.*

ENVIRONMENTAL HEALTH COALITION
2727 HOOVER AVE., SUITE 202 · NATIONAL CITY, CA 91950 · (619) 474-0220 · WWW.ENVIRONMENTALHEALTH.ORG

April 8, 2019

San Diego Unified Port District,
Development Services Department
Attn: Joseph Smith, Department Manager

Via email to: jdsmith@portofsandiego.org

Re: Comments on Notice of Preparation for BAE Systems Waterfront Improvement Project (UDP #EIR-2018-197)

Dear Mr. Smith:

Environmental Health Coalition (EHC) appreciates the opportunity to review the Notice of Preparation for the BAE Systems Waterfront Improvement Project. This massive project will take 5 years, will include dredging of more than 15,000 tons of material, and result in an increase in ship repair days, in addition to the potential impacts of the larger vessels that will be coming to BAE. We concur that a full EIR is needed for this project, and offer the following comments on the areas that are important to include in the analysis. Our recommendations for mitigation measures are also included.

Air Quality

Larger Vessel Impacts

The project will allow larger vessels to come to BAE, as stated on page 20 of the Initial Study (IS). Also, as stated on page 32 of the IS, the total number of ship repair days per year at the site would increase. Both of these factors create potential for air quality impacts that should be analyzed in the EIR. Regarding larger vessels, will these take longer to transit through the bay to the site, compared to current sizes of ships at BAE? Will more or larger tugboats be required to maneuver these larger ships? Do the larger ships have more, or more powerful, engines, and does this increase the volume of emissions from the ships while in transit and at berth? Regarding the greater number of ship repair days, what is the magnitude of this increase? What are the implications for the number of workers on site, the hours per year that equipment used in maintenance and repair will be operating, or the total emissions from shipyard operations?

Dredging Impacts

Project Element 4 of the proposed project will entail dredging of 15,000 cubic yards of material. Project Element 1 will include dredging of an unstated volume of material, and Element 7 will include dredging of a total of 800 cubic yards of rock and sediment. What emissions will be produced by the dredging operation and the transportation of these materials to their disposal site? Given that sediments may contain hazardous substances such as copper, mercury, PCBs,

polycyclic aromatic hydrocarbons, and tributyltin (page 22 of IS), the dredged materials may not be suitable for ocean disposal. What is the plan for disposal of sediments that are deemed to be hazardous wastes? Will truck hauling be used to transport the material offsite?

Construction Materials
Finally, what are the projected emissions from volatile substances used in construction, such as fuels, solvents, paints, oils, and grease?

Level of Significance
The IS does not state what threshold of significance the Port plans to use for air quality. We recommend using a threshold of zero, not the County of San Diego's Guidelines for Determining Significance, which do not consider the location-specific conditions as CEQA requires.

CEQA Guidelines recognize that the level of impacts and the significance depends upon a multitude of factors such as *project setting*, design, construction, etc. CEQA Guidelines also call for careful judgment based on scientific and factual data to the extent possible and explain, "For example, an activity which may not be significant in an urban area may be significant in a rural area." (§ 15064(b)) Similarly, emissions of 100 lbs. per day of particulate matter upwind of Barrio Logan — an urban low-income community of color already determined by CalEPA to be among the highest in the state for cumulative pollution burden — could potentially be more significant than 100 lbs. per day of particulate matter in, for example, the middle of the desert with no nearby sensitive receptors.

The very least the Port should do and is required to do under CEQA is to not let current conditions become even worse. As any increase in emissions is significant in this community, the threshold of significance for this project for criteria air pollutants should be zero. A threshold of zero would take into account these location-specific conditions:

(a) the entire air basin already has a status of basic non-attainment for the federal (NAAQS) ozone standard and non-attainment for the state (CAAQS) standards for ozone, PM10 and PM2.5,[1]
(b) the project location is in an area with particularly high cumulative pollution burden as identified by California Environmental Protection Agency;[2]
(c) the project location is in an area with high levels of diesel; and
(d) health impacts in the community adjacent to the project could be exacerbated, resulting in additional significant impacts.

Recommended Mitigations

[1] IS-76, pdfp123
[2] http://www.oehha.ca.gov/ej/ces2.html

EHC recommends that mitigations for air quality impacts include:

- Require use of electrified equipment in place of diesel powered equipment for all phases of construction and operation of the project;
- All electric or hybrid electric tugboats in place of diesel powered tugs;
- Solar Power on rooftops onsite;
- Subsidize alternative transportation for workers;
- Require compliance with the Barrio Logan truck route;
- Vessel speed reduction for all ships coming to or leaving BAE

Biological Impacts

EHC agrees that potential impacts to eelgrass and marine species must be analyzed in the EIR.

The IS notes also that project elements 1,4, and 7 all include dredging, and that this may increase water turbidity, an impact to marine wildlife. The potential for dredging to make hazardous substances in sediments more available to the marine food chain should also be analyzed. This is particularly important given that the study of fishers conducted by the Regional Water Quality Control Board in 2017 confirmed the continued existence of subsistence fishers who frequently fish San Diego Bay and consume the fish they catch.[3] On July 31, 2018, CalEPA released a fishing advisory for eating fish from San Diego Bay, based on the levels of mercury and PCBs found in the fish.[4]

Greenhouse Gases

We agree that greenhouse gas emissions are potentially significant and should be analyzed in the EIR, as well as the potential impacts of climate change on the project itself. The Significance

[3] http://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/976_SanDiegoFishConsumptionStudy.pdf

[4] https://oehha.ca.gov/fish/advisory-press-release/updated-fish-advisory-san-diego-bay-offers-safe-eating-advice-fifteen.

Level used in the analysis should examine the project's consistency with California's goal to reduce greenhouse gas emissions 40% by 2030.
EHC recommends that mitigations for the project include the measures listed above for mitigation of air quality impacts. In addition, EHC recommends consideration of the following measures to further reduce the significance of GHG emissions.

- Require initial and continuing energy audits of project building facilities.

Hazardous Materials

The IS notes that hazardous materials are on the site and could be released under reasonably foreseeable conditions. Impacts to workers on and off the site should be analyzed, as well as impacts to residential receptors.
Regarding residential receptors, we note that the nearest potential sensitive receptor is approximately 785 feet away. This is the distance between the project site boundary bordering Belt Street and the Barrio Logan transition zone area between Harbor and Main Streets. At this point, the land use plan in effect is the 1978 version, which conditionally permits child care centers, hospitals, and other sensitive land uses in all areas of Barrio Logan, including the transition zone area where new sensitive receptors would have been disallowed under the 2013 community plan update. The analysis must assume that sensitive receptors may be located in the blocks between Harbor and Main, less than 1,000 feet from the BAE project.

Noise

EHC agrees that noise impacts are potentially significant. As noted above, the nearest potential residents are as close as 785 feet; this is the distance between the project site boundary bordering Belt Street and the Barrio Logan transition zone area between Harbor and Main Streets. In addition, workers on and off the BAE site are also much closer than 1,000 feet. Project noise includes round-the-clock dredging and highly impactful pile driving. Accordingly, we urge you to include a quantitative assessment of noise in the EIR for this project.
It is important to consider nighttime noise as well as daytime noise, and impacts to workers as well as to residents. Assessment of noise should consider cumulative noise impacts, including truck traffic noise on surface streets and train noise, as well as noise generated by operations at the shipyard. Residential noise standards should be used as the threshold of significance for noise impacts, not industrial or commercial levels, given that the impacted community is predominantly a residential neighborhood that includes schools, parks, and residences.

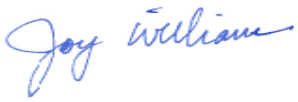
Transportation/Traffic

We agree that parking impacts are potentially significant for both construction and operation phases of the project, and should be analyzed in the EIR. Potential mitigations include the following.

- Increase use of alternative transit through subsidized transit passes, and increasing shuttles and vanpools.
- Local hire to reduce the need for BAE workers to commute to the job site.

Thank you for the opportunity to comment on this NOP and Initial Study. We look forward to review of the draft EIR.

Sincerely,



Joy Williams
Research Director

Appendix C

Air Quality and Greenhouse Gas Technical Memorandum

Memorandum

To:	Peter Eichar Senior Planner, Development Services San Diego Unified Port District
From:	ICF
Date:	June 25, 2020
Re:	**Air Quality and Greenhouse Gas Technical Memorandum for the BAE Systems Waterfront Improvement Project**

Introduction

The purpose of this memorandum is to provide a detailed air quality and greenhouse gas (GHG) methodology and results discussion for the BAE Systems Waterfront Improvement Project (proposed project). The project includes maintenance, repair, and replacement for waterfront infrastructure associated with mooring and operational facilities at BAE's San Diego Ship Repair Yard. The proposed project includes 15 distinct project elements, all of which are discussed in detail in Section 3.4 of the proposed project's Environmental Impact Report (EIR). Briefly, the proposed project includes the following:

- Replacement and realignment of the Pride of San Diego drydock access wharf and ramp, and several associated improvements.
- Replacement and realignment of the Pier 3 wharf structure and other associated improvements.
- Replacement of aged or inefficient facilities, including offices, the production building, the central tool room, and restrooms.
- Mooring infrastructure improvements to safely moor vessels and accommodate newer and different classes of vessels to be moored and repaired on site.
- Electrical and potable water utility upgrades.

While several of the proposed project elements are infrastructure maintenance and modernization improvements that would result in no operational changes, the dredging and mooring improvements at the Pride of San Diego drydock (Project Element 1) as well as improvements at Pier 3 (Project Elements 4 and 5) would allow BAE Systems to improve operational efficiency that

would allow for servicing of newer and different classes of vessels, which would represent a change from existing conditions.

This memorandum discusses methodologies and results for both the construction and operational elements of the proposed project. This memorandum focuses on methodologies and results and does not disclose California Environmental Quality Act (CEQA) impacts. CEQA impacts are discussed in the proposed project's EIR, Section 4.1, *Air Quality and Health Risk,* and Section 4.3, *Greenhouse Gas Emissions and Energy*.

Pollutants of Concern

The analysis focuses on the pollutants that are of greatest concern for the proposed project:

- **Criteria pollutants**: Criteria pollutants are pollutants for which the federal and state governments have set ambient air quality standards or that are chemical precursors to compounds for which ambient standards have been set. The criteria pollutants associated with the project are ozone (O_3) and the precursors thereof (reactive organic gasses [ROG] and nitrogen oxides [NO_X]), particulate matter (PM) (PM10 is PM smaller than or equal to 10 microns in diameter and PM2.5 is PM smaller than or equal than 2.5 microns in diameter), carbon monoxide (CO), and sulfur oxides (SO_X). Note that for purposes of this analysis, the terms ROGs and volatile organic compounds (VOCs) are used interchangeably.
- **Toxic Air Contaminants:** TACs are pollutants that have no ambient standard but pose the potential to increase the risk of developing cancer or acute or chronic health risks. The United States Environmental Protection Agency (EPA) has identified nine air toxic contaminants (TACs) associated with mobile sources as the considerable contributors to background air quality concerns. The primary TAC of concern associated with construction and operation of the proposed project is diesel particulate matter (DPM). For TACs that are known or suspected carcinogens, the California Air Resources Board (CARB) has consistently found that there are no levels or thresholds below which exposure is risk-free. Therefore, no federal or state air quality standards exist for TACs. Individual TACs vary greatly in the risks they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment (OEHHA). Adverse health effects of TACs can be carcinogenic (cancer-causing), short-term (acute) noncarcinogenic, and long-term (chronic) noncarcinogenic. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to the brain and nervous system, and respiratory disorders.
- **Greenhouse Gases**: The California Environmental Quality Act (CEQA) Guidelines (Section 15364.5) identify the following six gases as GHGs: carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), perfluorinated carbons, sulfur hexafluoride, and hydrofluorocarbons. Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (human-made) sources. Note that perfluorinated carbons, sulfur hexafluoride, and hydrofluorocarbons are not discussed further herein because those gases are primarily generated by industrial and manufacturing processes, which are not anticipated as part of the proposed project. Consequently, the primary GHGs of concern associated with the project are CO_2, CH_4, and N_2O. Each GHG has a global warming potential (GWP) value, which reflects the climate forcing of a kilogram of emissions relative to the same mass of CO_2. GWPs are used to convert GHG emission values to "carbon dioxide equivalent"

(CO_2e). The GWP values used in this report are based on the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4).

Supplemental EIR Information

Supplemental Environmental Setting

Concentrations of pollutants from the San Diego–Beardsley Street station over a 4-year period (2013–2016) of complete data are presented in Table 1. The monitoring data shows the following pollutant concentration trends: the 8-hour O_3 CAAQS was exceeded twice in 2014; 24-hour PM10 CAAQS was exceeded once in 2013, 2015, and 2016; and 24-hour PM2.5 NAAQS was exceeded once in 2013, and 2014. No violations of the 1-hour O_3, CO, or NO_2 CAAQS or NAAQS were recorded.

Table 1. Ambient Background Concentrations from the San Diego–Beardsley Street Monitoring Station

Pollutant Standards	2013	2014	2015	2016
1-Hour Ozone (O_3)				
Maximum Concentration (ppm)	0.063	0.093	0.089	0.072
Number of Days Standard Exceeded				
CAAQS 1-hour (>0.09 ppm)	0	0	0	0
8-Hour Ozone (O_3)				
State Maximum Concentration (ppm)	0.053	0.073	0.067	0.061
National Maximum Concentration (ppm)	0.053	0.072	0.067	0.061
National 4th Highest Concentration (ppm)	0.052	0.068	0.061	0.058
Number of days standard exceeded				
CAAQS 8-hour (>0.070 ppm)	0	2	0	0
NAAQS 8-hour (> 0.075 ppm)	0	0	0	0
Carbon Monoxide (CO)				
Maximum Concentration 8-hour Period (ppm)	2.1	1.9	1.9	1.7
Maximum Concentration 1-hour Period (ppm)	3.0	2.7	2.6	2.2
Number of days standard exceeded				
NAAQS 8-hour (≥9 ppm)	0	0	0	0
CAAQS 8-hour (≥9.0 ppm)	0	0	0	0
NAAQS 1-hour (≥35 ppm)	0	0	0	0
CAAQS 1-hour (≥20 ppm)	0	0	0	0
Nitrogen Dioxide (NO_2)				
Maximum 1-hour Concentration	72.0	75.0	62.0	73.0
Annual Average Concentration	14	13	14	*
Number of Days Standard Exceeded				
CAAQS 1-Hour (0.18 ppm)	0	0	0	0
NAAQS 1-Hour (0.100 ppm)	0	0	0	0
Suspended Particulates (PM10)				

Pollutant Standards	2013	2014	2015	2016
State Maximum 24-hour Concentration	92.0	41.0	54.0	51.0
National Maximum 24-hour Concentration	90.0	40.0	53.0	49.0
State Annual Average Concentration (CAAQS = 20 μg/m^3)	25.4	23.8	23.2	*
Number of Days Standard Exceeded				
CAAQS 24-hour (>50 μg/m^3)	1	0	1	1
NAAQS 24-hour (>150 μg/m^3) – *Expected Days*	0	0	0	0
Suspended Particulates (PM2.5)				
National Maximum 24-hour Concentration (μg/m^3)	37.4	36.7	33.4	34.4
24-hour Standard 98th Percentile (μg/m^3)	19.6	24.8	19.6	*
National Annual Average Concentration (NAAQS = 12.0 μg/m$_3$)	10.3	10.1	9.3	*
State Annual Average Concentration (CAAQS = 12 μg/m^3)	10.4	10.2	10.2	*
Number of Days Standard Exceeded				
NAAQS 24-Hour (>35 μg/m^3)	1	1	0	0

Source: CARB 2018, EPA 2018b (CO concentrations only).
ppm = parts per million; μg/m^3 = micrograms per cubic meter
* = insufficient data to determine the value
Note: The San Diego-Beardsley Street station has been closed as of November 2016.

Supplemental Regulatory Setting

Air Quality

International

International Maritime Organization International Convention for the Prevention of Pollution from Ships Annex VI

The International Maritime Organization (IMO) International Convention for the Prevention of Pollution from Ships (MARPOL) Annex VI, which came into force in May 2005, set new international NO_X emission limits on marine engines over 130 kilowatts (kW) installed on new vessels retroactive to the year 2000. In October 2008, IMO adopted amendments to international requirements under MARPOL Annex VI, which introduced NO_X emission standards for new engines and more stringent fuel quality requirements (DieselNet 2013, IMO 2008). The Annex VI North American Emission Control Area (ECA) requirements applicable to the proposed project include the following.

- *Caps on the sulfur content of fuel as a measure to control sulfur oxide (SO_X) emissions and, indirectly, PM emissions*. For ECAs, the sulfur limits are capped at 1.0 percent starting in 2012 and 0.1 percent starting in 2015.[1] The analysis herein assumes full compliance with MARPOL Annex VI SO_X limits. The Port of San Diego is within an ECA.
- *NO_X engine emission rate limits for new engines*. Tier I and Tier II limits effective 2000 and 2011 are global limits, whereas Tier III limits, effective in 2016, apply only in NO_X ECAs.

[1] The sulfur requirements in ECAs are 1.0 percent as of July 2010 and 0.1 percent starting in January 2015. North America was designated as an ECA in August 2012, and the sulfur requirements became applicable at the time of designation.

Federal

EPA Emission Standards for Non-Road Diesel Engines

To reduce emissions from non-road diesel equipment, EPA established a series of increasingly strict emission standards for new non-road diesel engines. Tier 1 standards were phased in on newly manufactured equipment from 1996 through 2000 (year of manufacture), depending on the engine horsepower (hp) category. Tier 2 standards were phased in on newly manufactured equipment from 2001 through 2006. Tier 3 standards were phased in on newly manufactured equipment from 2006 through 2008. Tier 4 standards, which require advanced emission control technology, were phased in from 2008 through 2015.

EPA Non-Road Diesel Fuel Rule

With this rule, EPA set sulfur limitations for non-road diesel fuel, including large recreational vessels, locomotives, and harbor craft that frequent the Port of San Diego. For the proposed project, this rule affects the diesel-powered recreational and excursion vessels that visit the project site. Under this rule, the diesel fuel was limited to 500 ppm starting June 1, 2007, and further limited to 15 ppm sulfur content (ultra-low-sulfur diesel) starting January 1, 2010, for non-road fuel, and June 2012 for marine fuels (EPA 2004).

EPA On-Road Diesel Fuel Rule

In December 2000, EPA signed the Heavy-Duty Highway Rule, which reduces emissions from on-road, heavy-duty diesel trucks by establishing a series of increasingly strict emission standards for new engines. Manufacturers were required to produce new diesel vehicles that meet PM and NO_X emission standards beginning with model year 2007 with the phase-in period being between 2007 and 2010. The phase-in was based on a percent-of-sales basis: 50 percent from 2007 to 2009 and 100 percent in 2010 (EPA 2001).

EPA Emission Standards for Marine Diesel Compression Ignition Engines—Category 1 and 2 Engines

EPA has adopted emission standards for new Category 1 (0 to 7 liters per cylinder) and Category 2 (between 7 and 30 liters per cylinder, which includes most harbor craft) diesel engines rated over 50 hp (or 37 kW) used for propulsion in most harbor craft. The new Tier 3 engine standards began phase-in starting in 2009, and the more stringent Tier 4 engine standards were phased in beginning in 2014 and only for commercial marine diesel engines greater than 800 hp. The regulation also includes requirements for remanufacturing commercial marine diesel engines greater than 800 hp.

State

CARB California Diesel Fuel Regulation

With this rule, CARB set sulfur limitations for diesel fuel sold in California for use in on- and off-road motor vehicles (13 CCR 2281–2285; 17 CCR 93114). Under this rule, diesel fuel used in motor vehicles except harbor craft and intrastate locomotives has been limited to 500 ppm sulfur since 1993. The sulfur limit was reduced to 15 ppm on September 1, 2006. A federal diesel rule similarly limited sulfur content nationwide to 15 ppm by October 15, 2006.

CARB In-Use Off-Road Diesel Vehicle Regulation

The CARB In-Use Off-Road Diesel Vehicle Regulation was adopted in 2007 and addresses emissions of NO_X and PM from all self-propelled off-road diesel vehicles 25 hp or greater, and most two-engine vehicles operating in California. The regulation imposes limits on idling; requires all vehicles be labeled and reported to CARB; restricts adding older vehicles into fleets as of January 1, 2014; and requires fleets to reduce emissions through retiring, replacing, or repowering old engines, or by installing Verified Diesel Emission Control Strategies. These requirements vary by large, medium, and small fleet sizes.

CARB Emission Standards and Test Procedures for Large Spark Ignition Engine Forklifts and Other Industrial Equipment

Since 2007, CARB has promulgated more stringent emissions standards for hydrocarbon and NO_X combined emissions and test procedures. The engine emission standards and test procedures were implemented in two phases. The first phase was implemented for engines built between January 2007 and December 2009. The second, more stringent, phase was implemented for engines built starting in January 2010. The regulation was amended in 2010, establishing fleet average emissions requirements for existing engines.

CARB Regulation to Reduce Emissions from Diesel Engines on Commercial Harbor Craft

In November 2007, CARB adopted a regulation to reduce DPM and NO_X emissions from commercial harbor craft, which include, but are not limited to, ferries, excursion vessels, tugboats, towboats, crew and supply vessels, work boats, pilot vessels, and commercial and charter fishing boats. The regulation became effective in January 2009 and applies to both new and in-use commercial harbor craft diesel engines operating in Regulated California Waters. The regulation requires in part that a non-resettable hour meter be installed on each engine and that records are kept for each vessel; all new commercial harbor craft vessel meet the EPA marine engine emission standards in effect at the time acquired; and existing Tier 1 and earlier auxiliary and propulsion engines on in-use tugboats, towboats, and multipurpose harbor craft meet EPA Tier 2 and Tier 3 standards in effect at time of regulation compliance.

CARB Heavy Duty Diesel Vehicle Idling Emission Reduction Regulation

CARB adopted this airborne toxic control measure (ATCM) in 2005 to limit diesel-fueled commercial motor vehicle idling. This regulation states that diesel vehicles with a gross vehicle weight rating (GVWR) greater than 10,000 pounds cannot idle the vehicle's diesel-powered primary or auxiliary power system for greater than 5 minutes at any location (CCR Title 13, Section 1956.8 and 2485). This regulation applies to all trucks used that visit the Port.

CARB On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation – Truck and Bus Regulation

In December 2011, CARB amended the 2008 Statewide Truck and Bus Regulation to modernize in-use heavy-duty vehicles operating throughout the State. Under this regulation, existing heavy duty trucks are required to be replaced with trucks meeting the latest NO_X and PM Best Available Control Technology (BACT) or retrofitted to meet these levels.

Trucks with GVWR less than 26,000 (most construction trucks) are required to replace engines with 2010 or newer engines, or equivalent, by January 2023. Trucks with GVWR greater than 26,000 (most drayage trucks) must meet PM BACT and upgrade to a 2010 or newer model year emissions

equivalent engine pursuant to the compliance schedule set forth by the rule. By January 1, 2023, all model year 2007 class 8 drayage trucks are required to meet NO_X and PM BACT (i.e., EPA 2010 and newer standards).

Senate Bill 535 and Assembly Bill 1550

Senate Bill 535 requires the California Environmental Protection Agency (Cal/EPA) to identify disadvantaged communities based on geographic, socioeconomic, public health, and environmental hazard criteria. It also requires that the investment plan developed and submitted to the Legislature pursuant to AB 1550 allocate no less than 25 percent of available proceeds from the carbon auctions held under AB 32 to projects that will benefit these disadvantaged communities. At least 10 percent of the available funds from these auctions must be directly invested in such communities. Because the California Communities Environmental Health Screening Tool (CalEnviroScreen) has been developed to identify areas disproportionately affected by pollution and those areas whose populations are socioeconomically disadvantaged, it is well suited for the purposes described by Senate Bill 535 (Cal/EPA 2017).

California Communities Environmental Health Screening Tool (CalEnviroScreen)

CalEnviroScreen provides a relative ranking of communities based on a selected group of environmental, health, demographic, and socioeconomic indicators. The numerical score in CalEnviroScreen is based on the average pollution burden and population characteristics scores for each census tract. The resultant score is the relative pollution burden and vulnerabilities in one census tract compared to others; the score is not a measure of health risk. Each tract's score is then ranked relative to all areas in the state. Those areas with a high score and percentile have relatively high pollution burdens and population sensitivities; those areas with low score and percentile values have relatively lower pollution burdens and population sensitivities.

Note that while the results of CalEnviroScreen provide information on background pollution that allows the State to prioritize funding resources, the scoring results are not directly applicable to project-level or cumulative impact analyses required under CEQA (CalEPA 2017). As such, the information provided by CalEnviroScreen cannot substitute for analyzing a specific project's cumulative impacts as required under CEQA, and thus the information presented below is provided for illustrative purposes only.

Neighborhoods near the project site represent some of the highest rankings (e.g., worst combined pollution effects) in the state. The project site itself (census tract 6073005000) is within the worst 95 to 100 percentile impacts in the state. The Barrio Logan community both north/northwest (census tract 6073005100) and north of Interstate 5 (census tract 6073004900) and northeast (census tract 6073003902) is also within the worst 95 to 100 percentile in the state (OEHHA 2018).

Assembly Bill 617

AB 617 established the Community Air Protection Program (CAPP), which requires new community-focused and community-driven action to reduce air pollution and improve public health in communities that experience disproportionate burdens from exposure to air pollutants. Communities identified for monitoring include Portside Environmental Justice Neighborhoods of Barrio Logan as well as portions of National City, Sherman Heights, and Logan Heights. The SDAPCD will implement the CAPP in San Diego County, which will eventually lead to additional pollution monitoring and additional requirements through the following: accelerated installation of pollution

controls on industrial sources like oil refineries, cement plants, and glass manufacturers; expanded air quality monitoring within communities; increased penalties for violations of emissions control limits; and greater transparency and improved public access to air quality and emissions data through enhanced online web tools (SDAPCD 2018). The AB 617 Steering Committee includes local stakeholders, technical and scientific experts, and members of local industry. As of the time of this analysis, SDAPCD is currently monitoring and will work with the Steering Committee to develop next steps in the near future.

Greenhouse Gases

International

Paris Agreement

In 2015, the 21st session of the Conference of Parties (COP21) took place in Paris, France. The session included representatives from the 196 parties to the United Nations Framework Convention on Climate Change. The outcomes of the Paris Agreement from COP21 included, but were not limited to, limiting global temperature increases to well below 2 degrees Celsius (°C), establishing binding commitments regarding nationally determined contributions (NDCs) and pursuing domestic policies for achieving the NDCs, and regularly reporting emissions and the progress made in implementing and achieving the NDCs. In April 2016, 174 states and the European Union signed the agreement. In June 2017, President Trump announced his intention to withdraw from the Paris Agreement. Under the terms of the agreement, the United States cannot officially announce its resignation until November 4, 2019. Withdrawal would be effective 1 year after notification, in 2020.

Under 2 Coalition

The Under 2 Coalition is an international coalition of jurisdictions that signed the Global Climate Leadership Memorandum of Understanding (Under 2 MOU) following President Trump's decision to withdraw from the Paris Agreement. The Under 2 MOU aims to limit global warming to 2°C, limit GHGs to 80 to 95 percent below 1990 levels, and/or achieve a per capita annual emissions goal of less than 2 metric tons (MT) by 2050. The Under 2 MOU has been signed or endorsed by 135 jurisdictions (including California), representing 32 countries and six continents.

International Maritime Organization International Convention for the Prevention of Pollution from Ships, Annex VI

The International Maritime Organization International Convention for the Prevention of Pollution from Ships amended Annex VI in 2011 to include fuel economy and GHG requirements. The new Chapter 4 to Annex VI includes energy efficiency requirements for ships. Specifically, it makes mandatory the Energy Efficiency Design Index for new ships and the Ship Energy Efficiency Management Plan for all ships. The regulations apply to all ships (400 gross tonnage) and became effective January 1, 2013, with certain exceptions.

Federal

Energy Policy and Conservation Act of 1975 and Corporate Average Fuel Standards

The Energy Policy and Conservation Act of 1975 established the first fuel economy standards for on-road motor vehicles sold in the United States. The National Highway Traffic Safety Administration

(NHTSA) is responsible for establishing vehicle standards and revising existing standards. Its Corporate Average Fuel Economy program was created to determine vehicle manufacturers' compliance with the fuel economy standards. The EPA administers the testing program that generates the fuel economy data.

Energy Policy Act of 2005

The Energy Policy Act of 2005, implemented by the U.S. Department of Energy, established a comprehensive, long-term energy policy. The Energy Policy Act covered energy production in the United States, including energy from oil, gas, coal, and alternative resources, as well as energy efficiency and tax incentives. The energy efficiency and tax incentive programs included credits for the construction of new, energy-efficient homes and the production or purchase of energy-efficient appliances. In addition, loan guarantees were established for entities that developed or used innovative technologies to avoid the production of GHGs.

Energy Independence and Security Act of 2007

Signed into law in December 2007, the Energy Independence and Security Act was passed to increase the production of clean, renewable fuels; increase the efficiency of products, buildings, and vehicles; improve the energy performance of the federal government, increase U.S. energy security; develop the production of renewable fuels; and improve vehicle fuel economy. The act included the first increase in fuel economy standards for passenger cars since 1975 as well as a new energy grant program for use by local governments in implementing energy efficiency initiatives. Also included were green building incentives and programs.

Executive Order 13514, 2009

Executive Order (EO) 13514 sets sustainability goals for federal agencies. It focuses on making improvements in the environmental, energy, and economic performance of the agencies. EO 13514 required, as national policy, federal agencies to measure, report, and reduce their GHG emissions from direct and indirect activities.

State

Assembly Bill 2076—Reducing Dependence on Petroleum (2000)

The CEC and CARB are directed by Assembly Bill (AB) 2076 (passed in 2000) to develop and adopt recommendations for reducing dependence on petroleum. A performance-based goal is to reduce petroleum demand to 15 percent less than 2003 demand by 2020.

Assembly Bill 1493—Pavley Rules (2002, amendments 2009)/Advanced Clean Cars (2011)

Known as Pavley I, AB 1493 provided the nation's first GHG standards for automobiles. AB 1493 required CARB to adopt vehicle standards that lower GHG emissions from new light-duty autos to the maximum extent feasible beginning in 2009. Additional strengthening of the Pavley standards (referred to previously as *Pavley II* and now referred to as the *Advanced Clean Cars* [ACC] measure) was adopted for vehicle model years 2017–2025 in 2012. Together, the two standards are expected to increase average fuel economy to roughly 54.5 mpg by 2025.

Senate Bills 1078/107/X 1-2—Renewables Portfolio Standard and Renewable Energy Resources Act (2002, 2006, 2011)

Senate Bills (SBs) 1078 and 107, California's RPS, obligated investor-owned utilities, energy service providers, and Community Choice Aggregations to procure an additional 1 percent of retail sales per year from eligible renewable sources until reaching 20 percent (by 2010). The California Public Utilities Commission (CPUC) and CEC were jointly responsible for implementing the program. Furthermore, SB X 1-2, called the California Renewable Energy Resources Act, obligated all California electricity providers to obtain at least 33 percent of their energy from renewable resources by 2020. As of 2015, SDG&E's eligible renewable procurement was 35 percent. As noted below, SB 350 increased the RPS to 50 percent for 2030.

CARB Commercial Harbor Craft Regulation (2007)

The Commercial Harbor Craft Regulation was adopted in 2007 to reduce emissions from diesel engines operating within 24 miles of the California coast (i.e., regulated California waters). The rule, which was amended in 2010, will be fully implemented by 2022. It includes regulations for commercial harbor craft, including ferries, tugboats, towboats, excursion vessels, crew and supply vessels, pilot vessels, work boats, and commercial and charter fishing boats (CARB 2019).

Senate Bill 375—Sustainable Communities Strategy (2008)

SB 375 provides a new planning process that coordinates land use planning, regional transportation plans, and funding priorities in order to help California meet the GHG reduction goals established in AB 32. SB 375 requires regional transportation plans (RTPs) developed by metropolitan planning organizations to incorporate a "sustainable communities strategy" (SCS). The goal of the SCS is to reduce regional VMT through land use planning and the consequent transportation patterns. SB 375 also includes provisions pertaining to streamlined CEQA review for some infill projects, such as transit-oriented development.

The final reduction targets from CARB require the San Diego Association of Governments (SANDAG) to identify strategies for reducing per capita GHG emissions from passenger vehicles by approximately 7 percent by 2020 and 13 percent by 2035 compared with base year 2005. SANDAG's 2050 RTP and SCS, which detail the steps the region will take to reduce GHG emissions to state-mandated levels, were originally adopted by on October 28, 2011 (SANDAG 2015a). However, because of a legal challenge to the CEQA document for the 2050 RTP/SCS, the most recently revised RTP/SCS (i.e., *San Diego Forward: The Regional Plan*) was adopted by SANDAG on October 9, 2015 (SANDAG 2015b). The update to the regional plan is currently in preparation.

CARB released the *Final Staff Report for a Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets* in October 2017. SANDAG's revised targets are a 15 percent per capita GHG reduction by 2020 and a 19 percent reduction by 2035. The revised targets took effect in October 2018 (CARB 2019).

California Energy Code

Title 24, Part 6, of the California Code of Regulations (24 CCR 6) describes California's energy efficiency standards for residential and nonresidential buildings. These standards were established in 1978 in response to a legislative mandate to reduce California's energy consumption and have been updated periodically to include new energy efficiency technologies and methods. The California Energy Code requires compliance with energy efficiency standards for all new

construction, including new buildings, additions, alterations, and, in nonresidential buildings, repairs.

Cap and Trade (2011 and 2017)

CARB adopted a cap-and-trade program in October 2011. The California cap-and-trade program is a market-based system with an overall emissions limit for affected emissions sources, which include in-state electricity generators, hydrogen production facilities, petroleum refineries, and other large-scale manufacturers and fuel suppliers/distributors. The original cap-and-trade program set a compliance schedule through 2020. AB 398 extends the program through 2030 and requires CARB to make refinements, including a price ceiling. Revenues generated from the cap-and-trade program are used to fund various programs. AB 398 established post-2020 funding priorities to include (1) air toxics and criteria pollutants, (2) low- and zero-carbon transportation, (3) sustainable agricultural practices, (4) healthy forests and urban greening, (5) short-lived climate pollutants, (6) climate adaptation and resiliency, and (7) climate and clean energy research.

Executive Order B-16-12 (2012)

EO B-16-12 orders state entities under the direction of the governor, including CARB, CEC, and CPUC, to support rapid commercialization of zero-emissions vehicles. It directs these entities to achieve various benchmarks related to zero-emissions vehicles.

Tractor-Trailer Greenhouse Gas Regulation (2013)

CARB approved the Tractor-Trailer Greenhouse Gas Regulation to reduce GHG emissions by requiring the use of aerodynamic tractors and trailers as well as tires that have low rolling resistance. The regulation, which applies to certain Class 8 tractors manufactured for use in California, is harmonized with the parallel EPA and NHTSA standards for heavy-duty trucks. This regulation was expected to reduce fuel consumption and GHG emissions from new heavy-duty trucks by 4 to 5 percent per year between 2014 and 2018 (EPA 2015).

California Energy Plan

The CEC is responsible for preparing the State Energy Plan (Plan), which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and maintenance of a healthy economy. The Plan calls for the state to assist in transforming the transportation system to improve air quality, reduce congestion, and ensure efficient use of fuel supplies—with the fewest environmental and energy costs. The Plan identifies a number of strategies, including providing assistance to public agencies and fleet operators.

Supplemental Thresholds

Air Quality

The air quality mass emissions thresholds are shown in **Table 2**.

Table 2. Criteria Pollutant Thresholds

	Emission Rate		
Air Contaminant	(pounds per hour)	(pounds per day)[1]	(tons per year)
Respirable Particulate Matter (PM10)	--	100	15
Fine Particulate Matter (PM2.5)[2]	--	55	10
Nitrogen Oxides (NO_X)	25	250	40
Lead (Pb)[3]	--	3.2	0.6
Volatile Organic Compounds (VOC)[4]	--	75	13.7[5]
Sulfur Oxides (SO_X)	25	250	40
Carbon Monoxide (CO)	100	550	100

Source: SDAPCD Regulation II, Rule 20.2; County of San Diego 2007.

[1] According to San Diego County, the daily thresholds are most appropriate when assessing impacts from standard construction and operational emissions. Therefore, daily thresholds are used to evaluate project significance, while hourly and annual thresholds are provided for informational purposes only.

[2] Based on EPA's "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published September 8, 2005, and also SCAQMD's Air Quality Significance Thresholds (SCAQMD 2015). Rule 20.2 was amended in 2018 to include PM2.5 AQIA of 67 pounds per day. However, as the 55 pounds per day rate used by SCAQMD and recommended by the County of San Diego is lower (and more restrictive), 55 pounds per day is used here.

[3] Lead and lead compounds. Lead emissions are typically associated with industrial large stationary sources, such as ore and metals processing, lead smelters, waste incinerators, and lead-acid battery manufacturing or recycling, which are not included as part of the project.

[4] County SLTs for VOC were originally based on the threshold of significance for VOC from SCAQMD for the Coachella Valley. The terms VOC and ROG are used interchangeably, although VOC is used in this table because the City and County use the term VOC.

[5] 13.7 tons per year threshold is based on 75 pounds per day multiplied by 365 days per year and divided by 2,000 pounds per ton.

Supplemental Evidence

The following section summarizes the thresholds recommended by the County of San Diego based on criteria established by the SDAPCD, presents substantial evidence regarding the basis upon which they were developed, and also describes how they are used to determine whether Proposed Project construction and operation emissions would result in a significant impact within the context of interfering with or impeding attainment of CAAQS and NAAQS or causing or contributing to increased risks to human health.

Regional Thresholds for SDAB Attainment of State and Federal Ambient Air Quality Standards

In general, air districts and lead agencies develop or adopt region-specific CEQA thresholds of significance in consideration of existing air quality concentrations and attainment or nonattainment designations under the NAAQS and CAAQS. The State CEQA Guidelines authorize lead agencies to use the significance criteria established by the applicable air quality management or air pollution

control district to make the significance determination of whether a project would violate or impede attainment of air quality standards. Attainment status for each pollutant is assigned for the entire air basin. In San Diego, the SDAB is defined as "all of San Diego County" (see 17 CCR 60110). Therefore, the current attainment status for the entire San Diego region, which includes nonattainment status for ozone NAAQS and ozone CAAQS, PM10 CAAQS, and PM2.5 CAAQS, applies to the entire County.

Neither the District nor the City of San Diego have developed CEQA thresholds of significance for air quality and health risk.[2] Although SDAPCD has not developed specific thresholds of significance to evaluate construction and operational impacts within CEQA documents, SDAPCD's Regulation II, Rules 20.2 and 20.3 (new source review for non-major and major stationary sources, respectively), outline AQIA Trigger Levels for criteria pollutants for new or modified sources. Based on SDAPCD's AQIA Trigger Levels, as well as EPA rulemaking and CEQA thresholds adopted by South Coast Air Quality Management District (SCAQMD), the County of San Diego has established screening-level thresholds (SLTs) to assist lead agencies in determining the significance of project-level air quality impacts within the County.

SDAPCD amended Rule 20.2 in December 2018 to include a PM2.5 AQIA of 67 pounds per day. The County recommends a PM2.5 SLT of 55 pounds per day based on EPA's "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published on September 8, 2005, which is also consistent with SCAQMD's Air Quality Significance Thresholds (SCAQMD 2015). The County's threshold is lower and more restrictive and is consistent with other CEQA analyses at the District. The County also recommends a VOC SLT based on the threshold of significance for VOCs from the SCAQMD for the Coachella Valley. Emissions in excess of air quality thresholds, shown in **Table 2**, would be expected to have a significant impact on air quality because an exceedance of thresholds is anticipated to contribute to CAAQS and NAAQS violations in the County. Note that SDAPCD Rule 20.2 was most recently updated in December 2018, and now includes AQIA Trigger Levels for PM10, PM2.5, NO_X, SO_X, CO, and lead, but does not include AQIA Trigger Levels for VOC emissions. Note that the PM2.5 Trigger Level in Rule 20.2 is higher for daily emissions (67 pounds per day) than the County SLT (55 pounds per day). Because the County's threshold is lower (more restrictive), and to maintain consistency with the TAMT Final PEIR, the County's PM2.5 SLT is used herein.

The air quality thresholds shown in **Table 2** are based on SDAPCD AQIA Trigger Levels, and these are based on emissions levels identified under the New Source Review (NSR) program, which is a permitting program established by Congress as part of the CAA Amendments of 1990 to ensure that air quality is not significantly degraded by new or modified sources of emissions. The NSR program requires that stationary sources receive permits before construction begins and/or the use of equipment. By permitting large stationary sources, the NSR program ensures that new emissions would not slow regional progress toward attaining the NAAQS. SDAPCD implements the NSR program through Rules 20.2 and 20.3, and has concluded that the stationary pollutants described under the NSR program are equally significant as those pollutants generated with land use projects. SDAPCD's Trigger Levels were set as the total emission thresholds associated with the NSR program to help attain and maintain the NAAQS from new and modified non-major stationary sources.[3]

[2] The District is currently in the process of drafting CEQA thresholds of significance for all resources, including air quality. Until these thresholds are adopted, the District may continue to rely on established regional thresholds, which are based on substantial evidence summarized herein.

[3] San Diego Air Pollution Control District, Rule 20.2, Table 20.2-1, hereby incorporated by reference: https://www.sandiegocounty.gov/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Permits/APCD_R20-2.pdf

SDAPCD's Trigger Levels take into account the region's attainment status, emission profile, inventory, and projections, and represent levels above which project-generated emissions could affect SDAPCD's and SANDAG's commitment to attain the state and federal standards in the region. Consistent with Section 15064.7(c) of the State CEQA Guidelines,[4] the evidence in support of the air quality thresholds shown in **Table 2** are deemed appropriate for their use in this analysis and in this location within the greater SDAB.

Health-Based Thresholds for Project-Generated Pollutants of Human Health Concern

As mentioned previously, in December 2018, the California Supreme Court issued its Friant Ranch Decision. The case reviewed the long-term, regional air quality analysis contained in the EIR for the proposed Friant Ranch development. The Friant Ranch project is a 942-acre master-plan development in unincorporated Fresno County within the San Joaquin Valley Air Basin, an air basin currently in nonattainment for the ozone and PM2.5 NAAQS and CAAQS. The Court found that the air quality analysis was inadequate because it failed to provide enough detail "for the public to translate the bare [criteria pollutant emissions] numbers provided into adverse health impacts or to understand why such a translation is not possible at this time." The Court's decision clarifies that environmental documents must connect a project's air quality impacts to specific health effects or explain why it is not technically feasible to perform such an analysis.

As discussed above under *Pollutants of Concern*, all criteria pollutants that would be generated by the proposed project are associated with some form of health risk (e.g., asthma). Criteria pollutants can be classified as either regional or localized pollutants. Regional pollutants can be transported over long distances and affect ambient air quality far from the emissions source. Localized pollutants affect ambient air quality near the emissions source. Ozone and NO_2 are considered regional criteria pollutants, whereas CO, SO_2, and Pb are localized pollutants. PM can be both a local and a regional pollutant, depending on its composition. As discussed above, the primary criteria pollutants of concern in the study area are ozone (including ROG and NO_X) and PM (including DPM).

Regional Project-Generated Criteria Pollutants (Ozone Precursors and Regional PM)

Adverse health effects induced by regional criteria pollutant emissions generated by the project (ozone precursors and PM) are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, the number and character of exposed individuals [e.g., age, gender]). For these reasons, ozone precursors (ROG and NO_X) contribute to the formation of ground-borne ozone on a regional scale, where emissions of ROG and NO_X generated in one area may not equate to a specific ozone concentration in that same area. Similarly, some types of particulate pollutant may be transported over long-distances or formed through atmospheric reactions. As such, the magnitude and locations of specific health effects from exposure to increased ozone or regional PM concentrations are the product of emissions generated by numerous sources throughout a region, as opposed to a single individual project.

Models and tools have been developed to correlate regional criteria pollutant emissions to potential community health impacts. There are models capable of quantifying ozone and secondary PM formation and associated health effects, and these tools were developed to support regional

[4] "When adopting (or using) thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence."

planning and policy analysis and have limited sensitivity to small changes in criteria pollutant concentrations induced by individual projects. Therefore, translating project-generated criteria pollutants to the locations where specific health effects could occur or estimating the resultant number of additional days of nonattainment cannot be performed with a high degree of accuracy for relatively small projects (relative to the regional air basin).

Technical limitations of existing models to correlate project-level regional emissions to specific health consequences are recognized by air quality management districts throughout the state, including the SJVAPCD and SCAQMD, who provided amici curiae briefs for the Friant Ranch legal proceedings. In its brief, SJVAPCD (2015) acknowledges that while health risk assessments for localized air toxics, such as DPM, are commonly prepared, "it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task." The air district further notes that "emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total NO_X and VOC in the Valley) is not likely to yield valid information," and that any such information should not be "accurate when applied at the local level." SCAQMD (2015) presents similar information in their brief, stating that "it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels."[5]

As discussed above, air districts develop region-specific CEQA thresholds of significance in consideration of existing air quality concentrations and attainment or nonattainment designations under the NAAQS and CAAQS. The NAAQS and CAAQS are informed by a wide range of scientific evidence that demonstrates there are known safe concentrations of criteria pollutants. While recognizing that air quality is cumulative problem, air districts typically consider projects that generate criteria pollutant and ozone precursor emissions below these thresholds to be minor in nature and would not adversely affect air quality such that the NAAQS or CAAQS would be exceeded. Emissions generated by the project could increase photochemical reactions and the formation of tropospheric ozone and secondary PM, which at certain concentrations could lead to increased incidence of specific health consequences. Although these health effects are associated with ozone and particulate pollution, the effects are a result of cumulative and regional emissions. As such, a project's incremental contribution cannot be traced to specific health outcomes on a regional scale, and a quantitative correlation of project-generated regional criteria pollutant emissions to specific human health impacts is not included in this analysis. It is foreseeable that unmitigated construction- and operational-generated emissions of ozone precursors and PM in excess of SDAPCD thresholds could contribute to cumulative and regional health impacts. In such cases, all feasible mitigation is applied, and emissions are reduced to the extent possible.

Greenhouse Gases

The State CEQA Guidelines do not indicate what level of GHG emissions would constitute a significant impact on the environment. Instead, they authorize the lead agency to consider thresholds of significance that were previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds was

[5] For example, SCAQMD's analysis of their 2012 Air Quality Attainment Plan showed that modeled NO_X and ROG reductions of 432 and 187 tons per day, respectively, only reduced ozone levels by 9 ppb. Analysis of SCAQMD's Rule 1315 showed that emissions of NO_X and ROG of 6,620 and 89,180 pounds per day, respectively, contributed to 20 premature deaths per year and 89,947 school absence (South Coast Air Quality Management District 2015).

supported by substantial evidence (State CEQA Guidelines Sections 15064.4[a] and 15064.7[c]). A summary of the CEQA guidance regarding the analysis of GHG emissions is provided below.

A detailed summary of CEQA requirements, as well as the applicability of all available thresholds, is provided below.

Summary of CEQA Requirements

The State CEQA Guidelines provide general guidance for the impact evaluation pertaining to GHG emissions. In addition to Appendix G, which is summarized above, the sections of the State CEQA Guidelines outlined below are relevant to understanding GHG analysis procedures.

CEQA Guidelines Section 15064.4(a)

This section indicates that CEQA requires a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a project, compare estimated emissions to a threshold the lead agency deems appropriate (with evidence to support this threshold), and assess the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. This guideline gives the lead agency discretion as to whether to quantify GHG emissions resulting from a project and/or rely on a qualitative analysis or performance-based standards. This section does not indicate what amount of GHG emissions would constitute a significant impact on the environment. Instead, CEQA authorizes the lead agency to consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to select such thresholds was supported by substantial evidence.

CEQA Guidelines Section 15064.4(b)

Section 15064.4(b) requires a lead agency to consider the following factors:

- The extent to which the project may increase or reduce GHG emissions compared with the existing environmental setting,
- Whether the project's GHG emissions would exceed a threshold of significance that the lead agency determines to be applicable to the project, and
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The lead agency must include substantial evidence linking statewide goals, strategies, and plans to the project's findings and significance of impacts (added in response to *Center for Biological Diversity et al. vs. California Department of Fish and Wildlife, the Newhall Land and Farming Company* [see below]).

CEQA Guidelines Section 15064.4(c)

This section states that a lead agency may choose the model or methodology for estimating GHG emissions that it considers most appropriate. The lead agency must support its selection of a model or methodology with substantial evidence and explain the limitations of the model or methodology.

CEQA Guidelines Section 15183.5

Section 15183.5 outlines the measures that lead agencies can take to analyze and mitigate the significant effects of GHG emissions at a programmatic level, such as in a general plan; in a long-range development plan; or in a separate plan (such as a CAP) to reduce GHG emissions so that later project-specific environmental documents may tier from the prior analysis to determine significance. For a plan to be "qualified" for tiering, it should:

1. Quantify GHG emissions over a specific time period resulting from activities within a defined geographic area;
2. Establish a level below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;
3. Identify and analyze GHG emissions resulting from specific actions or categories of actions within the defined geographic area;
4. Specify measures or a group of measures, including performance standards, that, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;
5. Establish a mechanism for monitoring the plan's progress; and
6. Be adopted in a public process following environmental review.

Summary of Recent Court Decisions

The courts have ruled on various matters related to GHG analyses in CEQA documents, which has helped define acceptable practices for adequate analysis of GHG emissions under CEQA, including setting thresholds, properly defining a level of significance, and identifying mitigation measures. The courts' decisions demonstrate that there are multiple ways to evaluate GHG emissions impacts in CEQA documents, depending on the circumstances of a given project. CEQA gives the lead agency the discretion to quantify GHG emissions resulting from a project and/or rely on a qualitative analysis or performance-based standards, but the lead agency must support its decisions with substantial evidence and explain any limitations associated with the analysis. In addition, a lead agency's analysis should consider a timeframe that is appropriate for the project and reasonably reflect evolving scientific knowledge and current state regulatory schemes.

In the 2015 *Center for Biological Diversity et al. vs. California Department of Fish and Wildlife, the Newhall Land and Farming Company* case (November 30, 2015, Case No. S217763) (hereafter Newhall Ranch), the California Supreme Court identified several potential approaches for determining the significance of project-level GHG emissions. The court's decision affirmed that "thresholds only define the level at which an environmental effect 'normally' is considered significant; they do not relieve the lead agency of its duty to determine the significance of an impact independently." In the 2018 *Golden Door Properties/Sierra Club vs. County of San Diego* case (September 28, 2018, 27 Cal.App.5th 892) (hereafter Golden Door), the Court of Appeals reinforced the message from the Newhall Ranch decision (i.e., analyses need to provide substantial evidence to support significance thresholds selected for use in the CEQA analysis). Both the Newhall Ranch and Golden Door cases demonstrate that use of statewide emissions reduction goals is one of various potential thresholds and methodologies for evaluating project- or plan-level GHG emissions consistent with CEQA. Use of statewide emissions reduction goals is a "permissible criterion of significance" as long as substantial evidence and reasoned explanation is provided to close the analytical gap between the level of effort required at one scale (state level) to the level of effort

required at another scale (e.g., proposed plan level). Other recent cases have reinforced the discretion of lead agencies to select thresholds, provided they stay in line with the state of the science.

The following are some of the court's suggested approaches for analyzing GHG impacts under CEQA:

- **Consistency with a Qualified GHG Emissions Reduction Plan.** Use of a GHG emissions reduction plan is consistent with State CEQA Guidelines Sections 15183.5 and 15064.4 for a geographic area.
- **Performance-Based Thresholds.** Performance-based thresholds relate the required level of reduction at the project level to the statewide burden required to meet California's GHG goals.
- **Quantitative Thresholds.** Use of a quantitative threshold (such as the Bay Area Air Quality Management District's bright-line threshold) identifies the level above which a project may contribute a significant amount of GHG emissions.[6]
- **CEQA Streamlining.** Certain land use projects (e.g., residential, mixed-use, transit priority projects) could use SB 375's expressed allowance for tiering GHG emissions generated by light-duty vehicles from the environmental analysis conducted for the regional RTP/SCS.
- **Compliance with Regulatory Programs**. This approach includes an assessment of the project's compliance with regulatory programs designed to reduce GHGs from emissions-generating activities (e.g., energy consumption, transportation, water usage). To the extent that a project's design features comply with or exceed the regulations outlined in the scoping plan and adopted by CARB or other state agencies, the lead agency could appropriately rely on their use to show that the project is reducing emissions consistent with state reduction targets and, thus, that emissions are less than significant.

Under any methodology, if GHG emission impacts are still significant after adoption of all feasible mitigation measures and consideration of project alternatives, the lead agency may adopt a statement of overriding considerations with the appropriate findings.

Applicability of Available Thresholds

The sections below discuss the threshold approaches recommended by the courts and supported by CEQA and analyze their applicability to the proposed project.

Compliance with a Qualified GHG Reduction Plan

The Office of Planning and Research (OPR) acknowledges that the state legislature encourages lead agencies to tier or streamline their environmental documents whenever feasible and that GHG emissions may be best analyzed and mitigated at the programmatic level (OPR 2018). A qualified plan may be used in the cumulative impact analysis for later projects when the analysis "identifies those requirements specified in the plan that apply to the project." For a GHG reduction plan to be considered a qualified plan, it must meet certain criteria established under State CEQA Guidelines Sections 15183.5 (b) and 15064.4, also specified above. Consequently, if a project is consistent with a local CAP that was created to meet that area's fair share reductions toward the AB 32 GHG target

[6] Note that while Newhall Ranch did not explicitly discuss efficiency-based thresholds, they are a form of quantitative threshold and therefore are included in the *Applicability of Available Thresholds* discussion that follows.

for 2020, then the project would be considered consistent with statewide GHG reduction goals for 2020. In addition, if a CAP was adopted that was consistent with the state's overall goals for post-2020, including the downward trajectory, as clarified in SB 32 and EO S-03-05, and a project was consistent with that CAP, the project would be considered consistent with the state's post-2020 GHG emissions strategy. Section 15183.5 also specifies that the project's CEQA analysis "must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project."

The District adopted a CAP in December 2013. The CAP provides projected emissions for 2020, 2035, and 2050 and establishes GHG emissions reduction goals and measures to support the statewide AB 32 goal (i.e., meeting 1990 GHG levels by 2020). Because the District's CAP is certified only through December 31, 2020, it would be eligible only for the first year of construction and not appropriate for evaluating emissions during construction from 2021 to 2024 or emissions at full buildout, which would occur in 2025.

Performance-Based Threshold

Performance-based thresholds are based on a percentage reduction from a projected future condition. For example, reducing future business-as-usual (BAU) emissions by the AB 32 target of 29 percent (i.e., below 2020 BAU levels) through a combination of state measures, project design features (e.g., renewable energy), or mitigation is a performance-based threshold. The performance-based approach considers the project's reduction in emissions from an unmitigated condition. Other lead agencies have adopted performance-based targets that are tied to the AB 32 target of achieving 1990 levels by 2020, but the prescribed percentage reduction can vary, depending on the version of the scoping plan and the targets therein that were used. For example, the San Joaquin Valley Air Pollution Control District recommends a 29 percent reduction, which is based on the 2008 scoping plan, while the Sacramento Metro Air Quality Management District previously recommended a 21.7 percent reduction from a projected no-action-taken (NAT) scenario,[7] which was based on the 2011 re-adopted scoping plan, the emissions targets of which vary slightly from 2008 to account for revised estimates for future fuel and energy demands.

With the Newhall Ranch decision, connecting a given project to the achievement of state reduction targets requires adjustments to CARB's statewide BAU model, not only to isolate new development emissions but also to consider unique geographic conditions and operational characteristics that require use of the BAU performance-based methodology for a specific project. To date, this type of adjustment to the statewide BAU target has not been formulated and, therefore, is not appropriate for the project's analysis. The primary value of a performance-based target, as indicated in Newhall Ranch, is that it can provide a scenario by which to evaluate a project's efficiency and the conservation measures for reducing GHG emissions. As such, future-year targets can be used to benchmark performance, using either statewide or regional emission targets, to determine a project's fair share of mitigation.

[7] The NAT scenario does not include state regulations to reduce GHG emissions, including improvements to the Title 24 standards, RPS, low-carbon fuel standard, or Pavley rules.

Quantitative Thresholds

Numerical Bright-Line Thresholds

Numerical bright-line thresholds identify the point at which additional analysis and mitigation of project-related GHG emission impacts is necessary. Currently, bright-line thresholds have been developed for commercial projects, residential projects, and stationary-source projects. Commercial and residential bright-line thresholds are typically based on a market capture rate or a gap analysis,[8] which is tied to statewide reduction targets. These bright-line thresholds reflect local or regional land use conditions, particularly residential and commercial density and access to transit. For example, the Bay Area Air Quality Management District's bright-line threshold of 1,100 $MTCO_2e$ captures land use conditions present in the Bay Area at the time of analysis. It does not reflect conditions in other areas of the state that may display varying land use patterns and densities. A stationary-source bright-line threshold of 10,000 $MTCO_2e$ has been adopted by multiple air districts and other agencies for the permitting process. The South Coast Air Quality Management District currently recommends use of the same threshold for permitted source projects when the South Coast Air Quality Management District is the lead agency.

A numerical bright-line value, based solely on Port of San Diego emissions sources, does not exist. Both the City and County of San Diego have, in the past, recommended an interim 900 $MTCO_2e$ screening level for a theoretical approach to identifying projects that require further analysis and potential mitigation, based on the California Air Pollution Control Officers Association's (CAPCOA) recommendation in its 2008 *CEQA and Climate Change* white paper. This target is based on statewide attainment of the state's 2020 reduction target, as established under AB 32, and represents the lowest numerical criteria drafted, recommended, or adopted in the state. This 900 $MTCO_2e$ level serves as a conservative screening criterion for determining which projects require further analysis and identification of project design features or potential mitigation measures with regard to GHG emissions (CAPCOA 2008). Although the 900 $MTCO_2e$ screening criterion is not intended to be used for determining the consistency of a project's emissions with post-2020 reduction targets, including SB 32, it can still provide a valuable quantitative screening level to determine whether a project's potential to generate cumulatively considerable GHG emissions would be highly unlikely.

Efficiency-Based Thresholds

Efficiency-based thresholds represent the GHG efficiency needed for development to achieve California's GHG emissions target, as established under AB 32. Although Newhall Ranch did not specifically recommend the efficiency-based approach, the ruling did note that numerical threshold approaches may be appropriate for determining the significance of GHG emissions and emphasized consideration of GHG efficiency. Efficiency-based thresholds are typically calculated by dividing emissions associated with residential and commercial uses (also termed the land use sector in the scoping plan) within the state (or a certain geographic area) by the sum of jobs and residents within the same geography. The sum of jobs and residents is called the service population, defined as the people who work and live within the project site. Because typical efficiency-based thresholds are based on the land use sector (residential and commercial uses) and account for only land use–related emissions and residential population and employment, they may be misleading for industrial

[8] The gap analysis demonstrates the reductions needed at the residential and commercial land use levels to achieve state targets. Capture is the process of estimating the portion of a project that would result in emissions that would exceed a significance threshold and be subject to mitigation.

uses, stationary-source projects,[9] or marine terminal projects[10] because these types of uses are specifically excluded from the land use sectors and typically do not directly propose housing or result in population growth. Moreover, the *Beyond Newhall and 2020* white paper presents the idea that an efficiency threshold could be developed for a specific industrial sector if one were to benchmark GHG emissions with a meaningful industrial output unit, such as twenty-foot-equivalent units (TEUs) for port and goods movement projects. However, no industrial- or port-specific threshold has been adopted or proposed to date. Therefore, the efficiency-based methodology was not used in the analysis of the proposed project.

Compliance with Regulatory Programs

It is also possible to determine a project's GHG emissions impacts by evaluating whether it is in compliance with regulatory programs designed to reduce GHG emissions from particular activities. If a project complies with or exceeds programs adopted by CARB or other state agencies, a lead agency can rely on this compliance to demonstrate less-than-significant impacts. However, such analysis is applicable only within the area governed by the regulations. For example, consistency with regulations pertaining to building efficiency would not suffice in determining whether a project would have significant GHG emissions from transportation.

The proposed project's compliance with regulatory programs adopted by CARB or other state agencies is used, in part, for its GHG emissions analysis.

Newhall Ranch specifically mentions consistency with both SCS (per SB 375) and AB 32, which are discussed below. Also, recent case law mentions the need to stay in step with evolving scientific knowledge and state regulatory schemes and demonstrate consistency with the long-term targets and goals in SB 32 (2030), EO B-55-18 (2045), and EO S-03-05 (2050), which are discussed below.

- **Compliance/Consistency with AB 32 (2020).** A lead agency could assess project-level consistency with AB 32 in whole or part by looking to compliance with regulatory programs designed to implement AB 32. To the extent a project's design features comply with or exceed the regulations outlined in the scoping plan and adopted by CARB or other state agencies, a lead agency could appropriately rely on their use in showing compliance with performance-based standards adopted to fulfill the statewide goal for reducing GHG emissions. Even though the time horizon for implementing AB 32 may soon pass (AB 32 goals must be met by December 31, 2020), the regulations and measures adopted pursuant to the AB 32 target will remain in effect and facilitate emissions reductions beyond the AB 32 horizon.
- **Consistency with SB 32 (2030), EO B-55-18 (2045), and EO S-03-05 (2050) Targets and Planning.** A lead agency could assess project-level consistency with the targets in the EOs as well as current planning for the post-2020 period or substantial progress toward these goals over time. The state has developed a scoping plan to meet the 2030 reduction target in SB 32; however, at this time, the 2045 and 2050 targets have not been codified into law, and the state does not have a plan to meet these targets. Regardless, the post-2030 reduction goals represent evolving scientific knowledge, and because CARB has been tasked with incorporating carbon

[9] Bay Area Air Quality Management District. 2009. *Threshold Options and Justification Report*. October. Available: http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines.

[10] An example of appropriate use of an efficiency-based threshold at the Port would be a large visitor-serving commercial project (i.e., has a jobs-based component consistent with the efficiency-based threshold) that accommodates population and employment growth in a way that is consistent with the emissions limit established under AB 32.

neutrality into future updates to the scoping plan, consistency with these goals is nevertheless a potential approach.

CEQA Streamlining

The Newhall Ranch ruling affirmed that CEQA expressly allows streamlining under SB 375 of certain residential, commercial, and mixed-use projects that that are consistent with the limits and policies specified in an applicable SCS. The ruling pointed out that a qualifying project need not additionally analyze GHG emissions from cars and light trucks. In San Diego, the SCS is contained within SANDAG's adopted 2050 RTP/SCS (SANDAG 2015). Projects eligible for this streamlining can "tier" off the RTP/SCS EIR for CEQA purposes. Only residential and mixed-use (commercial/residential) projects that fit the definition of a transit priority project or residential/mixed-use residential project (as defined in SB 375) are eligible for streamlined review. Because the proposed project is not a residential or mixed-use project, it would not be eligible for streamlined review because it does not meet the qualifying criteria defined in SB 375.

Emissions Estimation Methodology

Air quality and GHG impacts associated with construction and operation of the proposed project were assessed and quantified using industry standard and accepted software tools, techniques, and emission factors. The project schedule, as provided by the project applicant, assumes construction would last approximately 5 years. Table A1 of Attachment 1 details the duration of each project element activity as well as the type and number of pieces of equipment associated with each activity. Table A2 of Attachment 1 details waterside activity by project element.

A description of the specific methods used to estimate air quality and GHG emissions from the proposed project is provided in Section 4.1, *Air Quality and Health Risk*, and Section 4.3, *Greenhouse Gas Emissions and Energy*, of the EIR. The tables below supplement the analysis in the above chapters.

Note that the anticipated construction schedule analyzed herein is approximate and is provided for analysis purposes, and the actual start and end dates may vary. While overall construction timing may vary and may occur later than assumed here, is it assumed the sequence of phases relative to other phases and activities would not change. If the schedule is delayed, then concurrent elements would still occur concurrently (i.e., phase overlaps would be the same, albeit at a later date). The emission estimates herein assume a 2020 start date for construction. However, construction is expected to start in an around the 2021 timeframe. The phasing sequences and overlap is expected to remain the same, even if construction starts at a later time period.

Construction

Construction of the proposed project would generate emissions of ROG, NO_X, CO, PM10, PM2.5, SO_X, and GHGs that could result in impacts on ambient air quality and climate change during the construction period.

Landside Components

Construction of the landside components of the proposed project would generate air pollutant emissions from the following activities: (1) use of onsite heavy duty construction equipment, (2) material hauling to and from the project site, (3) delivery of construction supplies to the project site, (4) worker travel to and from the project site, (5) excavation, and (6) demolition. These construction activities would temporarily create emissions of dust, fumes, equipment exhaust, and other air contaminants, as well as GHG emissions. All landside project activities were assumed to occur 5 days per week. Daily hours of operation for each piece of off-road equipment are provided in Table A1 of Attachment 1. The amount of emissions generated on a daily and annual basis would vary, depending on the intensity and types of construction activities occurring simultaneously, as well as construction phasing and schedule. The methods used to estimate the criteria air pollutants and GHG emissions from construction of landside components of the proposed project are described below.

Off-Road Equipment: Heavy duty construction equipment (e.g., cranes, forklifts, loaders) would be used for demolition and construction of structures, as well as construction of proposed buildings, renovations of existing buildings, and upgrades to the electrical utility service. Specific equipment used during each phase of construction was provided by the project applicant, as were horsepower assumptions for each piece. Emission factors for off-road construction equipment were obtained from the CalEEMod (version 2016.3.2) User's Guide appendix, which provides values per unit of activity (in grams per horsepower-hour) by calendar year (Trinity Consultants 2017). GHGs and criteria pollutants were estimated by multiplying the CalEEMod emission factors by the equipment inventory provided by the project applicant. It was assumed that no electrically powered equipment would be used in the construction of the proposed project. All off-road equipment would be diesel-powered.

On-Road Vehicles: On-road vehicles (e.g., pickup trucks, flatbed trucks, passenger cars) would be required for material and equipment hauling, onsite crew and material movement, employee commuting, and material disposal. Combustion exhaust, fugitive dust (PM10 and PM2.5), and fugitive off-gassing (ROG) were estimated using a combination of emission factors and methodologies from CalEEMod, version 2016.3.2; CARB's EMFAC 2017 model (CARB 2018a) ; EPA's AP-42 *Compilations of Air Pollutant Emission Factors* (EPA 2011); and CARB's *Miscellaneous Process Methodology 7.9 Entrained Road Travel, Paved Road Dust* (CARB 2018b) based on construction information (e.g., truck volumes, material volumes, number of employees) provided by the project applicant. Per the project applicant, a capacity of 15 cubic yard (CY) was assumed for all haul trucks used during construction. Emission factors for haul and disposal trucks are based on aggregated-speed emission rates for EMFAC's T7 single vehicle category for each construction year. Material would be disposed of at either the Otay Landfill in the City of Chula Vista, the Miramar Landfill in the City of San Diego, the Sycamore Landfill in the City of Santee, or another approved upland disposal site. For the purposes of a conservative analysis, the longest distance, which is to the Sycamore Landfill (approximately 20 miles from the project site), was used.[11] Haul trucks were assumed to travel the 20 mile distance to Sycamore Landfill for each one-way trip. Total truck trips assumed for each project element were provided by the project applicant and are outlined in **Table 3**.

[11] Distance from the project site to the various disposal sites is as follows (range depends on the route taken); Otay Landfill = 13.7-17 miles; Miramar Landfill = 14.2-15.6 miles; Sycamore Landfill = 16.2-20.2 miles.

Emissions associated with the construction worker commute travel were estimated based on a weighted average of light duty auto (LDA), light duty truck 1 (LDT1), and light duty truck 2 (LDT2) emission rates from EMFAC, similar to the vehicle split used in CalEEMod (e.g., LDA = 50%, LDT1 = 25%, LDT2 = 25%) for each construction year. The total number of workers per project element was provided by the project applicant and are presented in **Table 3**. The CalEEMod default trip length of 10.8 miles per trip for Home-to-Work trips was used assuming two trips per employee.

Earth Movement and Demolition: Fugitive PM10 and PM2.5 dust emissions from earth and material movement (i.e., excavation, demolition) were quantified using emission factors for truck loading, dozing, and demolition from CalEEMod, as well as total excavation and demolition material provided by the project applicant. Excavated material is expected to total 3,440 CY, and demolition debris is expected to total almost 2,700 CY. It was assumed that most of the excavated material (3,230 of the 3,440 CY) would be recompacted or used as backfill at the project site. The remaining material (210 CY of the 3,440 CY) , as well as all demolition debris, would be disposed of at either the Otay Landfill in the City of Chula Vista, the Miramar Landfill in the City of San Diego, the Sycamore Landfill in the City of Santee, or another approved upland disposal site. As mentioned above, emissions associated with truck travel to haul demolition debris and excavated material were estimated using the most conservative distance of the disposal centers, which is assumed to be the Sycamore Landfill at 20 miles per one-way trip. Total material volumes from demolition and excavation for each project element are outlined in **Table 3**.

Table 3. Material Quantities and Vehicle Trips by Project Element

Project Element	Demolition (CY)	Excavated Material (CY)	Dredged Material (CY)	Workers per day	Total Trucks	Total Scows
1. Pride of San Diego Drydock Dredging and Moorage	1,005	--	98,800	12	1,380	36
2. Pride of San Diego Wharf Replacement and Realignment	408	--	--	13	256	--
3. Fender System Repair and Replacement	269	--	--	6	180	--
4. Pier 3 Nearshore Dredging *50/50 Scenario*	--	--	15,000	10	500	3
4. Pier 3 Nearshore Dredging *All Truck Scenario*	--	--	15,000	10	1,000	--
5. Pier 3 Mooring Dolphin	--	--	--	5	24	--
6. Pier 3 North Lunchroom Wharf Replacement and Realignment	77	--	2,000	7	289	--
7. Quay Wall Modifications	--	800	--	10	10	--
8. Port Security Barrier Replacement	120	--	--	6	75	--
9. Small Boat Mooring Float Replacement	--	--	--	5	7	--
10. Central Tool Room Demolition and Reconstruction	16	150	--	13	22	--
11. New Production Building	698	2,600	--	16	258	--
12. Administrative Office Building	150	650	--	16	213	--
13. Pier 1 Restroom Reconstruction and/or Demolition	51	40	--	10	25	--
14. Main Electrical Utility Service Upgrade	--	--	--	5	5	--
15. Sanitary Sewer and Portable Water Utility Services	--	--	--	3	5	--

Architectural Coatings: Fugitive ROG emissions associated with architectural coatings were calculated using emissions factors and calculation methodologies contained in the CalEEMod User's Guide. The architectural coatings emissions estimates are based on 21,900 gross square feet of new construction in Project Element 10 (Central Tool Room) and 48,379 gross square feet of new construction in Project Element 11 (New Production Building). No coatings were assumed for Project Element 13 (Pier 1 Restroom Reconstruction and/or Demolition). Emission calculations assume a CalEEMod default ROG/VOC content of 250 grams per liter for both interior and exterior coatings.

Waterside Components

The in-water components of project construction would require operation of dredgers, scow barges, material barges, push knee tugboats, ocean-going tugboats, and survey vessels. Dredgers would be required to remove sediment and debris to replace the mooring dolphins, remove material that has entered into the Pier 3 Berth sump,[12] and remove contaminated sediment that was not previously accessible during the Regional Water Quality Control Board (RWQCB)–mandated remedial dredging in 2015.[13] Scows[14] would be required during Project Elements 1 and 4 to transport dredged material to the offshore disposal site, and material barges would be required to move equipment and materials on-site. Small push knee tugboats would be required to move the pile driving/general use floating crane and shift the dredge rig on-site. Ocean-going tugboats would be required to pick up scows loaded with dredged material and transport them to and from the offshore disposal site. Finally, survey vessels would be required to take bathymetric surveys[15] for progress reporting during dredging.

Construction of the waterside components would generate criteria air pollutant, TAC, and GHG emissions from dredging; material hauling to and from the project site; and operation of scows, tugboats, and survey vessels. All in-water dredging activities were assumed to occur 7 days per week during the dredging period. The methods used to estimate emissions from construction of waterside components of the proposed project are presented below.

Vessel Characteristics: Assumptions used to model in-water construction emissions were obtained from characteristics of similar, representative vessels. These vessels include a dredge (modeled after the Moray dredge[Dredging Supply Company 2017]), a scow/barge (modeled from the CARB *Barge and Dredge Inventory Model* database [CARB 2010c]), an ocean-going tugboat (modeled after the *A.N. Tillett* [Pacific Tugboat Service 2019], a push knee tugboat (modeled after the *Baby T* [Curtin Maritime 2017]), and a survey vessel (modeled from CARB's *Crew and Supply Boat Inventory* [2009]). Annual hours for calculating engine emission deterioration were taken from the CARB *Harborcraft Emission Inventory Methodology* (2010a). Vessel assumptions are listed in **Table 4**.

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[12] A *sump* is defined as a pit or other type of hollow area that collects and drains liquids.

[13] Remedial dredging was completed at BAE Systems San Diego Shipyard Facility in 2015 under the RWQCB-mandated Cleanup and Abatement Order No. R9-2012-0024 (RWQCB 2012). Remedial action activities included debris removal and demolition, contaminated sediment dredging, and sand cover placement. At locations adjacent to structures such as piers, bulkheads, dolphins, and shoreline revetment, dredging was limited or avoided altogether to prevent impacts on their structural integrity. Additional details are provided in the Anchor QEA Memorandum: *Conceptual-Level Dredge Volumes at Pride of San Diego Ramp Wharf, Gripping Mooring Dolphin, and Pier 3 Break Area* (Anchor QEA 2019).

[14] A *scow* is a low, flat, barge-like vessel used to carry material.

[15] A *bathymetric survey* is used to measure of depth of a water body, and to map underwater features.

Equipment and scheduling information for all of the waterside components is provided in **Table A2** of Attachment 1.

Table 4. Vessel Characteristics

Equipment	Engine	Model Year	No. of Engines	Horsepower (each engine)	Useful Life (years)	Load Factor	Annual Hours
Dredge	Main	2015	1	275	17	0.45	1,400
	Auxiliary	2015	1	20	16	0.51	1,400
Scow/Barge	Aux	2011	1	86	16	0.89	1,400
Ocean-Going Tugboat	Main	2011	2	1,100	26	0.68	1,993
	Auxiliary	2011	2	87	25	0.43	2,965
Push Knee Tugboat	Main	2011	1	570	21	0.50	1,993
	Auxiliary	2011	1	10	23	0.31	2,965
Survey Vessel	Main	2019	1	150	28	0.38	1,796
	Auxiliary	2019	1	12	28	0.32	2,265
Material Barge	no engine						

Emission Factors: Emission factors for the harborcraft engines were obtained from the CARB Harborcraft Inventory model and are shown in **Table 5**. These factors were corrected for use of ultra-low-sulfur-diesel (ULSD), which has been a requirement since 2009. The ULSD correction factors are listed in **Table 6**. Deterioration factors were also applied to compensate for vessel engine wear. At the end of their useful life, tugboats or barges could have NO_X, PM, ROG, and CO emission factors that are 21%, 67%, 44%, and 25% higher, respectively, than their zero-hour values. Since CARB's harborcraft guidance was published, CARB has revised its methodology to cap (limit) deterioration at 12,000 hours of operation, given that diesel engines are typically rebuilt after 12,000 hours of use (Dolney pers. comm.). As a result, once an engine's cumulative hours equal 12,000, the deteriorated emission factor is assumed to be constant.[16] Deterioration factors are shown in **Table 7**. Given this 12,000-hour deterioration cap, all vessel engines listed in **Table 4** would be fully deteriorated by 2019, so the same emission factor was used for all years of the construction. The fully deteriorated and ULSD corrected emission factors for the various vessels are shown in **Table 8**, **Table 9**, and **Table 10**.

[16] This methodology is discussed in: California Air Resources Board, *Offroad Diesel Equipment Emissions Inventory Methodology Update*, 2010. Available at https://www.arb.ca.gov/regact/2010/offroadlsi10/offroadappd.pdf

Table 5. Uncorrected Harborcraft Emission Factors (grams per horsepower-hour)

Equipment	Engine	ROG	NO_X	CO	PM10	PM2.5	SO_X	CO_2	CH_4	N_2O
Dredge	Main	0.68	3.99	3.73	0.08	0.08	0.13	486	0.01	0.02
	Auxiliary	2.14	5.32	3.73	0.22	0.21	0.13	486	0.04	0.02
Scow/Barge	Main	2.14	5.32	3.73	0.22	0.21	0.13	486	0.02	0.02
	Auxiliary	0.68	5.53	3.73	0.20	0.19	0.13	486	0.01	0.02
Ocean Tug Boat	Main	2.14	5.32	3.73	0.22	0.21	0.13	486	0.02	0.02
	Auxiliary	0.68	5.10	3.73	0.15	0.15	0.13	486	0.01	0.02
Push Knee Tug Boat	Main	2.14	5.32	3.73	0.22	0.21	0.13	486	0.04	0.02
	Auxiliary	0.68	3.80	3.73	0.09	0.09	0.13	486	0.01	0.02
Survey Vessel	Main	2.14	5.32	3.73	0.22	0.21	0.13	486	0.04	0.02
	Auxiliary	0.68	3.99	3.73	0.08	0.08	0.13	486	0.01	0.02

Table 6. Ultra-Low Sulfur Diesel Correction Factors

Engine Model Year	ROG	NO_X	CO	PM10	PM2.5	SO_X	CO_2	CH_4	N_2O
1995 and older	0.720	0.930	1.000	0.720	0.720	0.043	1.000	0.720	0.930
1996 to 2010	0.720	0.948	1.000	0.800	0.800	0.043	1.000	0.720	0.948
2011 and newer	0.720	0.948	1.000	0.852	0.852	0.043	1.000	0.720	0.948

Table 7. Engine Deterioration Factors

Horsepower Range	ROG	NO_X	CO	PM10	PM2.5
25-–50	0.51	0.06	0.41	0.31	0.31
51–250	0.28	0.14	0.16	0.44	0.44
> 250	0.44	0.21	0.25	0.67	0.67

Table 8. Year 1 Harborcraft Emission Factors (grams per horsepower-hour)

Equipment	Engine	ROG	NO_X	CO	PM10	PM2.5	SO_X	CO_2	CH_4	N_2O
Dredge	Main	0.55	4.02	4.00	0.08	0.08	0.01	486	0.01	0.02
	Auxiliary	1.79	5.14	4.21	0.21	0.20	0.01	486	0.03	0.02
Scow/Barge	Main	1.77	5.42	4.05	0.23	0.22	0.01	486	0.02	0.02
	Auxiliary	0.54	5.50	3.95	0.20	0.19	0.01	486	0.01	0.02
Ocean Tug Boat	Main	1.61	5.16	3.83	0.20	0.19	0.01	486	0.02	0.02
	Auxiliary	0.54	5.09	3.96	0.15	0.14	0.01	486	0.01	0.02
Push Knee Tug Boat	Main	1.71	5.11	4.05	0.20	0.19	0.01	486	0.03	0.02
	Auxiliary	0.49	3.62	3.75	0.08	0.08	0.01	486	0.01	0.02
Survey Vessel	Main	1.57	5.05	3.78	0.19	0.18	0.01	486	0.03	0.02
	Auxiliary	0.55	4.02	4.00	0.08	0.08	0.01	486	0.01	0.02

Table 9. Year 2 Harborcraft Emission Factors (grams per horsepower-hour)

Equipment	Engine	ROG	NO_X	CO	PM10	PM2.5	SO_X	CO_2	CH_4	N_2O
Dredge	Main	0.57	4.06	4.06	0.08	0.08	0.01	486	0.01	0.02
	Auxiliary	1.84	5.16	4.30	0.21	0.20	0.01	486	0.03	0.02
Scow/Barge	Main	1.77	5.42	4.05	0.23	0.22	0.01	486	0.02	0.02
	Auxiliary	0.54	5.50	3.95	0.20	0.19	0.01	486	0.01	0.02
Ocean Tug Boat	Main	1.61	5.16	3.83	0.20	0.19	0.01	486	0.02	0.02
	Auxiliary	0.54	5.09	3.96	0.15	0.14	0.01	486	0.01	0.02
Push Knee Tug Boat	Main	1.71	5.11	4.05	0.20	0.19	0.01	486	0.03	0.02
	Auxiliary	0.50	3.64	3.77	0.08	0.08	0.01	486	0.01	0.02
Survey Vessel	Main	1.60	5.06	3.84	0.19	0.19	0.01	486	0.03	0.02
	Auxiliary	0.57	4.06	4.06	0.08	0.08	0.01	486	0.01	0.02

Table 10. Year 3 Harborcraft Emission Factors (grams per horsepower-hour)

Equipment	Engine	ROG	NO_X	CO	PM10	PM2.5	SO_X	CO_2	CH_4	N_2O
Dredge	Main	0.58	4.11	4.11	0.09	0.08	0.01	486	0.01	0.02
	Auxiliary	1.89	5.18	4.40	0.21	0.21	0.01	486	0.03	0.02
Scow/Barge	Main	1.77	5.42	4.05	0.23	0.22	0.01	486	0.02	0.02
	Auxiliary	0.54	5.50	3.95	0.20	0.19	0.01	486	0.01	0.02
Ocean Tug Boat	Main	1.61	5.16	3.83	0.20	0.19	0.01	486	0.02	0.02
	Auxiliary	0.54	5.09	3.96	0.15	0.14	0.01	486	0.01	0.02
Push Knee Tug Boat	Main	1.71	5.11	4.05	0.20	0.19	0.01	486	0.03	0.02
	Auxiliary	0.50	3.66	3.79	0.08	0.08	0.01	486	0.01	0.02
Survey Vessel	Main	1.63	5.08	3.89	0.19	0.19	0.01	486	0.03	0.02
	Auxiliary	0.58	4.11	4.11	0.09	0.08	0.01	486	0.01	0.02

Dredging: Construction of three project elements—Project Elements 1 (Pride of San Diego Drydock Dredging and Moorage), 4 (Pier 3 Nearshore Dredging), and 6 (Pier 3 North Lunchroom Wharf Replacement and Realignment) —would require dredging.

Project Element 1 would require dredging of approximately 98,800 CY. It was assumed that most of the materials (approximately 88,000 CY) would be disposed of at an offshore location (see below for location). The remaining materials (approximately 10,900 CY) are assumed to be unsuitable for offshore disposal per United States Army Corps of Engineers and EPA disposal criteria, and would require disposal at an approved upland site. Material to ocean disposal sites would be transported via tug and scow, while material to upland locations would be transported via haul truck.

Assuming a scow capacity of 2,500 CY, up to 36 scows would be required to dispose of the material at the ocean disposal site. Assuming a truck capacity of 15 CY, 700 trucks would be required to dispose of the remaining dredged material to upland locations, which could be as high as 1,333 trucks. Note that for purposes of analysis, the maximum number of trucks and scows were modeled herein. For example, for Project Element 1, there could be as few as 747 total trucks (700 for hauling and 47 for deliveries), as discussed above, but for purposes of analysis, the maximum number of

trucks (1,380, based on 1,333 for hauling and 47 for deliveries) that could theoretically be used (to haul 20,000 CY) were modeled. Additionally, while there could be as few as 32 scows, for purposes of analysis, 36 scow loads were modeled. Assuming the maximum number of both trucks and scows allows for both flexibility moving forward and to ensure maximum impacts are accounted for. For Project Element 4, the extent of unsuitable materials is currently unknown. Therefore, there are two scenarios under consideration for disposal of dredged material in this analysis:

- The **50/50 Scenario** assumes that half of the total dredged material (7,500 CY) generated during Project Element 4 would be suitable for ocean disposal and half (7,500 CY) would require upland disposal. Assuming a scow capacity of 2,500 CY, three scows would be required to dispose of the material at the ocean disposal site. Assuming a truck capacity of 15 CY, approximately 500 trucks would be required to dispose of the remaining dredged material to upland locations.
- The **All Truck Scenario** assumes that all of the dredged materials (15,000 CY) would be disposed at an upland location via haul trucks. Assuming a truck capacity of 15 CY, approximately 1,000 trucks would be required to dispose of the dredged material to upland locations.

For Project Element 6, all materials (approximately 2,000 CY) are assumed to be disposed of at an approved upland location. Assuming a truck capacity of 15 CY, approximately 134 trucks would be required to dispose of the dredged material to upland locations.

For Project Elements 1 and 4, it is assumed that the dredger would operate 18 hours per day, 7 days per week, during the schedule duration. Note that while dredging would occur within a 24-hour daily window, actual dredger usage is assumed to occur for 18 hours per day to account for periods of maintenance, shift turnover, scow/barge changes, and movement about the site. For Project Element 6, a dredger would not be needed, as a floating crane would be utilized to remove materials.

Dredged materials from Project Element 1 and Project Element 4 would be disposed of at the LA-5 ocean disposal site,[17] which is approximately 15.2 nautical miles (nm) from the BAE construction site (8.2 nm in the Bay and 7 nm in the open ocean). Assuming the ocean-going tugboat would have an average speed of 5 knots[18] within the bay and 10 knots in the open ocean, travel to the disposal site would take approximately 2.5 hours per one-way trip (5 hours per round-trip). Additionally, it was assumed the tug would be active up to 2.5 hours per day within the project area to allow for scow, barge, and other equipment movements. After arriving at the disposal location, the scow's auxiliary engine would be turned on to open the dump doors to release the dredged material into the LA-5 disposal site. It was assumed that each barge would make one trip from the construction area to the LA-5 disposal site each day and return to the BAE construction site. It was assumed that the scow auxiliary engine would operate for 1 hour per day at the disposal site, and the survey vessel would operate for 2 hours per day within the construction area. Waterside activities, equipment, and hours of operation for waterside activity are summarized in Table A2 of Attachment 1.

[17] The San Diego, CA LA-5 ocean disposal site is located at 32°36'49.8"N 117°20'40.2"W. Additional information is available at: https://www.epa.gov/ocean-dumping/managing-ocean-dumping-epa-region-9#ca

[18] A "knot" is a unit of speed equal to one nautical mile per hour. 1 knot is equal to approximately 1.15 miles per hour.

Operations

Operation of the proposed project would result in changes to the emissions of ROG, NO_X, CO, PM10, PM2.5, and SO_X that could result in long-term impacts on ambient air quality and climate change. In general, the proposed project would allow BAE to improve operational efficiency by allowing for the servicing of newer and larger classes of vessels, which would represent a change from existing conditions. This change in fleet mix serviced at the BAE facility would result in direct and indirect changes to operations. The details regarding how BAE operations would change are discussed in Sections 4.1.4.1 and 4.3.4.1 of this EIR and are supplemented here.

Landside Components

Landside operations at the proposed project site could result in generation of criteria pollutant and GHG emissions in different quantities than under existing conditions. Details about operational landside emission sources are provided below. The only landside emission source that was quantified is off-road equipment. Emissions from other sources (energy, motor vehicles, water, wastewater, waste, and process emissions) were analyzed qualitatively.

Off-road Equipment: The only change to off-road equipment use at the project site would be associated with portable generators and fire pumps, which operate during pier mooring. Under existing conditions, portable generators and fire pumps are assumed to be used 8 times per year for berthing vessels at piers. Under project conditions, portable generator and fire pump use is expected to decrease along with the number of mooring calls, which are expected to decrease from 8 annual calls under existing conditions to 5 annual calls under project conditions. The duration generators and fire pumps are used on a per-call basis is not expected to change and is expected to remain at 5 hours to berth a vessel at the pier, and 5 hours when the vessel is removed

In addition to tug activity, the number of ship repair days per year would also change with the proposed project. Under proposed project conditions, when there is a larger ship berthed at Pier 3 south, only the south side of Pier 3 would be used to berth ships, compared to both sides of Pier 3 (both the north and south sides) as under existing conditions. However, this would only occur when wide-bodied vessels (such as LHA/LHD) are berthed at Pier 3 South. This would decrease overall ship occupancy at Pier 3 and therefore result in fewer days per year that Pier 3 is active with ship maintenance and repair. There would be no change in activity for those ships dry-docked, only those that are berthed at the facility.

For purposes of analysis, it was assumed that the assist tugs would come from a nearby location within the Port. It is assumed that the tugs would travel and assist the ships into or out of the berth within 1 hour. Once the ship is berthed, the tugs would travel to other locations, so return travel time to the tug's home location is not accounted for in the analysis.

Harborcraft: To determine the model year of the various tugs, the inventory of assist tugs in the 2016 Air Emissions Inventory for the Port of San Diego was reviewed (ICF 2018). Relevant tugs and their relevant specifications are shown in **Table 11**.

Table 11. Assist Tugs in 2016 Port of San Diego Inventory

Tug Name	Year Built	CARB Compliance Date	Main (Propulsion) Engine		Auxiliary Engine		Operator
			No.	HP each	No.	HP each	
Shannon Dann	1970	2009	2	975	2	100	Dann Ocean Towing Inc.
John Quigg	2004	2019	2	2,400	2	133	Olympic Tug & Barge Inc.
Master	1997	2015	2	2,400	2	141	Crowley Maritime Corp
Scout	1998	2015	2	2,400	2	141	Crowley Maritime Corp
Tioga	1994	2013	2	1,975	2	107	Crowley Maritime Corp
Island Voyager	1973	2009	2	2,101	2	100	Island Tug & Barge Co
Bernadine C	2015	2015	2	1,000	2	87	Curtin Maritime

HP = horsepower

Using the CARB compliance date and engine size information from the Air Emissions Inventory, together with the CARB Harborcraft Engine Rule (CARB 2011), average engine model years and auxiliary engine power were estimated, as shown in **Table 12**.

Table 12. Assist Tug Characteristics

Tugs	Engine Year	Main (Propulsion) Engine		Auxiliary Engine	
		No.	HP each	No.	HP each
Assist Tug 1	2014	2	2,000	2	110
Assist Tug 2	2014	2	2,500	2	125
Assist Tug 3	2014	2	3,000	2	150
Push Knee	2012	2	750	2	95

HP = horsepower

To calculate emission deterioration of the vessels due to vessel engine wear, the useful life, load factors, and annual operating hours were taken from the CARB Harborcraft Methodology (CARB 2010a). Useful life, annual operating hours, deterioration cap, and load factors are summarized in **Table 13** for all assist and push knee tugboats used at BAE during operations. Uncorrected (or zero-hour) emission factors for the tug engines were obtained from the CARB Harborcraft Inventory Model (CARB 2007) and are shown in **Table 14**.

Table 13. Useful Life, Annual Hours, Deterioration Cap, and Load Factors

Ship	Useful Life (years)		Annual Hours		Deterioration Cap (in years)		Load Factors	
	Main	Auxiliary	Main	Auxiliary	Main	Auxiliary	Main	Auxiliary
Tugboats	21	23	2,274	2,486	5.28	4.83	0.50	0.31

Table 14. Uncorrected Harborcraft Emission Factors (grams per horsepower-hour)

Equipment	Engine	ROG	NO_X	CO	PM10	PM2.5	SO_X	CO_2	CH_4	N_2O
Assist Tug 1	Main	0.68	4.37	3.73	0.10	0.10	0.13	486	0.013	0.023
	Auxiliary	1.18	5.32	3.73	0.22	0.21	0.13	486	0.024	0.023
Assist Tug 2	Main	0.68	4.37	3.73	0.10	0.10	0.13	486	0.013	0.023
	Auxiliary	0.81	3.80	3.73	0.09	0.09	0.13	486	0.016	0.023
Assist Tug 3	Main	0.68	4.37	3.73	0.10	0.10	0.13	486	0.013	0.023
	Auxiliary	0.81	3.80	3.73	0.09	0.09	0.13	486	0.016	0.023
Push Knee	Main	0.68	5.10	3.73	0.15	0.15	0.13	486	0.013	0.023
	Auxiliary	1.18	5.32	3.73	0.22	0.21	0.13	486	0.024	0.023

Similar to construction, the emission factors from **Table 14** were corrected for use of ULSD, based on the values in **Table 6**, and for deterioration, based on the factors in **Table 7**. Based upon the 12,000-hour deterioration cap, engine model years, and the annual hours of operation given in **Table 13**, all engines will be fully deteriorated by 2025, so the same emission factor can be used for all years of project operation (assuming engines are not rebuilt). The fully deteriorated and ULSD-corrected emission factors for the assist and push knee tugs used during operation are shown in **Table 15**.

Table 15. Operational Harborcraft Emission Factors (grams per horsepower-hour)

Equipment	Engine	ROG	NO_X	CO	PM10	PM2.5	SO_X	CO_2	CH_4	N_2O
Assist Tug 1	Main	0.54	4.36	3.96	0.10	0.10	0.01	486	0.010	0.022
	Auxiliary	0.90	5.19	3.86	0.20	0.20	0.01	486	0.017	0.022
Assist Tug 2	Main	0.54	4.36	3.96	0.10	0.10	0.01	486	0.010	0.022
	Auxiliary	0.62	3.71	3.86	0.08	0.08	0.01	486	0.012	0.022
Assist Tug 3	Main	0.54	4.36	3.96	0.10	0.10	0.01	486	0.010	0.022
	Auxiliary	0.62	3.71	3.86	0.08	0.08	0.01	486	0.012	0.022
Push Knee	Main	0.54	5.09	3.96	0.15	0.14	0.01	486	0.010	0.022
	Auxiliary	0.90	5.19	3.86	0.20	0.20	0.01	486	0.017	0.022

Results

Criteria Air Pollutant Emissions

Construction

The estimate of daily criteria air pollutant emissions by phase for each year of construction of the proposed project are provided below. Emissions are compared to daily thresholds. As summarized, maximum daily emissions for each year of construction would be below thresholds for each criteria air pollutant. Construction emissions would be highest in the first year of construction, but peak

daily construction would not exceed daily thresholds on any day in any year. A breakdown of the maximum day for each year of construction is as follows:

- For year 1 (**Table 16**), maximum daily emissions are expected to occur when dredging for the Pride of San Diego drydock (Project Element 1) would overlap with Pride of San Diego drydock wharf construction work (Project Element 2). This peak overlap period would be brief (assumed to be 1 day) and would include Pride of San Diego in-water vessel activity (tugs, scow, and survey vessel) and haul trucks activity concurrent with Pride of San Diego wharf construction and truck activity (primarily deliveries). The peak day for all of construction occurs in year 1 but would be below thresholds.
- For year 2 (**Table 17**), maximum daily emissions are expected to occur when Project Element 6 (Pier 3 North Lunchroom Wharf Replacement and Realignment) demolition, construction, and piling would overlap. This overlapping period would occur as the demolition portion is finishing and pile driving construction begins. This overlapping period would be less than 1 week.
- For year 3 (**Table 18**), maximum daily emissions are expected to occur during Pier 3 South Nearshore Dredging (Project Element 4). The peak overlap period would occur during concurrent dredging and truck hauling activities.
- For year 4 (**Table 19**), maximum daily emissions are expected to occur during Administrative Office Building construction and demolition (Project Element 12).
- For year 5 (**Table 20**), maximum daily emissions are expected to occur during Central Tool Room Demolition and Reconstruction activities (Project Element 10).

Note that the anticipated construction schedule analyzed herein is approximate and is provided for analysis purposes, and the actual start and end dates may vary. While overall construction timing may vary and may occur later than assumed here, is it assumed the sequence of phases relative to other phases and activities would not change. If the schedule is delayed, then concurrent elements would still occur concurrently (i.e., phase overlaps would be the same, albeit at a later date).

Table 16. Estimate of Construction Emissions in Year 1 (pounds per day)

Project Element	Construction Activity	ROG	NO_X	CO	PM10	PM2.5	SO_X
1. Pride of San Diego Drydock Dredging and Moorage Replacement	Dredging	22	180	131	6	6	<1
	Demolition	3	20	15	1	1	<1
	Construction	3	19	13	1	1	<1
	On-Road Vehicle Travel	1	12	3	1	<1	<1
2. Pride of San Diego Drydock Wharf Replacement and Realignment	Demolition	3	20	15	2	1	<1
	Construction	3	23	17	1	1	<1
	On-Road Vehicle Travel	<1	3	1	<1	<1	<1
3. Fender System Repair and Replacement	Repair and Replacement	2	22	15	3	1	<1
	Construction	3	25	18	1	1	<1
	Maintenance & Replacement	--	--	--	--	--	--
	On-Road Vehicle Travel	<1	2	1	<1	<1	<1
7. Quay Wall Modifications	Construction	5	49	32	2	2	<1
	On-Road Vehicle Travel	<1	1	1	<1	<1	<1
9. Small Boat Mooring Float Replacement	Demolition	1	8	5	<1	<1	<1
	Construction	1	8	5	<1	<1	<1
	On-Road Vehicle Travel	<1	<1	<1	<1	<1	<1
Year 1 Maximum Daily Emissions		27	221	153	9	8	<1
Significance Threshold		*75*	*250*	*550*	*100*	*55*	*250*
Exceed Threshold?		No	No	No	No	No	No

Source: ICF Emissions Modeling.
Underlined values indicate phases that contribute to the peak day.
Values may not add exactly due to schedule, overlapping phases, and rounding.

Table 17. Estimate of Construction Emissions in Year 2 (pounds per day)

Project Element	Construction Activity	ROG	NO_X	CO	PM10	PM2.5	SO_X
3. Fender System Repair and Replacement	Repair and Replacement	--	--	--	--	--	--
	Construction	--	--	--	--	--	--
	Maintenance & Replacement	3	23	17	1	1	<1
	On-Road Vehicle Travel	--	--	--	--	--	--
6. Pier 3 North Lunchroom Wharf Replacement and Realignment	Demolition	4	31	23	2	1	<1
	Construction	3	21	15	1	1	<1
	On-Road Vehicle Travel	<1	2	1	<1	<1	<1
8. Port Security Barrier Replacement	Demolition	3	23	16	1	1	<1
	Construction	2	16	11	1	1	<1
	On-Road Vehicle Travel	<1	1	<1	<1	<1	<1
14. Main Electrical Utility Service Update	Demolition	1	6	6	<1	<1	<1
	Construction	1	6	6	<1	<1	<1
	On-Road Vehicle Travel	<1	<1	<1	<1	<1	<1
Year 2 Maximum Daily Emissions		7	53	39	3	2	<1

Project Element	Construction Activity	ROG	NO_X	CO	PM10	PM2.5	SO_X
Significance Threshold		*75*	*250*	*550*	*100*	*55*	*250*
Exceed Threshold?		No	No	No	No	No	No

Source: ICF Emissions Modeling.
Underlined values indicate phases that contribute to the peak day.
Values may not add exactly due to schedule, overlapping phases, and rounding.

Table 18. Estimate of Construction Emissions in Year 3 (pounds per day)

Project Element	Construction Activity	ROG	NO_X	CO	PM10	PM2.5	SO_X
4. Pier 3 South Nearshore Dredging *50/50 Scenario*	Dredging	16	127	96	5	4	<1
	On-Road Vehicle Travel	<1	3	1	<1	<1	<1
4. Pier 3 South Nearshore Dredging *All Truck Scenario*	Dredging	4	26	22	1	1	<1
	On-Road Vehicle Travel	<1	7	2	<1	<1	<1
5. Pier 3 Mooring Dolphin	Construction	2	13	9	1	1	<1
	On-Road Vehicle Travel	<1	<1	<1	<1	<1	<1
11. New Production Building	Demolition	2	14	12	1	1	<1
	Construction	8	15	13	1	1	<1
	On-Road Vehicle Travel	<1	1	1	<1	<1	<1
15. Sanitary Sewer and Potable Water Utility Services	Demolition	1	6	6	<1	<1	<1
	Construction	1	6	6	<1	<1	<1
	On-Road Vehicle Travel	<1	<1	<1	<1	<1	<1
Year 3 Maximum Daily Emissions		16	131	97	5	4	<1
Significance Threshold		*75*	*250*	*550*	*100*	*55*	*250*
Exceed Threshold?		No	No	No	No	No	No

Source: ICF Emissions Modeling.
Underlined values indicate phases that contribute to the peak day.
Values may not add exactly due to schedule, overlapping phases, and rounding.

Table 19. Estimate of Construction Emissions in Year 4 (pounds per day)

Project Element	Construction Activity	ROG	NO_X	CO	PM10	PM2.5	SO_X
11. New Production Building	Construction	8	14	13	1	1	<1
	On-Road Vehicle Travel	<1	<1	1	<1	<1	<1
12. Administration Office Building	Demolition	2	13	12	1	1	<1
	Construction	2	14	13	1	1	<1
	On-Road Vehicle Travel	<1	<1	1	<1	<1	<1
Year 4 Maximum Daily Emissions		8	27	25	2	1	<1
Significance Threshold		*75*	*250*	*550*	*100*	*55*	*250*
Exceed Threshold?		No	No	No	No	No	No

Source: ICF Emissions Modeling.
Underlined values indicate phases that contribute to the peak day.
Values may not add exactly due to schedule, overlapping phases, and rounding.

Table 20. Estimate of Construction Emissions in Year 5 (pounds per day)

Project Element	Construction Activity	ROG	NO_X	CO	PM10	PM2.5	SO_X
10. Central Tool Room Demolition and Reconstruction	Demolition	2	12	12	1	1	<1
	Construction	6	13	12	1	1	<1
	On-Road Vehicle Travel	<1	<1	<1	<1	<1	<1
12. Administration Office Building	Construction	2	13	12	1	1	<1
	On-Road Vehicle Travel	<1	<1	1	<1	<1	<1
13. Pier 1 Restroom Renovation and/or Demolition	Demolition	1	6	5	<1	<1	<1
	On-Road Vehicle Travel	<1	<1	<1	<1	<1	<1
Year 5 Maximum Daily Emissions		7	26	25	2	1	<1
Significance Threshold		*75*	*250*	*550*	*100*	*55*	*250*
Exceed Threshold?		No	No	No	No	No	No

Source: ICF Emissions Modeling.
Underlined values indicate phases that contribute to the peak day.
Values may not add exactly due to schedule, overlapping phases, and rounding.

The total tons of criteria pollutant emissions by phase for construction of each project element are provided in **Table 21** for both the all-truck and 50/50 truck/scow scenarios for Project Element 4. The summary of total tons by year is provided in **Table 22**. As shown, the maximum annual emissions would occur in the first year of construction. Emissions during all years are expected to be well below annual thresholds for all criteria pollutants.

Table 21. Estimate of Construction Emissions by Project Element and Activity (total tons)

Project Element	Construction Activity	ROG	NO_X	CO	PM10	PM2.5	SO_X
1. Pride of San Diego Drydock Dredging and Moorage Replacement	Dredging	0.4	3.2	2.3	0.1	0.1	<0.1
	Demolition	<0.1	0.2	0.2	<0.1	<0.1	<0.1
	Construction	<0.1	0.3	0.2	<0.1	<0.1	<0.1
	On-Road Vehicle Travel	<0.1	0.5	0.1	<0.1	<0.1	<0.1
2. Pride of San Diego Drydock Wharf Replacement and Realignment	Demolition	<0.1	0.2	0.2	<0.1	<0.1	<0.1
	Construction	0.1	0.5	0.3	<0.1	<0.1	<0.1
	On-Road Vehicle Travel	<0.1	0.1	<0.1	<0.1	<0.1	<0.1
3. Fender System Repair and Replacement	Repair & Replacement	<0.1	0.2	0.1	<0.1	<0.1	<0.1
	Construction	0.1	0.4	0.3	<0.1	<0.1	<0.1
	Maintenance & Replacement	<0.1	0.4	0.3	<0.1	<0.1	<0.1
	On-Road Vehicle Travel	<0.1	0.1	<0.1	<0.1	<0.1	<0.1

Project Element	Construction Activity	ROG	NO_X	CO	PM10	PM2.5	SO_X
4. Pier 3 South Nearshore Dredging *50/50 Scenario*	Dredging	0.6	4.4	3.3	0.2	0.2	<0.1
	On-Road Vehicle Travel	<0.1	0.1	<0.1	<0.1	<0.1	<0.1
4. Pier 3 South Nearshore Dredging *All Truck Scenario*	Dredging	0.1	0.9	0.8	<0.1	<0.1	<0.1
	On-Road Vehicle Travel	<0.1	0.2	0.1	<0.1	<0.1	<0.1
5. Pier 3 Mooring Dolphin	Construction	<0.1	0.2	0.1	<0.1	<0.1	<0.1
	On-Road Vehicle Travel	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
6. Pier 3 Lunchroom Wharf Replacement and Realignment	Demolition	<0.1	0.2	0.1	<0.1	<0.1	<0.1
	Construction	0.1	0.6	0.5	<0.1	<0.1	<0.1
	On-Road Vehicle Travel	<0.1	0.1	<0.1	<0.1	<0.1	<0.1
7. Quay Wall Modifications	Construction	<0.1	0.3	0.2	<0.1	<0.1	<0.1
	On-Road Vehicle Travel	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
8. Port Security Barrier Replacement	Demolition	<0.1	0.1	0.1	<0.1	<0.1	<0.1
	Construction	<0.1	0.3	0.2	<0.1	<0.1	<0.1
	On-Road Vehicle Travel	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
9. Small Boat Mooring Float Replacement	Demolition	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Construction	<0.1	0.1	<0.1	<0.1	<0.1	<0.1
	On-Road Vehicle Travel	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
10. Central Tool Room Demolition and Replacement	Demolition	<0.1	0.1	0.1	<0.1	<0.1	<0.1
	Construction	0.4	0.9	0.8	<0.1	<0.1	<0.1
	On-Road Vehicle Travel	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
11. New Production Building	Demolition	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Construction	1	1.4	1.2	0.1	0.1	<0.1
	On-Road Vehicle Travel	<0.1	0.1	0.1	<0.1	<0.1	<0.1
12. Administrative Office Building	Demolition	<0.1	0.2	0.2	<0.1	<0.1	<0.1
	Construction	0.2	1.2	1.1	0.1	0.1	<0.1
	On-Road Vehicle Travel	<0.1	0.0	0.1	<0.1	<0.1	<0.1
13. Pier 1 Restroom Renovation and/or Demolition	Demolition	<0.1	0.1	0.1	<0.1	<0.1	<0.1
	On-Road Vehicle Travel	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Project Element	Construction Activity	ROG	NO_X	CO	PM10	PM2.5	SO_X
14. Main Electrical Utility Service Update	Demolition	<0.1	0.1	0.1	<0.1	<0.1	<0.1
	Construction	<0.1	0.2	0.2	<0.1	<0.1	<0.1
	On-Road Vehicle Travel	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
15. Sanitary Sewer and Potable Water Utility Services	Demolition	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Construction	<0.1	0.1	0.1	<0.1	<0.1	<0.1
	On-Road Vehicle Travel	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Source: ICF Emissions Modeling.

Table 22. Summary of Construction Emissions by Year (tons)

Year	ROG	NO_X	CO	PM10	PM2.5	SO_X
50/50 Scenario						
Year 1	0.7	6.1	4.1	0.3	0.2	<0.1
Year 2	0.2	1.8	1.3	0.1	0.1	<0.1
Year 3	0.4	2.1	1.8	0.1	0.1	<0.1
Year 4	0.7	1.8	1.7	0.1	0.1	<0.1
Year 5	0.5	1.7	1.7	0.1	0.1	<0.1
Maximum Annual Emissions	0.7	6.1	4.1	0.3	0.2	<0.1
Total Emissions	2.6	13.5	10.5	0.7	0.6	<0.1
Significance Threshold	*13.7*	*40*	*100*	*15*	*10*	*40*
All Truck Scenario						
Year 1	0.7	6.1	4.1	0.3	0.2	<0.1
Year 2	0.2	1.8	1.3	0.1	0.1	<0.1
Year 3	0.4	2.0	1.7	0.1	0.1	<0.1
Year 4	0.7	1.8	1.7	0.1	0.1	<0.1
Year 5	0.5	1.7	1.7	0.1	0.1	<0.1
Maximum Annual Emissions	0.7	6.1	4.1	0.3	0.2	<0.1
Total Emissions	2.6	13.5	10.4	0.7	0.6	<0.1
Significance Threshold	*13.7*	*40*	*100*	*15*	*10*	*40*

Source: ICF Emissions Modeling.
Totals may not add up exactly due to rounding.

Operation

The estimates of criteria air pollutant emissions associated with existing and project tugboat use during operations are provided below. The daily emissions analysis represents the emissions associated with a single vessel call on a given "peak" day. Emissions associated with existing conditions under the extreme and clam weather scenarios at the daily time scale are presented in **Table 23**, Under both scenarios, future tugboat operations would result in an increase in emissions on a daily (per call) basis due to the increase in tugboat power required to berth the larger vessels. While emissions on a daily (per call) basis are expected to increase, this change in emissions would

be well below thresholds. As discussed below, the increase in emissions would be temporary and occur only on days when vessel arrive or depart the berth.

Table 23. Estimate of Operational Emissions (pounds per day)

Condition	Source	Total Tug HP	ROG	NO_X	CO	PM10	PM2.5	SO_X
Existing (Scenario 1)[1]	Generators and Fire Pumps	7,250	<1	4	14	<1	<1	<1
	Tug Activity	12,000	7	59	54	1	1	<1
	Total	**--**	**8**	**64**	**68**	**2**	**2**	**<1**
Existing (Scenario 2)[1]	Generators and Fire Pumps	7,250	<1	4	14	<1	<1	<1
	Tug Activity	13,500	9	69	61	2	2	<1
	Total	**--**	**9**	**74**	**75**	**2**	**2**	**<1**
Project	Generators and Fire Pumps	7,250	<1	4	14	<1	<1	<1
	Tug Activity	14,500	9	77	66	2	2	<1
	Total	**--**	**10**	**81**	**80**	**2**	**2**	**<1**
Net Change with Project								
Scenario 1		--	2	17	12	1	1	<1
Scenario 2		--	1	7	5	<1	<1	<1
Significance Threshold		--	75	250	550	100	55	250
Exceed Significant Threshold?		--	No	No	No	No	No	No

[1] Scenario 1 is two larger tugs and Scenario 2 is three smaller tugs and one pusher tug,
Note: Totals may not add exactly due to rounding.

Emissions at the annual time scale are summarized in **Table 24**. As shown, project operations would result in a decrease in emissions on an annual compared to existing conditions due to the decrease in activity. Thus, while emissions on a per-call basis would increase (**Table 23**), the reduction in vessel calls annually would decrease emissions annually and over the life of the project (**Table 24**).

Table 24. Estimate of Operational Emissions (tons per year)

Condition	Source	Total Tug HP	ROG	NO_X	CO	PM10	PM2.5	SO_X
Existing (Scenario 1)[1]	Generators and Fire Pumps	58,000	0.004	0.036	0.109	0.001	0.001	<0.000
	Tug Activity	96,000	0.030	0.237	0.216	0.005	0.005	<0.000
	Total	**--**	**0.033**	**0.273**	**0.325**	**0.007**	**0.007**	**0.001**
Existing (Scenario 2)[1]	Generators and Fire Pumps	58,000	0.004	0.036	0.109	0.001	0.001	<0.000
	Tug Activity	108,000	0.034	0.276	0.245	0.007	0.007	<0.000
	Total	**--**	**0.038**	**0.312**	**0.354**	**0.008**	**0.008**	**0.001**
Project	Generators and Fire Pumps	36.250	0.002	0.022	0.068	0.001	0.001	<0.000
	Tug Activity	72,500	0.023	0.192	0.165	0.005	0.005	<0.000
	Total	**--**	**0.025**	**0.214**	**0.233**	**0.006**	**0.006**	**<0.000**
Net Change with Project								
Scenario 1		--	-0.008	-0.059	-0.091	-0.001	-0.001	<0.000
Scenario 2		--	-0.013	-0.098	-0.120	-0.002	-0.002	<0.000
Significance Threshold		--	13.7	40	100	15	10	40
Exceed Significant Threshold?		--	No	No	No	No	No	No

[1] Scenario 1 is two larger tugs and Scenario 2 is three smaller tugs and one pusher tug,
Source: ICF Emissions Modeling (Appendix C).

Greenhouse Gas Emissions

Construction

GHG emissions by activity for each project element are summarized in **Table 25**. GHG emissions by year and the amortized total (assuming a 30-year project life) are summarized in **Table 26**. The highest emissions would occur during the first year of construction, and overall project emissions would be greater under the 50/50 Scenario as compared to the All Truck Scenario for Project Element 4.

Table 25. GHG Emissions by Project Element and Activity during Construction (metric tons)

Project Element	Construction Activity	CO_2e
1. Pride of San Diego Drydock Dredging and Moorage Replacement	Dredging	273
	Demolition	23
	Construction	33
	On-Road Vehicle Travel	119
2. Pride of San Diego Drydock Wharf Replacement and Realignment	Demolition	23
	Construction	46
	On-Road Vehicle Travel	26
3. Fender System Repair and Replacement	Repair and Replacement	24
	Construction	44
	Maintenance & Replacement	43
	On-Road Vehicle Travel	17
4. Pier 3 South Nearshore Dredging *50/50 Scenario*	Dredging	176
	On-Road Vehicle Travel	43
4. Pier 3 South Nearshore Dredging *All Truck Scenario*	Dredging	164
	On-Road Vehicle Travel	81
5. Pier 3 Mooring Dolphin	Construction	21
	On-Road Vehicle Travel	3
6. Pier 3 Lunchroom Wharf Replacement and Realignment	Demolition	16
	Construction	68
	On-Road Vehicle Travel	27
7. Quay Wall Modifications	Construction	2
	On-Road Vehicle Travel	40
8. Port Security Barrier Replacement	Demolition	8
	Construction	12
	On-Road Vehicle Travel	28
9. Small Boat Mooring Float Replacement	Demolition	3
	Construction	7
	On-Road Vehicle Travel	1
10. Central Tool Room Demolition and Replacement	Demolition	14
	Construction	143
	On-Road Vehicle Travel	13
11. New Production Building	Demolition	6
	Construction	204
	On-Road Vehicle Travel	39
12. Administrative Office Building	Demolition	29
	Construction	183
	On-Road Vehicle Travel	35
13. Pier 1 Restroom Renovation and/or Demolition	Demolition	9
	On-Road Vehicle Travel	3
14. Main Electrical Utility Service Update	Demolition	13

Project Element	Construction Activity	CO_2e
	Construction	26
	On-Road Vehicle Travel	3
15. Sanitary Sewer and Potable Water Utility Services	Demolition	8
	Construction	25
	On-Road Vehicle Travel	2

CO_2e = carbon dioxide equivalent

Table 26. GHG Emissions during Construction by Year (metric tons)

Year	CO_2e
50/50 Scenario	
Year 1	681
Year 2	224
Year 3	366
Year 4	309
Year 5	299
Total Emissions	1,879
Amortized Construction Emissions (30 years)	63
All Truck Scenario	
Year 1	681
Year 2	224
Year 3	392
Year 4	309
Year 5	299
Total Emissions	1,905
Amortized Construction Emissions (30 years)	64

CO_2e = carbon dioxide equivalent

Operation

Annual GHG emissions from all operational changes at the project site are summarized in **Table 27**. Under both scenarios, future operations would result in a decrease in GHG emissions on an annual basis compared to existing conditions, due primarily to the decrease in tugboat and off-road equipment use with the reduction in annual vessel calls. However, when combined with amortized construction, both operational scenarios would result in a small increase in GHGs relative to existing conditions.

Table 27. Estimate of Operational GHG Emissions

Condition	Source	Total HP	$MTCO_2e$ per year
Existing (Scenario 1)[1]	Generators and Fire Pumps	58,000	25
	Tug Activity	96,000	24
	Total	**--**	**49**
Existing (Scenario 2)[1]	Generators and Fire Pumps	58,000	25
	Tug Activity	108,000	28
	Total	**--**	**52**
Project	Generators and Fire Pumps	36,250	15
	Tug Activity	72,500	19
	Operations Only	**--**	**34**
	Amortized Construction Emissions		*136*
	Total	**--**	**170**
Net Operational Change with Project			
Scenario 1		--	-15
Scenario 2		--	-18
Net Overall Project Change			
Scenario 1		--	+121
Scenario 2		--	+118
Screening Level			900
Exceed Screening Level?			*No*

[1] Scenario 1 is two larger tugs and Scenario 2 is three smaller tugs and one pusher tug.

Note: Totals may not add up exactly because of rounding. HP = horsepower; $MTCO_2e$ = metric tons of carbon dioxide equivalent.

References Cited

Anchor QEA. 2019. *Conceptual-Level Dredge Volumes at Pride of San Diego Ramp Wharf, Gripping Mooring Dolphin, and Pier 3 Break Area*. July 17.

California Air Resources Board (CARB). 2007. *Commercial Harborcraft Inventory Model*. Available: https://ww3.arb.ca.gov/msei/california_harbor_craft_emissions_inventory_database_10072011.mdb Accessed: July 2019.

———. 2009. *Crew and Supply Boat Inventory Model*. Available: https://www.arb.ca.gov/msei/california_crew_supply_emissions_inventory_database_10072011.mdb. Accessed: May 2019.

———. 2010a. *Harborcraft Emission Inventory Methodology.* May. Available: https://www.arb.ca.gov/regact/2010/chc10/appc.pdf. Accessed: May 2019.

———. 2010b. *Offroad Diesel Equipment Emissions Inventory Methodology Update*. Available: https://www.arb.ca.gov/regact/2010/offroadlsi10/offroadappd.pdf. Accessed: May 2019.

———. 2010c. *Barge and Dredge Inventory Model*. Available: https://www.arb.ca.gov/msei/california_barge_dredge_emissions_inventory_database_10072011.mdb. Accessed: May 2019.

———. 2011. *Amendments to the Regulations to Reduce Emissions from Diesel Engines on Commercial Harbor Craft Operated Within California Waters and 24 Nautical Miles of the California Baseline.* California Code of Regulations, Title 17, section 93118.5. June. Available: https://ww3.arb.ca.gov/regact/2010/chc10/frochc931185.pdf?_ga=2.135795121.1698807475.1564423250-1334159753.1561570210. Accessed: July 2019.

———. 2018a. California Emission Factor Model Web Database. March. Available: https://www.arb.ca.gov/emfac/. Accessed: March 2019.

———. 2018b. *Miscellaneous Process Methodology 7.9 Entrained Road Travel, Paved Road Dust.* March. Available: https://www.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2018.pdf. Accessed: January 2018.

Curtin Maritime. 2017. *Fleet, Baby-T Specifications*. Available: https://curtinmaritime.com/wp-content/uploads/Curtin_Maritime_Fleet-Baby-T-Spec-Sheet.pdf. Accessed: July 2019.

Dolney, Nicole. California Air Resources Board. Personal communication with ICF, March 25, 2013.

Dredging Supply Company, Inc. 2017. 8*" Moray Class Dredge Preliminary Specifications*. Available: https://dredgeamerica.com/wp-content/uploads/2017/10/MOrray-Specs-sheet.pdf. Accessed: May 2019.

ICF. 2018. *Port of San Diego 2016 Maritime Air Emission Inventory*. June. Available: https://pantheonstorage.blob.core.windows.net/environment/2016-Maritime-Air-Emissions-Inventory.pdf. Accessed: May 2019.

Pacific Tugboat Service. 2019. *Fleet, A.N. Tillett Vessel Specifications*. Available: https://www.pacifictugboats.com/wp-content/uploads/2019/02/AN-Tillett-Spec-Sheets.pdf. Accessed: May 2019.

San Diego Regional Water Quality Control Board. 2012. *Cleanup and Abatement Order R9-2012-0024 for the Shipyard Sediment Site*. March 14.

San Diego Unified Port District. 2015. Pier 1 North Drydock, Associated Real Estate Agreements and Removal of Cooling Tunnels Project Draft EIR. April.

Trinity Consultants. 2017. *California Emissions Estimator Model User's Guide*. Version 2016.3.2.

U.S. Environmental Protection Agency (EPA). 2011. *AP-42 Compilations of Air Pollutant Emission Factors- Section 13.2.1, Paved Roads.* Available: https://www3.epa.gov/ttn/chief/ap42/ch13/final/c13s0201.pdf.

Attachment 1

Construction Modeling Details

Attachment 1
BAE Construction Modeling Details pg 1

Project Element	Phase	Workers/Day	Equipment	Number of Pieces Used	Hours per day	Start Date	End Date	Working Days
Pride of San Diego Dry Dock Dredging						6/22/2020	9/30/2020	83
Dredge Sump at New Layout / Alignment	Trenching (Dredging)	12	Dredge	1	18	7/6/2020	8/13/2020	38
			Scow/Barge	3	2	7/6/2020	8/13/2020	38
			Tug Boat (Ocean-Going)	1	2	7/6/2020	8/13/2020	38
			Survey Vessel	1	2	7/6/2020	8/13/2020	38
			Tractor/Loader/Backhoe	2	10	7/23/2020	8/4/2020	12
Demolish Existing Dolphin Structures	Demolition	12	Cranes	1	8	6/22/2020	7/22/2020	23
			Forklifts	1	6	6/22/2020	7/22/2020	23
			Other Construction Equipment	2	6	6/22/2020	7/22/2020	23
			Tug Boat (Small Push Knee)	1 (shared)	4	6/22/2020	7/22/2020	23
			Other Material Handling Equipment	2	6	6/22/2020	7/22/2020	23
			Welders	2	4	6/22/2020	7/22/2020	23
			Generators	1	4	6/22/2020	7/22/2020	23
Construct New Dolphin Structures	Construction	12	Cranes	1	8	8/11/2020	9/30/2020	37
			Forklifts	1	6	8/11/2020	9/30/2020	37
			Tug Boat (Small Push Knee)	1 (shared)	1	8/11/2020	9/30/2020	37
			Other Construction Equipment	2	6	8/11/2020	9/30/2020	37
			Other Material Handling Equipment	2	6	8/11/2020	9/30/2020	37
			Welders	2	4	8/11/2020	9/30/2020	37
			Generators	1	4	8/11/2020	9/30/2020	37
Pile Driving	Construction		Pile Driving Hammer	1	4	8/11/2020	8/21/2020	9
Pride of San Diego Wharf Replacement						6/1/2020	9/29/2020	64
POSD Wharf Replacement/Realignment	Demolition	13	Cranes	1	8	6/1/2020	7/1/2020	23
			Forklifts	1	6	6/1/2020	7/1/2020	23
			Other Construction Equipment	2	6	6/1/2020	7/1/2020	23
			Tug Boat (Small Push Knee)	1 (shared)	1	6/1/2020	7/1/2020	23
			Other Material Handling Equipment	2	6	6/1/2020	7/1/2020	23
			Welders	2	4	6/1/2020	7/1/2020	23
			Generators	1	4	6/1/2020	7/1/2020	23
	Construction	13	Cranes	1	8	8/4/2020	9/29/2020	41
			Forklifts	2	6	8/4/2020	9/29/2020	41
			Other Construction Equipment	2	6	8/4/2020	9/29/2020	41
			Tug Boat (Small Push Knee)	1 (shared)	1	8/4/2020	9/29/2020	41
			Other Material Handling Equipment	2	6	8/4/2020	9/29/2020	41
			Welders	2	4	8/4/2020	9/29/2020	41
			Generators	1	4	8/4/2020	9/29/2020	41
	Pile Driving		Pile Driving Hammer	1	4	8/4/2020	8/19/2020	12
Fender System Repair and Replacement						3/24/2020	5/21/2021	52
Fender System Repair and Replacement	Replacement	6	Cranes	1	8	3/24/2020	4/17/2020	19
			Forklifts	1	6	3/24/2020	4/17/2020	19
			Pile Extracting & Driving Vibratory Hammer	1	8	3/24/2020	4/17/2020	19
			Other Construction Equipment	1	6	3/24/2020	4/17/2020	19
			Other Material Handling Equipment	1	6	3/24/2020	4/17/2020	19
			Tug Boat (Small Push Knee)	1	4	3/24/2020	4/17/2020	19
	New Construction	6	Cranes	1	8	11/6/2020	12/22/2020	33
			Forklifts	2	6	11/6/2020	12/22/2020	33
			Pile Driving Vibratory Hammer	1	5	11/6/2020	12/22/2020	33
			Other Construction Equipment	2	6	11/6/2020	12/22/2020	33
			Other Material Handling Equipment	2	6	11/6/2020	12/22/2020	33
			Tug Boat (Small Push Knee)	1	4	11/6/2020	12/22/2020	33
	Maintenance/Replacement	6	Cranes	1	8	4/5/2021	5/21/2021	35
			Forklifts	2	6	4/5/2021	5/21/2021	35
			Pile Extracting & Driving Vibratory Hammer	1	3	4/5/2021	5/21/2021	35
			Other Construction Equipment	2	6	4/5/2021	5/21/2021	35
			Other Material Handling Equipment	2	6	4/5/2021	5/21/2021	35
			Tug Boat (Small Push Knee)	1	4	4/5/2021	5/21/2021	35

Attachment 1
BAE Construction Modeling Details pg 2

Project Element	Phase	Workers/Day	Equipment	Number of Pieces Used	Hours per day	Start Date	End Date	Working Days
Pier 3 Near Shore Dredging						6/1/2022	8/9/2022	69
Pier 3 Near Shore Dredging	Trenching (Dredging)	10	Dredge	1	18	6/1/2022	8/9/2022	69
			Scow/Barge	2	2	6/1/2022	8/9/2022	69
			Tug Boat (small push knee)	1	4	6/1/2022	8/9/2022	69
			Survey Vessel	1	2	6/1/2022	8/9/2022	69
			Tractor/Loader/Backhoe	2	12	6/1/2022	8/9/2022	69
Pier 3 Mooring Dolphin						8/10/2022	9/22/2022	32
Pier 3 Mooring Dolphin	Construction	5	Cranes	1	8	8/10/2022	9/22/2022	32
			Matl Barge	1	0	8/10/2022	9/22/2022	32
			Tug Boat (small push knee)	1	1	8/10/2022	9/22/2022	32
			Other Construction Equipment	1	6	8/10/2022	9/22/2022	32
			Other Material Handling Equipment	1	6	8/10/2022	9/22/2022	32
	Pile Driving		Pile Driving Hammer	1	4	8/10/2022	8/13/2022	3
Pier 3 Lunchroom Wharf Replacement						6/14/2021	9/30/2021	79
Pier 3 Lunchroom Wharf Replacement	Demolition	7	Cranes	1	8	6/14/2021	6/30/2021	13
			Forklifts	1	6	6/14/2021	6/30/2021	13
			Other Construction Equipment	2	6	6/14/2021	6/30/2021	13
			Tug boat (small push knee)	1	1	6/14/2021	6/30/2021	13
			Other Material Handling Equipment	2	6	6/14/2021	6/30/2021	13
			Welders	2	4	6/14/2021	6/30/2021	13
			Generators	1	4	6/14/2021	6/30/2021	13
			Tractor/Loader/Backhoe	2	10	6/14/2021	6/30/2021	13
	Construction	7	Cranes	1	8	6/30/2021	9/30/2021	67
			Forklifts	1	6	6/30/2021	9/30/2021	67
			Other Construction Equipment	2	6	6/30/2021	9/30/2021	67
			Tug boat (small push knee)	1	1	6/30/2021	9/30/2021	67
			Other Material Handling Equipment	2	6	6/30/2021	9/30/2021	67
			Welders	2	4	6/30/2021	9/30/2021	67
			Generators	1	4	6/30/2021	9/30/2021	67
	Pile Driving		Pile Driving Hammer	1	4	6/28/2021	7/13/2021	12
Quay Wall Modifications at South End Property						10/5/2020	11/5/2020	24
Quay Wall Modifications at South End Property	Excavation (Trenching)	10	Cranes	1	8	10/19/2020	11/5/2020	14
			Barge (NOT REQ'D)		N/A	10/19/2020	11/5/2020	14
			Tug boat (small push knee)	1	2	10/19/2020	11/5/2020	14
			Survey Vessel	1	1	10/19/2020	11/5/2020	14
			Tractor/Loader/Backhoe	2	8	10/19/2020	11/5/2020	14
	Construction	10	Cranes	1	8	10/5/2020	10/19/2020	11
			Forklifts	1	6	10/5/2020	10/19/2020	11
			Other Construction Equipment	2	6	10/5/2020	10/19/2020	11
			Tug boat (small push knee)	1	1	10/5/2020	10/19/2020	11
			Pile Driving Vibratory Hammer	1	6	10/5/2020	10/19/2020	11
			Other Material Handling Equipment	2	6	10/5/2020	10/19/2020	11
			Welders	2	4	10/5/2020	10/19/2020	11
			Generators	1	4	10/5/2020	10/19/2020	11
Port Security Barrier (PSB) Replacement						2/1/2021	4/2/2021	45
Port Security Barrier (PSB) Replacement	Demolition	6	Cranes	1	8	2/1/2021	2/15/2021	11
			Tug Boat (small push knee)	1	4	2/1/2021	2/15/2021	11
			Other Construction Equipment	1	6	2/1/2021	2/15/2021	11
			Other Material Handling Equipment	1	6	2/1/2021	2/15/2021	11
	Construction	6	Cranes	1	8	2/15/2021	4/2/2021	35
			Tug Boat (small push knee)	1	2	2/15/2021	4/2/2021	35
			Other Construction Equipment	1	6	2/15/2021	4/2/2021	35
			Other Material Handling Equipment	1	6	2/15/2021	4/2/2021	35

Attachment 1
BAE Construction Modeling Details pg 3

Project Element	Phase	Workers/Day	Equipment	Number of Pieces Used	Hours per day	Start Date	End Date	Working Days
Small Boat Mooring Float Replacement						4/21/2020	5/22/2020	24
Small Boat Mooring Float Replacement	Demolition	5	Cranes	1	4	4/21/2020	4/28/2020	6
			Forklifts	1	4	4/21/2020	4/28/2020	6
			Pile Extracting Vibratory Hammer	1	4	4/21/2020	4/28/2020	6
			Other Construction Equipment	1	4	4/21/2020	4/28/2020	6
			Other Material Handling Equipment	1	4	4/21/2020	4/28/2020	6
	Construction	5	Cranes	1	4	4/28/2020	5/22/2020	19
			Forklifts	1	4	4/28/2020	5/22/2020	19
			Other Construction Equipment	1	4	4/28/2020	5/22/2020	19
			Other Material Handling Equipment	1	4	4/28/2020	5/22/2020	19
	Pile Driving		Pile Driving Hammer	1	4	4/28/2020	4/29/2020	2
Central Tool Room Replacement						6/1/2024	12/31/2024	152
Central Tool Room Replacement	Demolition	13	Cranes	1	4	6/1/2024	6/22/2024	15
			Forklifts	2	6	6/1/2024	6/22/2024	15
			Other Construction Equipment	2	6	6/1/2024	6/22/2024	15
			Other Material Handling Equipment	2	6	6/1/2024	6/22/2024	15
			Tractor/Loader/Backhoe	1	4	6/1/2024	6/22/2024	15
			Welders	2	4	6/1/2024	6/22/2024	15
	Construction	13	Cranes	1	6	6/22/2024	12/31/2024	137
			Forklifts	2	6	6/22/2024	12/31/2024	137
			Other Construction Equipment	2	6	6/22/2024	12/31/2024	137
			Other Material Handling Equipment	2	6	6/22/2024	12/31/2024	137
			Tractor/Loader/Backhoe	1	4	6/22/2024	12/31/2024	137
			Welders	2	4	6/22/2024	12/31/2024	137
New Production Building						10/14/2022	7/21/2023	201
New Production Building	Demolition	16	Cranes	1	4	10/14/2022	10/21/2022	6
			Forklifts	2	6	10/14/2022	10/21/2022	6
			Other Construction Equipment	2	6	10/14/2022	10/21/2022	6
			Other Material Handling Equipment	2	6	10/14/2022	10/21/2022	6
			Tractor/Loader/Backhoe	1	4	10/14/2022	10/21/2022	6
			Welders	2	4	10/14/2022	10/21/2022	6
	Construction	16	Cranes	1	6	10/21/2022	7/21/2023	196
			Forklifts	2	6	10/21/2022	7/21/2023	196
			Other Construction Equipment	2	6	10/21/2022	7/21/2023	196
			Other Material Handling Equipment	2	6	10/21/2022	7/21/2023	196
			Tractor/Loader/Backhoe	1	4	10/21/2022	7/21/2023	196
			Welders	2	4	10/21/2022	7/21/2023	196
Administrative Office Building						8/1/2023	5/14/2024	206
Administrative Office Building	Demolition	16	Cranes	1	4	8/1/2023	9/12/2023	31
			Forklifts	2	6	8/1/2023	9/12/2023	31
			Other Construction Equipment	2	6	8/1/2023	9/12/2023	31
			Other Material Handling Equipment	2	6	8/1/2023	9/12/2023	31
			Tractor/Loader/Backhoe	1	4	8/1/2023	9/12/2023	31
			Welders	2	4	8/1/2023	9/12/2023	31
	Construction	16	Cranes	1	6	9/12/2023	5/14/2024	176
			Forklifts	2	6	9/12/2023	5/14/2024	176
			Other Construction Equipment	2	6	9/12/2023	5/14/2024	176
			Other Material Handling Equipment	2	6	9/12/2023	5/14/2024	176
			Tractor/Loader/Backhoe	1	4	9/12/2023	5/14/2024	176
			Welders	2	4	9/12/2023	5/14/2024	176
Pier 1 Restroom Reconstruction/Renovation						3/1/2024	4/1/2024	22
Pier 1 Restroom Reconstruction/Renovation	Demolition	10	Cranes	1	4	3/1/2024	4/1/2024	22
			Forklifts	1	6	3/1/2024	4/1/2024	22
			Other Construction Equipment	1	6	3/1/2024	4/1/2024	22
			Other Material Handling Equipment	1	6	3/1/2024	4/1/2024	22

Attachment 1
BAE Construction Modeling Details pg 4

Project Element	Phase	Workers/Day	Equipment	Number of Pieces Used	Hours per day	Start Date	End Date	Working Days
Main Electrical Utility Service Upgrade						11/8/2021	2/23/2022	78
Main Electrical Utility Service Upgrade	Demolition	5	Forklifts	1	6	11/8/2021	12/13/2021	26
			Other Construction Equipment	1	6	11/8/2021	12/13/2021	26
			Other Material Handling Equipment	1	6	11/8/2021	12/13/2021	26
			Tractor/Loader/Backhoe	1	4	11/8/2021	12/13/2021	26
	Construction	5	Forklifts	1	6	12/13/2021	2/23/2022	53
			Other Construction Equipment	1	6	12/13/2021	2/23/2022	53
			Other Material Handling Equipment	1	6	12/13/2021	2/23/2022	53
			Tractor/Loader/Backhoe	1	4	12/13/2021	2/23/2022	53
Sanitary and Potable Water Utility Service Upgrade						3/1/2022	5/31/2022	66
Sanitary and Potable Water Utility Service Upgrade	Demolition	3	Forklifts	1	6	3/1/2022	3/22/2022	16
			Other Construction Equipment	1	6	3/1/2022	3/22/2022	16
			Other Material Handling Equipment	1	6	3/1/2022	3/22/2022	16
			Tractor/Loader/Backhoe	1	4	3/1/2022	3/22/2022	16
	Construction	3	Forklifts	1	6	3/22/2022	5/31/2022	51
			Other Construction Equipment	1	6	3/22/2022	5/31/2022	51
			Other Material Handling Equipment	1	6	3/22/2022	5/31/2022	51
			Tractor/Loader/Backhoe	1	4	3/22/2022	5/31/2022	51

Attachment 1
BAE Construction Vessel Activity

BAE Construction - Marine Sources - 50/50 Scenario

Project Element	Phase		Equipment	Number of Pieces Used	Hours per day		Days
					Main	Aux	
PE1 - Pride of San Diego (POSD) Drydock Dredging and Moorage	Dredge Sump at New Layout / Alignment	Trenching (Dredging)	Dredge	1	4	18	38
			Scow/Barge	3	0	1	38
			Tug Boat (Ocean)	1	7.5	16.5	38
			Survey Vessel	1	2	6	38
	Demolish Existing Dolphin Structures	Demolition	Tug boat (small push knee)	1	2	4	23
	Construct New Dolphin Structures	Construction	Tug boat (small push knee)	1	1	2	37
PE2 - Pride of San Diego (POSD) Wharf Replacement and Realignment	POSD Wharf Replacement/Realignment	Demolition	Tug boat (small push knee)	1	1	2	23
		Construction	Tug boat (small push knee)	1	1	2	41
PE4 - Pier 3 South Nearshore Dredging	Pier 3 Near Shore Dredging	Trenching (Dredging)	Dredge	1	4	18	69
			Scow/Barge	2	0	1	3
			Tug boat (small push knee)	1	2	4	69
			Tug Boat (Ocean)	1	5	11	3
			Survey Vessel	1	2	6	69
PE5 - Pier 3 Mooring Dolphin	Pier 3 Mooring Dolphin	Construction	Matl Barge	1	-	-	32
			Tug boat (small push knee)	1	1	2	69
PE6 - Pier 3 North Lunchroom Wharf Replacement and Realignment	Pier 3 North Lunchroom Wharf Replacement Demolition	Demolition	Tug boat (small push knee)	1	1	2	11
	Pier 3 North Lunchroom Wharf Replacement Construction	Construction	Tug boat (small push knee)	1	1	2	69
PE7 - Quay Wall Modifications	Quay Wall Modifications (Dredging/Rock Removal)	Excavation	Tug boat (small push knee)	1	2	4	14
			Survey Vessel	1	1	2	14
	Quay Wall Modifications (Pile Driving Op)	Construction	Tug boat (small push knee)	1	1	2	14
PE8 - Port Security Barrier Replacement	Port Security Barrier (PSB) Replacement	Demolition	Tug boat (small push knee)	1	4	8	11
		Construction	Tug boat (small push knee)	1	2	4	35
PE3 - Fender System Repair and Replacement	Fender Repair and Replacement	Construction	Tug boat (small push knee)	1	2	4	23
	Fender System New Construction	Construction	Tug boat (small push knee)	1	2	4	23
	Fender System Maintenance & Replacement	Construction	Tug boat (small push knee)	1	2	4	35

BAE Construction - Marine Sources - All Truck Scenario

Project Element	Phase		Equipment	Number of Pieces Used	Hours per day		Days
					Main	Aux	
PE1 - Pride of San Diego (POSD) Drydock Dredging and Moorage	Dredge Sump at New Layout / Alignment	Trenching (Dredging)	Dredge	1	4	18	38
			Scow/Barge	3	0	1	38
			Tug Boat (Ocean)	1	7.5	16.5	38
			Survey Vessel	1	2	6	38
	Demolish Existing Dolphin Structures	Demolition	Tug boat (small push knee)	1	2	4	23
	Construct New Dolphin Structures	Construction	Tug boat (small push knee)	1	1	2	37
PE2 - Pride of San Diego (POSD) Wharf Replacement and Realignment	POSD Wharf Replacement/Realignment	Demolition	Tug boat (small push knee)	1	1	2	23
		Construction	Tug boat (small push knee)	1	1	2	41
PE4 - Pier 3 South Nearshore Dredging	Pier 3 Near Shore Dredging	Trenching (Dredging)	Dredge	1	4	18	69
			Scow/Barge	0	0	0	3
			Tug boat (small push knee)	1	2	4	69
			Tug Boat (Ocean)	0	0	0	3
			Survey Vessel	1	2	6	69
PE5 - Pier 3 Mooring Dolphin	Pier 3 Mooring Dolphin	Construction	Matl Barge	1	-	-	32
			Tug boat (small push knee)	1	1	2	69
PE6 - Pier 3 North Lunchroom Wharf Replacement and Realignment	Pier 3 North Lunchroom Wharf Replacement Demolition	Demolition	Tug boat (small push knee)	1	1	2	11
	Pier 3 North Lunchroom Wharf Replacement Construction	Construction	Tug boat (small push knee)	1	1	2	69
PE7 - Quay Wall Modifications	Quay Wall Modifications (Dredging/Rock Removal)	Excavation	Tug boat (small push knee)	1	2	4	14
			Survey Vessel	1	1	2	14
	Quay Wall Modifications (Pile Driving Op)	Construction	Tug boat (small push knee)	1	1	2	14
PE8 - Port Security Barrier Replacement	Port Security Barrier (PSB) Replacement	Demolition	Tug boat (small push knee)	1	4	8	11
		Construction	Tug boat (small push knee)	1	2	4	35
PE3 - Fender System Repair and Replacement	Fender Repair and Replacement	Construction	Tug boat (small push knee)	1	2	4	23
	Fender System New Construction	Construction	Tug boat (small push knee)	1	2	4	23
	Fender System Maintenance & Replacement	Construction	Tug boat (small push knee)	1	2	4	35

denotes change between 50/50 and all truck - no tug and scow needed for all truck

Attachment 1
BAE Construction Modeling Details pg 1

Project Element	Phase	Workers/Day	Equipment	Number of Pieces Used	Hours per day	Start Date	End Date	Working Days
Pride of San Diego Dry Dock Dredging						6/22/2020	9/30/2020	83
Dredge Sump at New Layout / Alignment	Trenching (Dredging)	12	Dredge	1	18	7/6/2020	8/13/2020	38
			Scow/Barge	3	2	7/6/2020	8/13/2020	38
			Tug Boat (Ocean-Going)	1	2	7/6/2020	8/13/2020	38
			Survey Vessel	1	2	7/6/2020	8/13/2020	38
			Tractor/Loader/Backhoe	2	10	7/23/2020	8/4/2020	12
Demolish Existing Dolphin Structures	Demolition	12	Cranes	1	8	6/22/2020	7/22/2020	23
			Forklifts	1	6	6/22/2020	7/22/2020	23
			Other Construction Equipment	2	6	6/22/2020	7/22/2020	23
			Tug Boat (Small Push Knee)	1 (shared)	4	6/22/2020	7/22/2020	23
			Other Material Handling Equipment	2	6	6/22/2020	7/22/2020	23
			Welders	2	4	6/22/2020	7/22/2020	23
			Generators	1	4	6/22/2020	7/22/2020	23
Construct New Dolphin Structures	Construction	12	Cranes	1	8	8/11/2020	9/30/2020	37
			Forklifts	1	6	8/11/2020	9/30/2020	37
			Tug Boat (Small Push Knee)	1 (shared)	1	8/11/2020	9/30/2020	37
			Other Construction Equipment	2	6	8/11/2020	9/30/2020	37
			Other Material Handling Equipment	2	6	8/11/2020	9/30/2020	37
			Welders	2	4	8/11/2020	9/30/2020	37
			Generators	1	4	8/11/2020	9/30/2020	37
Pile Driving	Construction		Pile Driving Hammer	1	4	8/11/2020	8/21/2020	9
Pride of San Diego Wharf Replacement						6/1/2020	9/29/2020	64
POSD Wharf Replacement/Realignment	Demolition	13	Cranes	1	8	6/1/2020	7/1/2020	23
			Forklifts	1	6	6/1/2020	7/1/2020	23
			Other Construction Equipment	2	6	6/1/2020	7/1/2020	23
			Tug Boat (Small Push Knee)	1 (shared)	1	6/1/2020	7/1/2020	23
			Other Material Handling Equipment	2	6	6/1/2020	7/1/2020	23
			Welders	2	4	6/1/2020	7/1/2020	23
			Generators	1	4	6/1/2020	7/1/2020	23
	Construction	13	Cranes	1	8	8/4/2020	9/29/2020	41
			Forklifts	2	6	8/4/2020	9/29/2020	41
			Other Construction Equipment	2	6	8/4/2020	9/29/2020	41
			Tug Boat (Small Push Knee)	1 (shared)	1	8/4/2020	9/29/2020	41
			Other Material Handling Equipment	2	6	8/4/2020	9/29/2020	41
			Welders	2	4	8/4/2020	9/29/2020	41
			Generators	1	4	8/4/2020	9/29/2020	41
	Pile Driving		Pile Driving Hammer	1	4	8/4/2020	8/19/2020	12
Fender System Repair and Replacement						3/24/2020	5/21/2021	52
Fender System Repair and Replacement	Replacement	6	Cranes	1	8	3/24/2020	4/17/2020	19
			Forklifts	1	6	3/24/2020	4/17/2020	19
			Pile Extracting & Driving Vibratory Hammer	1	8	3/24/2020	4/17/2020	19
			Other Construction Equipment	1	6	3/24/2020	4/17/2020	19
			Other Material Handling Equipment	1	6	3/24/2020	4/17/2020	19
			Tug Boat (Small Push Knee)	1	4	3/24/2020	4/17/2020	19
	New Construction	6	Cranes	1	8	11/6/2020	12/22/2020	33
			Forklifts	2	6	11/6/2020	12/22/2020	33
			Pile Driving Vibratory Hammer	1	5	11/6/2020	12/22/2020	33
			Other Construction Equipment	2	6	11/6/2020	12/22/2020	33
			Other Material Handling Equipment	2	6	11/6/2020	12/22/2020	33
			Tug Boat (Small Push Knee)	1	4	11/6/2020	12/22/2020	33
	Maintenance/Replacement	6	Cranes	1	8	4/5/2021	5/21/2021	35
			Forklifts	2	6	4/5/2021	5/21/2021	35
			Pile Extracting & Driving Vibratory Hammer	1	3	4/5/2021	5/21/2021	35
			Other Construction Equipment	2	6	4/5/2021	5/21/2021	35
			Other Material Handling Equipment	2	6	4/5/2021	5/21/2021	35
			Tug Boat (Small Push Knee)	1	4	4/5/2021	5/21/2021	35

Attachment 1
BAE Construction Modeling Details pg 2

Project Element	Phase	Workers/Day	Equipment	Number of Pieces Used	Hours per day	Start Date	End Date	Working Days
Pier 3 Near Shore Dredging						6/1/2022	8/9/2022	69
Pier 3 Near Shore Dredging	Trenching (Dredging)	10	Dredge	1	18	6/1/2022	8/9/2022	69
			Scow/Barge	2	2	6/1/2022	8/9/2022	69
			Tug Boat (small push knee)	1	4	6/1/2022	8/9/2022	69
			Survey Vessel	1	2	6/1/2022	8/9/2022	69
			Tractor/Loader/Backhoe	2	12	6/1/2022	8/9/2022	69
Pier 3 Mooring Dolphin						8/10/2022	9/22/2022	32
Pier 3 Mooring Dolphin	Construction	5	Cranes	1	8	8/10/2022	9/22/2022	32
			Matl Barge	1	0	8/10/2022	9/22/2022	32
			Tug Boat (small push knee)	1	1	8/10/2022	9/22/2022	32
			Other Construction Equipment	1	6	8/10/2022	9/22/2022	32
			Other Material Handling Equipment	1	6	8/10/2022	9/22/2022	32
	Pile Driving		Pile Driving Hammer	1	4	8/10/2022	8/13/2022	3
Pier 3 Lunchroom Wharf Replacement						6/14/2021	9/30/2021	79
Pier 3 Lunchroom Wharf Replacement	Demolition	7	Cranes	1	8	6/14/2021	6/30/2021	13
			Forklifts	1	6	6/14/2021	6/30/2021	13
			Other Construction Equipment	2	6	6/14/2021	6/30/2021	13
			Tug boat (small push knee)	1	1	6/14/2021	6/30/2021	13
			Other Material Handling Equipment	2	6	6/14/2021	6/30/2021	13
			Welders	2	4	6/14/2021	6/30/2021	13
			Generators	1	4	6/14/2021	6/30/2021	13
			Tractor/Loader/Backhoe	2	10	6/14/2021	6/30/2021	13
	Construction	7	Cranes	1	8	6/30/2021	9/30/2021	67
			Forklifts	1	6	6/30/2021	9/30/2021	67
			Other Construction Equipment	2	6	6/30/2021	9/30/2021	67
			Tug boat (small push knee)	1	1	6/30/2021	9/30/2021	67
			Other Material Handling Equipment	2	6	6/30/2021	9/30/2021	67
			Welders	2	4	6/30/2021	9/30/2021	67
			Generators	1	4	6/30/2021	9/30/2021	67
	Pile Driving		Pile Driving Hammer	1	4	6/28/2021	7/13/2021	12
Quay Wall Modifications at South End Property						10/5/2020	11/5/2020	24
Quay Wall Modifications at South End Property	Excavation (Trenching)	10	Cranes	1	8	10/19/2020	11/5/2020	14
			Barge (NOT REQ'D)		N/A	10/19/2020	11/5/2020	14
			Tug boat (small push knee)	1	2	10/19/2020	11/5/2020	14
			Survey Vessel	1	1	10/19/2020	11/5/2020	14
			Tractor/Loader/Backhoe	2	8	10/19/2020	11/5/2020	14
	Construction	10	Cranes	1	8	10/5/2020	10/19/2020	11
			Forklifts	1	6	10/5/2020	10/19/2020	11
			Other Construction Equipment	2	6	10/5/2020	10/19/2020	11
			Tug boat (small push knee)	1	1	10/5/2020	10/19/2020	11
			Pile Driving Vibratory Hammer	1	6	10/5/2020	10/19/2020	11
			Other Material Handling Equipment	2	6	10/5/2020	10/19/2020	11
			Welders	2	4	10/5/2020	10/19/2020	11
			Generators	1	4	10/5/2020	10/19/2020	11
Port Security Barrier (PSB) Replacement						2/1/2021	4/2/2021	45
Port Security Barrier (PSB) Replacement	Demolition	6	Cranes	1	8	2/1/2021	2/15/2021	11
			Tug Boat (small push knee)	1	4	2/1/2021	2/15/2021	11
			Other Construction Equipment	1	6	2/1/2021	2/15/2021	11
			Other Material Handling Equipment	1	6	2/1/2021	2/15/2021	11
	Construction	6	Cranes	1	8	2/15/2021	4/2/2021	35
			Tug Boat (small push knee)	1	2	2/15/2021	4/2/2021	35
			Other Construction Equipment	1	6	2/15/2021	4/2/2021	35
			Other Material Handling Equipment	1	6	2/15/2021	4/2/2021	35

Attachment 1
BAE Construction Modeling Details pg 3

Project Element	Phase	Workers/Day	Equipment	Number of Pieces Used	Hours per day	Start Date	End Date	Working Days
Small Boat Mooring Float Replacement						4/21/2020	5/22/2020	24
Small Boat Mooring Float Replacement	Demolition	5	Cranes	1	4	4/21/2020	4/28/2020	6
			Forklifts	1	4	4/21/2020	4/28/2020	6
			Pile Extracting Vibratory Hammer	1	4	4/21/2020	4/28/2020	6
			Other Construction Equipment	1	4	4/21/2020	4/28/2020	6
			Other Material Handling Equipment	1	4	4/21/2020	4/28/2020	6
	Construction	5	Cranes	1	4	4/28/2020	5/22/2020	19
			Forklifts	1	4	4/28/2020	5/22/2020	19
			Other Construction Equipment	1	4	4/28/2020	5/22/2020	19
			Other Material Handling Equipment	1	4	4/28/2020	5/22/2020	19
	Pile Driving		Pile Driving Hammer	1	4	4/28/2020	4/29/2020	2
Central Tool Room Replacement						6/1/2024	12/31/2024	152
Central Tool Room Replacement	Demolition	13	Cranes	1	4	6/1/2024	6/22/2024	15
			Forklifts	2	6	6/1/2024	6/22/2024	15
			Other Construction Equipment	2	6	6/1/2024	6/22/2024	15
			Other Material Handling Equipment	2	6	6/1/2024	6/22/2024	15
			Tractor/Loader/Backhoe	1	4	6/1/2024	6/22/2024	15
			Welders	2	4	6/1/2024	6/22/2024	15
	Construction	13	Cranes	1	6	6/22/2024	12/31/2024	137
			Forklifts	2	6	6/22/2024	12/31/2024	137
			Other Construction Equipment	2	6	6/22/2024	12/31/2024	137
			Other Material Handling Equipment	2	6	6/22/2024	12/31/2024	137
			Tractor/Loader/Backhoe	1	4	6/22/2024	12/31/2024	137
			Welders	2	4	6/22/2024	12/31/2024	137
New Production Building						10/14/2022	7/21/2023	201
New Production Building	Demolition	16	Cranes	1	4	10/14/2022	10/21/2022	6
			Forklifts	2	6	10/14/2022	10/21/2022	6
			Other Construction Equipment	2	6	10/14/2022	10/21/2022	6
			Other Material Handling Equipment	2	6	10/14/2022	10/21/2022	6
			Tractor/Loader/Backhoe	1	4	10/14/2022	10/21/2022	6
			Welders	2	4	10/14/2022	10/21/2022	6
	Construction	16	Cranes	1	6	10/21/2022	7/21/2023	196
			Forklifts	2	6	10/21/2022	7/21/2023	196
			Other Construction Equipment	2	6	10/21/2022	7/21/2023	196
			Other Material Handling Equipment	2	6	10/21/2022	7/21/2023	196
			Tractor/Loader/Backhoe	1	4	10/21/2022	7/21/2023	196
			Welders	2	4	10/21/2022	7/21/2023	196
Administrative Office Building						8/1/2023	5/14/2024	206
Administrative Office Building	Demolition	16	Cranes	1	4	8/1/2023	9/12/2023	31
			Forklifts	2	6	8/1/2023	9/12/2023	31
			Other Construction Equipment	2	6	8/1/2023	9/12/2023	31
			Other Material Handling Equipment	2	6	8/1/2023	9/12/2023	31
			Tractor/Loader/Backhoe	1	4	8/1/2023	9/12/2023	31
			Welders	2	4	8/1/2023	9/12/2023	31
	Construction	16	Cranes	1	6	9/12/2023	5/14/2024	176
			Forklifts	2	6	9/12/2023	5/14/2024	176
			Other Construction Equipment	2	6	9/12/2023	5/14/2024	176
			Other Material Handling Equipment	2	6	9/12/2023	5/14/2024	176
			Tractor/Loader/Backhoe	1	4	9/12/2023	5/14/2024	176
			Welders	2	4	9/12/2023	5/14/2024	176
Pier 1 Restroom Reconstruction/Renovation						3/1/2024	4/1/2024	22
Pier 1 Restroom Reconstruction/Renovation	Demolition	10	Cranes	1	4	3/1/2024	4/1/2024	22
			Forklifts	1	6	3/1/2024	4/1/2024	22
			Other Construction Equipment	1	6	3/1/2024	4/1/2024	22
			Other Material Handling Equipment	1	6	3/1/2024	4/1/2024	22

Attachment 1
BAE Construction Modeling Details pg 4

Project Element	Phase	Workers/Day	Equipment	Number of Pieces Used	Hours per day	Start Date	End Date	Working Days
Main Electrical Utility Service Upgrade						11/8/2021	2/23/2022	78
Main Electrical Utility Service Upgrade	Demolition	5	Forklifts	1	6	11/8/2021	12/13/2021	26
			Other Construction Equipment	1	6	11/8/2021	12/13/2021	26
			Other Material Handling Equipment	1	6	11/8/2021	12/13/2021	26
			Tractor/Loader/Backhoe	1	4	11/8/2021	12/13/2021	26
	Construction	5	Forklifts	1	6	12/13/2021	2/23/2022	53
			Other Construction Equipment	1	6	12/13/2021	2/23/2022	53
			Other Material Handling Equipment	1	6	12/13/2021	2/23/2022	53
			Tractor/Loader/Backhoe	1	4	12/13/2021	2/23/2022	53
Sanitary and Potable Water Utility Service Upgrade						3/1/2022	5/31/2022	66
Sanitary and Potable Water Utility Service Upgrade	Demolition	3	Forklifts	1	6	3/1/2022	3/22/2022	16
			Other Construction Equipment	1	6	3/1/2022	3/22/2022	16
			Other Material Handling Equipment	1	6	3/1/2022	3/22/2022	16
			Tractor/Loader/Backhoe	1	4	3/1/2022	3/22/2022	16
	Construction	3	Forklifts	1	6	3/22/2022	5/31/2022	51
			Other Construction Equipment	1	6	3/22/2022	5/31/2022	51
			Other Material Handling Equipment	1	6	3/22/2022	5/31/2022	51
			Tractor/Loader/Backhoe	1	4	3/22/2022	5/31/2022	51

Attachment 1
BAE Construction Vessel Activity

BAE Construction - Marine Sources - 50/50 Scenario

Project Element	Phase		Equipment	Number of Pieces Used	Hours per day		Days
					Main	Aux	
PE1 - Pride of San Diego (POSD) Drydock Dredging and Moorage	Dredge Sump at New Layout / Alignment	Trenching (Dredging)	Dredge	1	4	18	38
			Scow/Barge	3	0	1	38
			Tug Boat (Ocean)	1	7.5	16.5	38
			Survey Vessel	1	2	6	38
	Demolish Existing Dolphin Structures	Demolition	Tug boat (small push knee)	1	2	4	23
	Construct New Dolphin Structures	Construction	Tug boat (small push knee)	1	1	2	37
PE2 - Pride of San Diego (POSD) Wharf Replacement and Realignment	POSD Wharf Replacement/Realignment	Demolition	Tug boat (small push knee)	1	1	2	23
		Construction	Tug boat (small push knee)	1	1	2	41
PE4 - Pier 3 South Nearshore Dredging	Pier 3 Near Shore Dredging	Trenching (Dredging)	Dredge	1	4	18	69
			Scow/Barge	2	0	1	3
			Tug boat (small push knee)	1	2	4	69
			Tug Boat (Ocean)	1	5	11	3
			Survey Vessel	1	2	6	69
PE5 - Pier 3 Mooring Dolphin	Pier 3 Mooring Dolphin	Construction	Matl Barge	1	-	-	32
			Tug boat (small push knee)	1	1	2	69
PE6 - Pier 3 North Lunchroom Wharf Replacement and Realignment	Pier 3 North Lunchroom Wharf Replacement Demolition	Demolition	Tug boat (small push knee)	1	1	2	11
	Pier 3 North Lunchroom Wharf Replacement Construction	Construction	Tug boat (small push knee)	1	1	2	69
PE7 - Quay Wall Modifications	Quay Wall Modifications (Dredging/Rock Removal)	Excavation	Tug boat (small push knee)	1	2	4	14
			Survey Vessel	1	1	2	14
	Quay Wall Modifications (Pile Driving Op)	Construction	Tug boat (small push knee)	1	1	2	14
PE8 - Port Security Barrier Replacement	Port Security Barrier (PSB) Replacement	Demolition	Tug boat (small push knee)	1	4	8	11
		Construction	Tug boat (small push knee)	1	2	4	35
PE3 - Fender System Repair and Replacement	Fender Repair and Replacement	Construction	Tug boat (small push knee)	1	2	4	23
	Fender System New Construction	Construction	Tug boat (small push knee)	1	2	4	23
	Fender System Maintenance & Replacement	Construction	Tug boat (small push knee)	1	2	4	35

BAE Construction - Marine Sources - All Truck Scenario

Project Element	Phase		Equipment	Number of Pieces Used	Hours per day		Days
					Main	Aux	
PE1 - Pride of San Diego (POSD) Drydock Dredging and Moorage	Dredge Sump at New Layout / Alignment	Trenching (Dredging)	Dredge	1	4	18	38
			Scow/Barge	3	0	1	38
			Tug Boat (Ocean)	1	7.5	16.5	38
			Survey Vessel	1	2	6	38
	Demolish Existing Dolphin Structures	Demolition	Tug boat (small push knee)	1	2	4	23
	Construct New Dolphin Structures	Construction	Tug boat (small push knee)	1	1	2	37
PE2 - Pride of San Diego (POSD) Wharf Replacement and Realignment	POSD Wharf Replacement/Realignment	Demolition	Tug boat (small push knee)	1	1	2	23
		Construction	Tug boat (small push knee)	1	1	2	41
PE4 - Pier 3 South Nearshore Dredging	Pier 3 Near Shore Dredging	Trenching (Dredging)	Dredge	1	4	18	69
			Scow/Barge	0	0	0	3
			Tug boat (small push knee)	1	2	4	69
			Tug Boat (Ocean)	0	0	0	3
			Survey Vessel	1	2	6	69
PE5 - Pier 3 Mooring Dolphin	Pier 3 Mooring Dolphin	Construction	Matl Barge	1	-	-	32
			Tug boat (small push knee)	1	1	2	69
PE6 - Pier 3 North Lunchroom Wharf Replacement and Realignment	Pier 3 North Lunchroom Wharf Replacement Demolition	Demolition	Tug boat (small push knee)	1	1	2	11
	Pier 3 North Lunchroom Wharf Replacement Construction	Construction	Tug boat (small push knee)	1	1	2	69
PE7 - Quay Wall Modifications	Quay Wall Modifications (Dredging/Rock Removal)	Excavation	Tug boat (small push knee)	1	2	4	14
			Survey Vessel	1	1	2	14
	Quay Wall Modifications (Pile Driving Op)	Construction	Tug boat (small push knee)	1	1	2	14
PE8 - Port Security Barrier Replacement	Port Security Barrier (PSB) Replacement	Demolition	Tug boat (small push knee)	1	4	8	11
		Construction	Tug boat (small push knee)	1	2	4	35
PE3 - Fender System Repair and Replacement	Fender Repair and Replacement	Construction	Tug boat (small push knee)	1	2	4	23
	Fender System New Construction	Construction	Tug boat (small push knee)	1	2	4	23
	Fender System Maintenance & Replacement	Construction	Tug boat (small push knee)	1	2	4	35

denotes change between 50/50 and all truck - no tug and scow needed for all truck

Attachment 2

Air Quality and Greenhouse Gas

Modeling Outputs

Construction

Modeling Outputs

Construction Schedule

Phase	Description	Activity	Code	Start Date	End Date	Working Days	Days/Week	2020	2021	2022	2023	2024
1	Pride of San Diego Drydock Dredging and Moorage Replacement		Phase1	6/22/2020	9/30/2020	83	5/7	**83**				
1	Pride of San Diego Drydock Dredging	Trenching (Dredging)	Phase1a	7/6/2020	8/13/2020	38	7	38				
1	Pride of San Diego Drydock Dredging (Material Offload and Upland Disposal)	Trenching (Dredging)	Phase1b	7/23/2020	8/4/2020	12	7	12				
1	Pride of San Diego Drydock Dolphin Demolition	Demolition	Phase1c	6/22/2020	7/22/2020	23	5	23				
1	Pride of San Diego Drydock Dolphin Construction	Building (Construction)	Phase1d	8/11/2020	9/30/2020	37	5	37				
1	Pride of San Diego Drydock Dolphin Construction (Pile Driving Op)	Construction (Pile Driving)	Phase1e	8/11/2020	8/21/2020	9	5	9				
2	Pride of San Diego Drydock Wharf Replacement and Realignment		Phase2	6/1/2020	9/29/2020	64	5	64				
2	Pride of San Diego Drydock Wharf Demolition	Demolition	Phase2a	6/1/2020	7/1/2020	23	5	23				
2	Pride of San Diego Drydock Wharf Construction	Building (Construction)	Phase2b	8/4/2020	9/29/2020	41	5	41				
2	Pride of San Diego Drydock Wharf Construction (Pile Driving Op)	Construction (Pile Driving)	Phase2c	8/4/2020	8/19/2020	12	5	12				
3	Fender System Repair and Replacement		Phase3	3/24/2020	5/21/2021	52	5	52				
3	Fender Repair and Replacement	Building (Construction)	Phase3a	3/24/2020	4/17/2020	19	5	19				
3	Fender System New Construction	Building (Construction)	Phase3b	11/6/2020	12/22/2020	33	5	33				
3	Fender System Maintenance & Replacement	Building (Construction)	Phase3c	4/5/2021	5/21/2021	35	5		35			
4	Pier 3 South Nearshore Dredging		Phase4	6/1/2022	8/9/2022	69	7			69		
4	Pier 3 South Nearshore Dredging	Trenching (Dredging)	Phase4a	6/1/2022	8/9/2022	69	7			69		
5	Pier 3 Mooring Dolphin		Phase5	8/10/2022	9/22/2022	32	5			32		
5	Pier 3 Mooring Dolphin Construction	Building (Construction)	Phase5a	8/10/2022	9/22/2022	32	5			32		
5	Pier 3 Mooring Dolphin Construction (Pile Driving Op)	Construction (Pile Driving)	Phase5b	8/10/2022	8/13/2022	3	5			3		
6	Pier 3 Lunchroom Wharf Replacement and Realignment		Phase6	6/14/2021	9/30/2021	79	5		79			
6	Pier 3 North Lunchroom Wharf Replacement Demolition	Demolition	Phase6a	6/14/2021	6/30/2021	13	5		13			
6	Pier 3 North Lunchroom Wharf Replacement Construction	Building (Construction)	Phase6b	6/30/2021	9/30/2021	67	5		67			
6	Pier 3 North Lunchroom Wharf Replacement Construction (Pile Driving Op)	Construction (Pile Driving)	Phase6c	6/28/2021	7/13/2021	12	5		12			
7	Quay Wall Modifications		Phase7	10/5/2020	11/5/2020	24	5	24				
7	Quay Wall Modifications (Dredging/Rock Removal)	Trenching (Dredging)	Phase7a	10/19/2020	11/5/2020	14	5	14				
7	Quay Wall Modifications (Pile Driving Op)	Construction (Pile Driving)	Phase7b	10/5/2020	10/19/2020	11	5	11				
8	Port Security Barrier Replacement		Phase8	2/1/2021	4/2/2021	45	5		45			
8	Port Security Barrier Demolition	Demolition	Phase8a	2/1/2021	2/15/2021	11	5		11			
8	Port Security Barrier Construction	Building (Construction)	Phase8b	2/15/2021	4/2/2021	35	5		35			
9	Small Boat Mooring Float Replacement		Phase9	4/21/2020	5/22/2020	24	5	24				
9	Small Boat Mooring Float Replacement Demolition	Demolition	Phase9a	4/21/2020	4/28/2020	6	5	6				
9	Small Boat Mooring Float Replacement Construction	Building (Construction)	Phase9b	4/28/2020	5/22/2020	19	5	19				
9	Small Boat Mooring Float Replacement Construction (Pile Driving Op)	Construction (Pile Driving)	Phase9c	4/28/2020	4/29/2020	2	5	2				
10	Central Tool Room Demolition and Replacement		Phase10	6/1/2024	12/31/2024	152	5					152
10	Central Tool Room Demolition and Reconstruction Demolition	Demolition	Phase10a	6/1/2024	6/22/2024	15	5					15
10	Central Tool Room Demolition and Reconstruction Construction	Building (Construction)	Phase10b	6/22/2024	12/31/2024	137	5					137
11	New Production Building		Phase11	10/14/2022	7/21/2023	201	5			56	145	
11	New Production Building Demolition	Demolition	Phase11a	10/14/2022	10/21/2022	6	5			6		
11	New Production Building Construction	Building (Construction)	Phase11b	10/21/2022	7/21/2023	196	5			51	145	
12	Administration Office Building		Phase12	8/1/2023	5/14/2024	206	5				109	97
12	Administrative Office Building Demolition	Demolition	Phase12a	8/1/2023	9/12/2023	31	5				31	
12	Administrative Office Building Construction	Building (Construction)	Phase12b	9/12/2023	5/14/2024	176	5				79	97
13	Pier 1 Restroom Renovation and/or Demolition		Phase13	3/1/2024	4/1/2024	22	5					22
13	Pier 1 Restroom Renovation and/or Demolition	Demolition	Phase13a	3/1/2024	4/1/2024	22	5					22
14	Main Electrical Utility Service Update		Phase14	11/8/2021	2/23/2022	78	5		78			
14	Main Electrical Utility Service Update Demolition	Demolition	Phase14a	11/8/2021	12/13/2021	26	5		26			
14	Main Electrical Utility Service Update Construction	Building (Construction)	Phase14b	12/13/2021	2/23/2022	53	5		15	38		
15	Sanitary Sewer and Potable Water Utility Services		Phase15	3/1/2022	5/31/2022	66	5			66		
15	Sanitary Sewer and Potable Water Utility Services Demolition	Demolition	Phase15a	3/1/2022	3/22/2022	16	5			16		
15	Sanitary Sewer and Potable Water Utility Services Construction	Building (Construction)	Phase15b	3/22/2022	5/31/2022	51	5			51		

Construction Equipment Emission Factors - CY 2020

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Excavators	2020	250	0.18	2.03	1.12	0.06	0.06	0.01	471.88	0.15	0.01
Excavators	2020	500	0.15	1.57	1.10	0.05	0.05	0.01	470.30	0.15	0.01
Excavators	2020	750	0.17	1.80	1.15	0.06	0.06	0.01	468.87	0.15	0.01
Forklifts	2020	50	1.12	4.69	5.71	0.36	0.33	0.01	525.48	0.17	0.01
Forklifts	2020	120	0.46	4.13	3.76	0.31	0.28	0.01	471.53	0.15	0.01
Forklifts	2020	175	0.34	3.32	3.25	0.18	0.17	0.01	472.11	0.15	0.01
Forklifts	2020	250	0.29	3.24	1.44	0.13	0.12	0.01	473.33	0.15	0.01
Forklifts	2020	500	0.25	2.44	1.48	0.10	0.09	0.01	473.62	0.15	0.01
Generator Sets	2020	15	0.65	4.52	3.55	0.21	0.21	0.01	568.30	0.06	0.01
Generator Sets	2020	25	0.72	4.54	2.47	0.21	0.21	0.01	568.30	0.07	0.01
Generator Sets	2020	50	0.69	4.08	4.00	0.19	0.19	0.01	568.30	0.06	0.01
Generator Sets	2020	120	0.36	3.17	3.38	0.18	0.18	0.01	568.30	0.03	0.01
Generator Sets	2020	175	0.27	2.38	2.93	0.11	0.11	0.01	568.30	0.02	0.01
Generator Sets	2020	250	0.20	2.02	1.03	0.06	0.06	0.01	568.30	0.02	0.01
Generator Sets	2020	500	0.19	1.82	1.01	0.06	0.06	0.01	568.30	0.02	0.01
Generator Sets	2020	750	0.19	1.86	1.01	0.06	0.06	0.01	568.30	0.02	0.01
Generator Sets	2020	9999	0.24	3.61	1.08	0.08	0.08	0.01	568.30	0.02	0.01
Graders	2020	50	2.52	5.83	8.13	0.71	0.65	0.01	492.86	0.16	0.01
Graders	2020	120	0.98	7.73	4.56	0.62	0.57	0.01	469.34	0.15	0.01
Graders	2020	175	0.57	5.53	3.62	0.31	0.28	0.01	478.04	0.16	0.01
Graders	2020	250	0.35	4.68	1.34	0.15	0.14	0.01	475.30	0.15	0.01
Graders	2020	500	0.32	3.11	1.53	0.12	0.11	0.01	471.98	0.15	0.01
Graders	2020	750	0.32	2.03	1.23	0.07	0.07	0.01	568.30	0.03	0.01
Off-Highway Tractors	2020	120	0.45	4.18	3.79	0.31	0.28	0.01	474.15	0.15	0.01
Off-Highway Tractors	2020	175	0.27	2.89	3.22	0.14	0.13	0.01	472.92	0.15	0.01
Off-Highway Tractors	2020	250	0.22	2.58	1.18	0.09	0.08	0.01	470.94	0.15	0.01
Off-Highway Tractors	2020	750	0.20	2.05	1.13	0.08	0.07	0.01	471.82	0.15	0.01
Off-Highway Tractors	2020	1000	0.15	2.40	1.02	0.06	0.06	0.01	472.05	0.15	0.01
Off-Highway Trucks	2020	175	0.31	2.63	3.34	0.14	0.13	0.01	470.10	0.15	0.01
Off-Highway Trucks	2020	250	0.28	2.51	1.39	0.10	0.09	0.01	470.17	0.15	0.01
Off-Highway Trucks	2020	500	0.25	2.35	1.41	0.09	0.08	0.01	474.58	0.15	0.01
Off-Highway Trucks	2020	750	0.31	3.06	2.03	0.12	0.11	0.01	472.75	0.15	0.01
Off-Highway Trucks	2020	1000	0.30	4.79	1.37	0.13	0.12	0.01	469.89	0.15	0.01
Other Construction Equipment	2020	15	1.07	5.04	5.40	0.41	0.37	0.01	527.97	0.17	0.01
Other Construction Equipment	2020	25	1.07	5.04	5.40	0.41	0.37	0.01	527.97	0.17	0.01
Other Construction Equipment	2020	50	1.07	5.04	5.40	0.41	0.37	0.01	527.97	0.17	0.01
Other Construction Equipment	2020	120	0.52	4.77	3.73	0.35	0.33	0.01	472.22	0.15	0.01
Other Construction Equipment	2020	175	0.39	4.11	3.24	0.22	0.20	0.01	469.98	0.15	0.01
Other Construction Equipment	2020	500	0.22	2.64	1.63	0.10	0.09	0.01	475.23	0.15	0.01
Other General Industrial Equipment	2020	15	0.95	4.62	5.50	0.33	0.31	0.01	526.18	0.17	0.01
Other General Industrial Equipment	2020	25	0.95	4.62	5.50	0.33	0.31	0.01	526.18	0.17	0.01
Other General Industrial Equipment	2020	50	0.95	4.62	5.50	0.33	0.31	0.01	526.18	0.17	0.01
Other General Industrial Equipment	2020	120	0.45	4.06	3.77	0.30	0.27	0.01	470.00	0.15	0.01
Other General Industrial Equipment	2020	175	0.27	2.58	3.23	0.14	0.12	0.01	471.85	0.15	0.01
Other General Industrial Equipment	2020	250	0.24	2.67	1.24	0.09	0.08	0.01	473.22	0.15	0.01
Other General Industrial Equipment	2020	500	0.21	2.06	1.34	0.07	0.07	0.01	472.93	0.15	0.01
Other General Industrial Equipment	2020	750	0.18	1.68	1.46	0.06	0.06	0.01	473.46	0.15	0.01
Other General Industrial Equipment	2020	1000	0.27	4.86	1.09	0.12	0.11	0.01	472.05	0.15	0.01
Other Material Handling Equipment	2020	50	1.25	5.14	6.17	0.44	0.40	0.01	523.71	0.17	0.01
Other Material Handling Equipment	2020	120	0.31	3.10	3.59	0.18	0.17	0.01	473.59	0.15	0.01
Other Material Handling Equipment	2020	175	0.25	2.37	3.17	0.12	0.11	0.01	472.22	0.15	0.01
Other Material Handling Equipment	2020	250	0.29	3.60	1.32	0.12	0.11	0.01	471.48	0.15	0.01
Other Material Handling Equipment	2020	500	0.28	3.21	1.52	0.12	0.11	0.01	470.30	0.15	0.01
Other Material Handling Equipment	2020	9999	0.20	3.61	1.05	0.08	0.07	0.01	472.05	0.15	0.01
Pavers	2020	25	1.32	4.76	5.52	0.40	0.37	0.01	526.21	0.17	0.01
Pavers	2020	50	1.32	4.76	5.52	0.40	0.37	0.01	526.21	0.17	0.01

Construction Equipment Emission Factors - CY 2020

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Pavers	2020	120	0.47	4.43	3.60	0.33	0.30	0.01	469.88	0.15	0.01
Pavers	2020	175	0.27	2.92	3.01	0.14	0.13	0.01	472.77	0.15	0.01
Pavers	2020	250	0.18	2.78	1.03	0.08	0.07	0.01	472.83	0.15	0.01
Pavers	2020	500	0.17	2.13	0.99	0.08	0.07	0.01	466.21	0.15	0.01
Paving Equipment	2020	25	0.62	3.95	4.22	0.22	0.20	0.01	520.12	0.17	0.01
Paving Equipment	2020	50	0.62	3.95	4.22	0.22	0.20	0.01	520.12	0.17	0.01
Paving Equipment	2020	120	0.40	3.78	3.58	0.26	0.24	0.01	473.32	0.15	0.01
Paving Equipment	2020	175	0.25	2.55	3.02	0.13	0.12	0.01	470.74	0.15	0.01
Paving Equipment	2020	250	0.24	3.22	1.25	0.11	0.10	0.01	472.15	0.15	0.01
Plate Compactors	2020	15	0.66	4.14	3.47	0.16	0.16	0.01	568.30	0.06	0.01
Pressure Washers	2020	15	0.65	4.52	3.55	0.21	0.21	0.01	568.30	0.06	0.01
Pressure Washers	2020	25	0.72	4.54	2.47	0.21	0.21	0.01	568.30	0.07	0.01
Pressure Washers	2020	50	0.50	3.92	3.39	0.16	0.16	0.01	568.30	0.05	0.01
Pressure Washers	2020	120	0.30	3.04	3.23	0.15	0.15	0.01	568.30	0.03	0.01
Pressure Washers	2020	175	0.26	2.38	2.91	0.10	0.10	0.01	568.30	0.02	0.01
Pressure Washers	2020	250	0.10	0.27	0.99	0.01	0.01	0.01	568.30	0.01	0.01
Pumps	2020	15	0.73	4.54	3.55	0.23	0.23	0.01	568.30	0.07	0.01
Pumps	2020	25	0.77	4.54	2.47	0.21	0.21	0.01	568.30	0.07	0.01
Pumps	2020	50	0.76	4.13	4.20	0.21	0.21	0.01	568.30	0.07	0.01
Pumps	2020	120	0.39	3.22	3.43	0.19	0.19	0.01	568.30	0.03	0.01
Pumps	2020	175	0.29	2.42	2.97	0.11	0.11	0.01	568.30	0.03	0.01
Pumps	2020	250	0.21	2.05	1.04	0.06	0.06	0.01	568.30	0.02	0.01
Pumps	2020	500	0.20	1.84	1.02	0.06	0.06	0.01	568.30	0.02	0.01
Pumps	2020	750	0.21	1.88	1.02	0.06	0.06	0.01	568.30	0.02	0.01
Pumps	2020	9999	0.26	3.65	1.10	0.08	0.08	0.01	568.30	0.02	0.01
Rollers	2020	15	0.93	4.53	4.73	0.33	0.30	0.01	525.88	0.17	0.01
Rollers	2020	25	0.93	4.53	4.73	0.33	0.30	0.01	525.88	0.17	0.01
Rollers	2020	50	0.93	4.53	4.73	0.33	0.30	0.01	525.88	0.17	0.01
Rollers	2020	120	0.39	3.88	3.53	0.25	0.23	0.01	473.86	0.15	0.01
Rollers	2020	175	0.22	2.45	2.93	0.11	0.10	0.01	471.92	0.15	0.01
Rollers	2020	250	0.21	2.75	1.25	0.09	0.08	0.01	473.37	0.15	0.01
Rollers	2020	500	0.24	2.83	2.11	0.11	0.10	0.01	479.33	0.16	0.01
Rough Terrain Forklifts	2020	50	1.00	4.49	4.69	0.32	0.29	0.01	525.62	0.17	0.01
Rough Terrain Forklifts	2020	120	0.19	2.45	3.26	0.10	0.09	0.01	472.98	0.15	0.01
Rough Terrain Forklifts	2020	175	0.14	1.87	2.84	0.07	0.06	0.01	471.72	0.15	0.01
Rough Terrain Forklifts	2020	250	0.11	1.61	0.98	0.04	0.03	0.01	472.57	0.15	0.01
Rough Terrain Forklifts	2020	500	0.09	1.30	0.94	0.03	0.03	0.01	465.77	0.15	0.01
Rubber Tired Dozers	2020	175	0.73	7.19	3.89	0.41	0.38	0.01	473.01	0.15	0.01
Rubber Tired Dozers	2020	250	0.62	6.50	2.37	0.32	0.29	0.01	474.79	0.15	0.01
Rubber Tired Dozers	2020	500	0.54	5.64	4.41	0.26	0.24	0.01	479.76	0.16	0.01
Rubber Tired Dozers	2020	750	0.46	6.12	2.60	0.22	0.20	0.01	473.06	0.15	0.01
Rubber Tired Dozers	2020	1000	0.52	5.31	2.16	0.16	0.16	0.01	568.30	0.05	0.01
Rubber Tired Loaders	2020	25	1.48	5.25	6.77	0.47	0.44	0.01	524.70	0.17	0.01
Rubber Tired Loaders	2020	50	1.48	5.25	6.77	0.47	0.44	0.01	524.70	0.17	0.01
Rubber Tired Loaders	2020	120	0.56	4.69	3.95	0.37	0.34	0.01	465.67	0.15	0.01
Rubber Tired Loaders	2020	175	0.38	3.52	3.37	0.19	0.18	0.01	471.21	0.15	0.01
Rubber Tired Loaders	2020	250	0.29	3.42	1.27	0.11	0.10	0.01	469.51	0.15	0.01
Rubber Tired Loaders	2020	500	0.29	3.02	1.63	0.11	0.10	0.01	466.78	0.15	0.01
Rubber Tired Loaders	2020	750	0.28	2.77	1.40	0.11	0.10	0.01	462.19	0.15	0.01
Rubber Tired Loaders	2020	1000	0.31	5.25	1.20	0.14	0.13	0.01	469.94	0.15	0.01
Scrapers	2020	120	0.70	6.68	4.20	0.51	0.47	0.01	483.75	0.16	0.01
Scrapers	2020	175	0.48	4.87	3.50	0.26	0.24	0.01	478.61	0.16	0.01
Scrapers	2020	250	0.45	5.09	2.06	0.22	0.21	0.01	468.99	0.15	0.01
Scrapers	2020	500	0.32	3.78	2.40	0.15	0.14	0.01	472.18	0.15	0.01
Scrapers	2020	750	0.26	3.13	1.73	0.11	0.10	0.01	471.78	0.15	0.01
Signal Boards	2020	15	0.66	4.14	3.47	0.16	0.16	0.01	568.30	0.06	0.01

Construction Equipment Emission Factors - CY 2020

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Aerial Lifts	2020	15	0.17	2.95	3.10	0.03	0.03	0.01	525.07	0.17	0.01
Aerial Lifts	2020	25	0.17	2.95	3.10	0.03	0.03	0.01	525.07	0.17	0.01
Aerial Lifts	2020	50	0.17	2.95	3.10	0.03	0.03	0.01	525.07	0.17	0.01
Aerial Lifts	2020	120	0.12	1.87	3.18	0.04	0.04	0.01	472.11	0.15	0.01
Aerial Lifts	2020	500	0.07	0.64	0.95	0.01	0.01	0.01	472.05	0.15	0.01
Aerial Lifts	2020	750	0.20	1.87	1.01	0.06	0.06	0.01	568.30	0.02	0.01
Air Compressors	2020	15	0.73	4.54	3.55	0.23	0.23	0.01	568.30	0.07	0.01
Air Compressors	2020	25	0.77	4.54	2.47	0.21	0.21	0.01	568.30	0.07	0.01
Air Compressors	2020	50	1.00	4.40	5.16	0.25	0.25	0.01	568.30	0.09	0.01
Air Compressors	2020	120	0.49	3.40	3.70	0.22	0.22	0.01	568.30	0.04	0.01
Air Compressors	2020	175	0.37	2.56	3.20	0.13	0.13	0.01	568.30	0.03	0.01
Air Compressors	2020	250	0.29	2.17	1.12	0.07	0.07	0.01	568.30	0.03	0.01
Air Compressors	2020	500	0.28	1.94	1.08	0.07	0.07	0.01	568.30	0.03	0.01
Air Compressors	2020	750	0.28	1.98	1.08	0.07	0.07	0.01	568.30	0.03	0.01
Air Compressors	2020	1000	0.31	3.83	1.16	0.09	0.09	0.01	568.30	0.03	0.01
Bore/Drill Rigs	2020	15	0.72	4.65	4.51	0.29	0.27	0.01	535.29	0.17	0.01
Bore/Drill Rigs	2020	25	0.72	4.65	4.51	0.29	0.27	0.01	535.29	0.17	0.01
Bore/Drill Rigs	2020	50	0.72	4.65	4.51	0.29	0.27	0.01	535.29	0.17	0.01
Bore/Drill Rigs	2020	120	0.25	3.07	3.32	0.16	0.15	0.01	463.58	0.15	0.01
Bore/Drill Rigs	2020	175	0.17	1.87	2.97	0.08	0.08	0.01	477.72	0.16	0.01
Bore/Drill Rigs	2020	250	0.14	1.81	1.07	0.05	0.05	0.01	466.83	0.15	0.01
Bore/Drill Rigs	2020	500	0.13	1.41	1.01	0.05	0.04	0.01	466.82	0.15	0.01
Bore/Drill Rigs	2020	750	0.11	1.23	0.97	0.04	0.04	0.01	473.67	0.15	0.01
Bore/Drill Rigs	2020	1000	0.13	3.05	0.99	0.06	0.06	0.01	471.85	0.15	0.01
Cement and Mortar Mixers	2020	15	0.66	4.14	3.47	0.16	0.16	0.01	568.30	0.06	0.01
Cement and Mortar Mixers	2020	25	0.72	4.44	2.40	0.19	0.19	0.01	568.30	0.07	0.01
Concrete/Industrial Saws	2020	25	0.69	4.33	2.34	0.16	0.16	0.01	568.30	0.06	0.01
Concrete/Industrial Saws	2020	50	0.80	4.20	4.55	0.21	0.21	0.01	568.30	0.07	0.01
Concrete/Industrial Saws	2020	120	0.40	3.16	3.54	0.19	0.19	0.01	568.30	0.04	0.01
Concrete/Industrial Saws	2020	175	0.31	2.32	3.07	0.11	0.11	0.01	568.30	0.03	0.01
Cranes	2020	50	2.08	5.98	7.38	0.62	0.57	0.01	517.93	0.17	0.01
Cranes	2020	120	0.73	6.38	4.17	0.45	0.42	0.01	469.88	0.15	0.01
Cranes	2020	175	0.54	5.57	3.56	0.30	0.27	0.01	474.59	0.15	0.01
Cranes	2020	250	0.38	4.56	1.79	0.19	0.17	0.01	472.95	0.15	0.01
Cranes	2020	500	0.32	3.86	2.66	0.16	0.14	0.01	472.56	0.15	0.01
Cranes	2020	750	0.24	3.10	1.44	0.12	0.11	0.01	470.43	0.15	0.01
Cranes	2020	9999	0.18	2.36	1.00	0.06	0.06	0.01	472.05	0.15	0.01
Crawler Tractors	2020	50	2.05	5.64	7.30	0.59	0.54	0.01	515.68	0.17	0.01
Crawler Tractors	2020	120	0.72	6.01	4.04	0.50	0.46	0.01	476.33	0.15	0.01
Crawler Tractors	2020	175	0.48	4.87	3.34	0.27	0.25	0.01	471.02	0.15	0.01
Crawler Tractors	2020	250	0.36	4.63	1.55	0.18	0.16	0.01	472.94	0.15	0.01
Crawler Tractors	2020	500	0.30	3.62	2.09	0.14	0.13	0.01	475.23	0.15	0.01
Crawler Tractors	2020	750	0.26	3.14	1.31	0.12	0.11	0.01	473.31	0.15	0.01
Crawler Tractors	2020	1000	0.46	7.24	2.03	0.21	0.20	0.01	475.65	0.15	0.01
Crushing/Proc. Equipment	2020	50	0.95	4.35	5.21	0.23	0.23	0.01	568.30	0.09	0.01
Crushing/Proc. Equipment	2020	120	0.47	3.25	3.72	0.21	0.21	0.01	568.30	0.04	0.01
Crushing/Proc. Equipment	2020	175	0.37	2.39	3.23	0.12	0.12	0.01	568.30	0.03	0.01
Crushing/Proc. Equipment	2020	250	0.29	2.01	1.13	0.07	0.07	0.01	568.30	0.03	0.01
Crushing/Proc. Equipment	2020	500	0.28	1.80	1.08	0.06	0.06	0.01	568.30	0.03	0.01
Crushing/Proc. Equipment	2020	750	0.28	1.84	1.08	0.06	0.06	0.01	568.30	0.03	0.01
Crushing/Proc. Equipment	2020	9999	0.33	3.70	1.15	0.09	0.09	0.01	568.30	0.03	0.01
Dumpers/Tenders	2020	25	0.69	4.34	2.34	0.17	0.17	0.01	568.30	0.06	0.01
Excavators	2020	25	0.59	4.03	4.50	0.22	0.20	0.01	525.37	0.17	0.01
Excavators	2020	50	0.59	4.03	4.50	0.22	0.20	0.01	525.37	0.17	0.01
Excavators	2020	120	0.30	3.09	3.50	0.19	0.17	0.01	468.05	0.15	0.01
Excavators	2020	175	0.23	2.28	3.09	0.11	0.10	0.01	472.29	0.15	0.01

Construction Equipment Emission Factors - CY 2020

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Signal Boards	2020	50	0.79	4.13	4.45	0.21	0.21	0.01	568.30	0.07	0.01
Signal Boards	2020	120	0.40	3.13	3.50	0.19	0.19	0.01	568.30	0.04	0.01
Signal Boards	2020	175	0.30	2.31	3.04	0.11	0.11	0.01	568.30	0.03	0.01
Signal Boards	2020	250	0.27	2.35	1.28	0.07	0.07	0.01	686.70	0.02	0.02
Skid Steer Loaders	2020	25	0.44	3.69	3.76	0.15	0.13	0.01	527.76	0.17	0.01
Skid Steer Loaders	2020	50	0.44	3.69	3.76	0.15	0.13	0.01	527.76	0.17	0.01
Skid Steer Loaders	2020	120	0.19	2.50	3.28	0.11	0.10	0.01	471.91	0.15	0.01
Surfacing Equipment	2020	50	0.54	4.24	3.93	0.22	0.20	0.01	535.53	0.17	0.01
Surfacing Equipment	2020	120	0.33	3.61	3.44	0.21	0.19	0.01	473.82	0.15	0.01
Surfacing Equipment	2020	175	0.31	3.67	2.93	0.18	0.16	0.01	469.21	0.15	0.01
Surfacing Equipment	2020	250	0.21	3.22	1.22	0.10	0.09	0.01	476.43	0.15	0.01
Surfacing Equipment	2020	500	0.15	1.84	1.22	0.07	0.06	0.01	471.63	0.15	0.01
Surfacing Equipment	2020	750	0.14	2.09	1.00	0.07	0.07	0.01	469.63	0.15	0.01
Sweepers/Scrubbers	2020	15	1.34	5.10	6.16	0.46	0.43	0.01	525.33	0.17	0.01
Sweepers/Scrubbers	2020	25	1.34	5.10	6.16	0.46	0.43	0.01	525.33	0.17	0.01
Sweepers/Scrubbers	2020	50	1.34	5.10	6.16	0.46	0.43	0.01	525.33	0.17	0.01
Sweepers/Scrubbers	2020	120	0.52	4.48	3.83	0.36	0.33	0.01	474.12	0.15	0.01
Sweepers/Scrubbers	2020	175	0.46	4.61	3.36	0.24	0.22	0.01	473.12	0.15	0.01
Sweepers/Scrubbers	2020	250	0.21	2.49	1.14	0.08	0.07	0.01	470.13	0.15	0.01
Tractors/Loaders/Backhoes	2020	25	0.83	4.40	5.03	0.29	0.27	0.01	515.87	0.17	0.01
Tractors/Loaders/Backhoes	2020	50	0.83	4.40	5.03	0.29	0.27	0.01	515.87	0.17	0.01
Tractors/Loaders/Backhoes	2020	120	0.33	3.33	3.60	0.21	0.19	0.01	475.15	0.15	0.01
Tractors/Loaders/Backhoes	2020	175	0.25	2.41	3.11	0.12	0.11	0.01	467.51	0.15	0.01
Tractors/Loaders/Backhoes	2020	250	0.23	2.74	1.20	0.09	0.08	0.01	470.50	0.15	0.01
Tractors/Loaders/Backhoes	2020	500	0.19	2.08	1.36	0.07	0.07	0.01	468.24	0.15	0.01
Tractors/Loaders/Backhoes	2020	750	0.27	3.12	1.61	0.12	0.11	0.01	468.66	0.15	0.01
Trenchers	2020	15	0.91	4.68	4.83	0.36	0.33	0.01	527.10	0.17	0.01
Trenchers	2020	25	0.91	4.68	4.83	0.36	0.33	0.01	527.10	0.17	0.01
Trenchers	2020	50	0.91	4.68	4.83	0.36	0.33	0.01	527.10	0.17	0.01
Trenchers	2020	120	0.61	5.52	3.83	0.41	0.38	0.01	475.13	0.15	0.01
Trenchers	2020	175	0.42	4.46	3.33	0.23	0.21	0.01	467.73	0.15	0.01
Trenchers	2020	250	0.39	4.81	1.77	0.20	0.18	0.01	473.60	0.15	0.01
Trenchers	2020	500	0.23	2.78	1.86	0.11	0.10	0.01	470.64	0.15	0.01
Trenchers	2020	750	0.07	0.56	0.95	0.01	0.01	0.01	472.66	0.15	0.01
Welders	2020	15	0.73	4.54	3.55	0.23	0.23	0.01	568.30	0.07	0.01
Welders	2020	25	0.77	4.54	2.47	0.21	0.21	0.01	568.30	0.07	0.01
Welders	2020	50	0.94	4.30	4.84	0.24	0.24	0.01	568.30	0.08	0.01
Welders	2020	120	0.46	3.35	3.61	0.22	0.22	0.01	568.30	0.04	0.01
Welders	2020	175	0.34	2.52	3.12	0.13	0.13	0.01	568.30	0.03	0.01
Welders	2020	250	0.26	2.14	1.09	0.07	0.07	0.01	568.30	0.02	0.01
Welders	2020	500	0.25	1.91	1.06	0.06	0.06	0.01	568.30	0.02	0.01

Construction Equipment Emission Factors - CY 2021

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Aerial Lifts	2021	15	0.17	2.92	3.11	0.03	0.02	0.01	525.07	0.17	0.01
Aerial Lifts	2021	25	0.17	2.92	3.11	0.03	0.02	0.01	525.07	0.17	0.01
Aerial Lifts	2021	50	0.17	2.92	3.11	0.03	0.02	0.01	525.07	0.17	0.01
Aerial Lifts	2021	120	0.11	1.74	3.18	0.03	0.03	0.01	472.11	0.15	0.01
Aerial Lifts	2021	500	0.07	0.64	0.95	0.01	0.01	0.01	472.05	0.15	0.01
Aerial Lifts	2021	750	0.19	1.61	1.00	0.05	0.05	0.01	568.30	0.02	0.01
Air Compressors	2021	15	0.72	4.46	3.53	0.21	0.21	0.01	568.30	0.06	0.01
Air Compressors	2021	25	0.75	4.50	2.45	0.20	0.20	0.01	568.30	0.07	0.01
Air Compressors	2021	50	0.89	4.22	5.02	0.21	0.21	0.01	568.30	0.08	0.01
Air Compressors	2021	120	0.44	3.08	3.67	0.19	0.19	0.01	568.30	0.04	0.01
Air Compressors	2021	175	0.34	2.22	3.19	0.12	0.12	0.01	568.30	0.03	0.01
Air Compressors	2021	250	0.27	1.86	1.11	0.06	0.06	0.01	568.30	0.02	0.01
Air Compressors	2021	500	0.26	1.66	1.06	0.06	0.06	0.01	568.30	0.02	0.01
Air Compressors	2021	750	0.26	1.70	1.06	0.06	0.06	0.01	568.30	0.02	0.01
Air Compressors	2021	1000	0.28	3.57	1.13	0.08	0.08	0.01	568.30	0.03	0.01
Bore/Drill Rigs	2021	15	0.71	4.63	4.55	0.29	0.27	0.01	535.38	0.17	0.01
Bore/Drill Rigs	2021	25	0.71	4.63	4.55	0.29	0.27	0.01	535.38	0.17	0.01
Bore/Drill Rigs	2021	50	0.71	4.63	4.55	0.29	0.27	0.01	535.38	0.17	0.01
Bore/Drill Rigs	2021	120	0.22	2.74	3.31	0.13	0.12	0.01	464.97	0.15	0.01
Bore/Drill Rigs	2021	175	0.15	1.60	2.96	0.07	0.06	0.01	477.05	0.15	0.01
Bore/Drill Rigs	2021	250	0.13	1.55	1.06	0.05	0.04	0.01	467.99	0.15	0.01
Bore/Drill Rigs	2021	500	0.12	1.22	1.01	0.04	0.04	0.01	469.82	0.15	0.01
Bore/Drill Rigs	2021	750	0.10	0.96	0.97	0.03	0.03	0.01	474.08	0.15	0.01
Bore/Drill Rigs	2021	1000	0.14	3.06	0.99	0.06	0.06	0.01	471.82	0.15	0.01
Cement and Mortar Mixers	2021	15	0.66	4.14	3.47	0.16	0.16	0.01	568.30	0.06	0.01
Cement and Mortar Mixers	2021	25	0.71	4.42	2.38	0.18	0.18	0.01	568.30	0.06	0.01
Concrete/Industrial Saws	2021	25	0.69	4.33	2.34	0.16	0.16	0.01	568.30	0.06	0.01
Concrete/Industrial Saws	2021	50	0.72	4.06	4.48	0.18	0.18	0.01	568.30	0.07	0.01
Concrete/Industrial Saws	2021	120	0.37	2.91	3.52	0.17	0.17	0.01	568.30	0.03	0.01
Concrete/Industrial Saws	2021	175	0.29	2.06	3.07	0.10	0.10	0.01	568.30	0.03	0.01
Cranes	2021	50	2.12	6.01	7.49	0.63	0.58	0.01	517.90	0.17	0.01
Cranes	2021	120	0.65	5.73	4.07	0.40	0.37	0.01	469.89	0.15	0.01
Cranes	2021	175	0.50	5.11	3.52	0.27	0.25	0.01	474.55	0.15	0.01
Cranes	2021	250	0.35	4.10	1.68	0.17	0.15	0.01	472.91	0.15	0.01
Cranes	2021	500	0.30	3.44	2.45	0.14	0.13	0.01	472.46	0.15	0.01
Cranes	2021	750	0.23	2.73	1.44	0.11	0.10	0.01	470.55	0.15	0.01
Cranes	2021	9999	0.19	2.37	1.01	0.06	0.06	0.01	472.05	0.15	0.01
Crawler Tractors	2021	50	2.06	5.62	7.35	0.59	0.54	0.01	516.11	0.17	0.01
Crawler Tractors	2021	120	0.67	5.66	4.01	0.47	0.43	0.01	476.44	0.15	0.01
Crawler Tractors	2021	175	0.44	4.39	3.31	0.25	0.23	0.01	471.42	0.15	0.01
Crawler Tractors	2021	250	0.34	4.33	1.51	0.16	0.15	0.01	472.92	0.15	0.01
Crawler Tractors	2021	500	0.28	3.28	2.02	0.13	0.12	0.01	474.48	0.15	0.01
Crawler Tractors	2021	750	0.24	2.82	1.27	0.10	0.10	0.01	473.09	0.15	0.01
Crawler Tractors	2021	1000	0.40	6.40	1.90	0.18	0.17	0.01	471.82	0.15	0.01
Crushing/Proc. Equipment	2021	50	0.86	4.21	5.14	0.20	0.20	0.01	568.30	0.08	0.01
Crushing/Proc. Equipment	2021	120	0.44	2.99	3.71	0.18	0.18	0.01	568.30	0.04	0.01
Crushing/Proc. Equipment	2021	175	0.34	2.11	3.24	0.11	0.11	0.01	568.30	0.03	0.01
Crushing/Proc. Equipment	2021	250	0.27	1.76	1.12	0.06	0.06	0.01	568.30	0.02	0.01
Crushing/Proc. Equipment	2021	500	0.27	1.57	1.07	0.06	0.06	0.01	568.30	0.02	0.01
Crushing/Proc. Equipment	2021	750	0.27	1.61	1.07	0.06	0.06	0.01	568.30	0.02	0.01
Crushing/Proc. Equipment	2021	9999	0.31	3.49	1.14	0.08	0.08	0.01	568.30	0.03	0.01
Dumpers/Tenders	2021	25	0.69	4.33	2.34	0.16	0.16	0.01	568.30	0.06	0.01
Excavators	2021	25	0.56	3.92	4.46	0.20	0.19	0.01	525.38	0.17	0.01
Excavators	2021	50	0.56	3.92	4.46	0.20	0.19	0.01	525.38	0.17	0.01
Excavators	2021	120	0.28	2.85	3.49	0.16	0.15	0.01	467.79	0.15	0.01
Excavators	2021	175	0.22	2.03	3.09	0.10	0.09	0.01	472.36	0.15	0.01

Construction Equipment Emission Factors - CY 2021

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Excavators	2021	250	0.16	1.71	1.10	0.05	0.05	0.01	471.79	0.15	0.01
Excavators	2021	500	0.14	1.33	1.09	0.05	0.04	0.01	469.62	0.15	0.01
Excavators	2021	750	0.17	1.62	1.15	0.06	0.05	0.01	469.55	0.15	0.01
Forklifts	2021	50	1.00	4.52	5.53	0.32	0.29	0.01	525.48	0.17	0.01
Forklifts	2021	120	0.41	3.76	3.72	0.27	0.25	0.01	471.53	0.15	0.01
Forklifts	2021	175	0.31	2.92	3.23	0.16	0.15	0.01	472.11	0.15	0.01
Forklifts	2021	250	0.25	2.58	1.34	0.10	0.09	0.01	473.33	0.15	0.01
Forklifts	2021	500	0.25	2.30	1.48	0.09	0.09	0.01	473.62	0.15	0.01
Generator Sets	2021	15	0.63	4.44	3.53	0.20	0.20	0.01	568.30	0.06	0.01
Generator Sets	2021	25	0.71	4.50	2.45	0.20	0.20	0.01	568.30	0.06	0.01
Generator Sets	2021	50	0.61	3.92	3.91	0.17	0.17	0.01	568.30	0.06	0.01
Generator Sets	2021	120	0.33	2.89	3.36	0.15	0.15	0.01	568.30	0.03	0.01
Generator Sets	2021	175	0.24	2.07	2.93	0.09	0.09	0.01	568.30	0.02	0.01
Generator Sets	2021	250	0.18	1.73	1.02	0.05	0.05	0.01	568.30	0.02	0.01
Generator Sets	2021	500	0.18	1.56	1.00	0.05	0.05	0.01	568.30	0.02	0.01
Generator Sets	2021	750	0.18	1.60	1.00	0.05	0.05	0.01	568.30	0.02	0.01
Generator Sets	2021	9999	0.22	3.37	1.06	0.07	0.07	0.01	568.30	0.02	0.01
Graders	2021	50	2.24	5.48	7.63	0.63	0.58	0.01	492.94	0.16	0.01
Graders	2021	120	0.90	7.13	4.45	0.57	0.52	0.01	469.07	0.15	0.01
Graders	2021	175	0.51	4.84	3.56	0.27	0.25	0.01	478.53	0.16	0.01
Graders	2021	250	0.34	4.38	1.31	0.14	0.13	0.01	474.54	0.15	0.01
Graders	2021	500	0.32	3.01	1.46	0.12	0.11	0.01	471.90	0.15	0.01
Graders	2021	750	0.30	1.81	1.21	0.06	0.06	0.01	568.30	0.03	0.01
Off-Highway Tractors	2021	120	0.40	3.77	3.74	0.26	0.24	0.01	474.52	0.15	0.01
Off-Highway Tractors	2021	175	0.26	2.66	3.22	0.13	0.12	0.01	472.92	0.15	0.01
Off-Highway Tractors	2021	250	0.20	2.11	1.16	0.07	0.07	0.01	471.00	0.15	0.01
Off-Highway Tractors	2021	750	0.18	1.72	1.12	0.06	0.06	0.01	471.81	0.15	0.01
Off-Highway Tractors	2021	1000	0.16	2.41	1.03	0.06	0.06	0.01	472.05	0.15	0.01
Off-Highway Trucks	2021	175	0.28	2.25	3.32	0.11	0.10	0.01	470.29	0.15	0.01
Off-Highway Trucks	2021	250	0.25	2.11	1.35	0.08	0.08	0.01	470.19	0.15	0.01
Off-Highway Trucks	2021	500	0.23	1.95	1.34	0.07	0.07	0.01	474.54	0.15	0.01
Off-Highway Trucks	2021	750	0.29	2.67	1.94	0.11	0.10	0.01	472.99	0.15	0.01
Off-Highway Trucks	2021	1000	0.26	4.16	1.25	0.10	0.09	0.01	471.06	0.15	0.01
Other Construction Equipment	2021	15	1.01	4.90	5.31	0.38	0.35	0.01	527.78	0.17	0.01
Other Construction Equipment	2021	25	1.01	4.90	5.31	0.38	0.35	0.01	527.78	0.17	0.01
Other Construction Equipment	2021	50	1.01	4.90	5.31	0.38	0.35	0.01	527.78	0.17	0.01
Other Construction Equipment	2021	120	0.48	4.46	3.70	0.32	0.30	0.01	472.28	0.15	0.01
Other Construction Equipment	2021	175	0.33	3.44	3.18	0.18	0.17	0.01	469.76	0.15	0.01
Other Construction Equipment	2021	500	0.22	2.43	1.60	0.09	0.08	0.01	475.21	0.15	0.01
Other General Industrial Equipment	2021	15	0.83	4.43	5.31	0.29	0.27	0.01	526.18	0.17	0.01
Other General Industrial Equipment	2021	25	0.83	4.43	5.31	0.29	0.27	0.01	526.18	0.17	0.01
Other General Industrial Equipment	2021	50	0.83	4.43	5.31	0.29	0.27	0.01	526.18	0.17	0.01
Other General Industrial Equipment	2021	120	0.40	3.72	3.74	0.26	0.24	0.01	470.00	0.15	0.01
Other General Industrial Equipment	2021	175	0.25	2.35	3.23	0.12	0.11	0.01	471.85	0.15	0.01
Other General Industrial Equipment	2021	250	0.20	2.09	1.17	0.07	0.06	0.01	473.22	0.15	0.01
Other General Industrial Equipment	2021	500	0.20	1.80	1.33	0.06	0.06	0.01	472.93	0.15	0.01
Other General Industrial Equipment	2021	750	0.17	1.39	1.46	0.05	0.05	0.01	473.46	0.15	0.01
Other General Industrial Equipment	2021	1000	0.28	4.88	1.09	0.12	0.11	0.01	472.05	0.15	0.01
Other Material Handling Equipment	2021	50	1.11	4.97	5.96	0.40	0.36	0.01	523.71	0.17	0.01
Other Material Handling Equipment	2021	120	0.29	2.96	3.60	0.17	0.15	0.01	473.59	0.15	0.01
Other Material Handling Equipment	2021	175	0.25	2.25	3.20	0.11	0.11	0.01	472.22	0.15	0.01
Other Material Handling Equipment	2021	250	0.27	3.08	1.31	0.10	0.09	0.01	471.48	0.15	0.01
Other Material Handling Equipment	2021	500	0.25	2.60	1.44	0.10	0.09	0.01	470.30	0.15	0.01
Other Material Handling Equipment	2021	9999	0.07	2.32	0.97	0.02	0.02	0.01	472.05	0.15	0.01
Pavers	2021	25	1.21	4.60	5.30	0.37	0.34	0.01	526.52	0.17	0.01
Pavers	2021	50	1.21	4.60	5.30	0.37	0.34	0.01	526.52	0.17	0.01

Construction Equipment Emission Factors - CY 2021

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Pavers	2021	120	0.42	4.03	3.56	0.29	0.26	0.01	469.77	0.15	0.01
Pavers	2021	175	0.26	2.69	3.02	0.13	0.12	0.01	472.56	0.15	0.01
Pavers	2021	250	0.17	2.48	1.02	0.07	0.06	0.01	472.48	0.15	0.01
Pavers	2021	500	0.16	2.05	0.99	0.07	0.07	0.01	465.59	0.15	0.01
Paving Equipment	2021	25	0.59	3.88	4.21	0.20	0.18	0.01	520.40	0.17	0.01
Paving Equipment	2021	50	0.59	3.88	4.21	0.20	0.18	0.01	520.40	0.17	0.01
Paving Equipment	2021	120	0.36	3.45	3.55	0.22	0.20	0.01	473.22	0.15	0.01
Paving Equipment	2021	175	0.23	2.32	3.03	0.11	0.11	0.01	470.65	0.15	0.01
Paving Equipment	2021	250	0.21	2.58	1.21	0.09	0.09	0.01	472.15	0.15	0.01
Plate Compactors	2021	15	0.66	4.14	3.47	0.16	0.16	0.01	568.30	0.06	0.01
Pressure Washers	2021	15	0.63	4.44	3.53	0.20	0.20	0.01	568.30	0.06	0.01
Pressure Washers	2021	25	0.71	4.50	2.45	0.20	0.20	0.01	568.30	0.06	0.01
Pressure Washers	2021	50	0.44	3.77	3.33	0.14	0.14	0.01	568.30	0.04	0.01
Pressure Washers	2021	120	0.26	2.77	3.21	0.13	0.13	0.01	568.30	0.02	0.01
Pressure Washers	2021	175	0.24	2.12	2.91	0.09	0.09	0.01	568.30	0.02	0.01
Pressure Washers	2021	250	0.10	0.27	0.99	0.01	0.01	0.01	568.30	0.01	0.01
Pumps	2021	15	0.72	4.46	3.53	0.21	0.21	0.01	568.30	0.06	0.01
Pumps	2021	25	0.75	4.50	2.45	0.20	0.20	0.01	568.30	0.07	0.01
Pumps	2021	50	0.67	3.97	4.10	0.18	0.18	0.01	568.30	0.06	0.01
Pumps	2021	120	0.35	2.93	3.41	0.16	0.16	0.01	568.30	0.03	0.01
Pumps	2021	175	0.26	2.10	2.97	0.10	0.10	0.01	568.30	0.02	0.01
Pumps	2021	250	0.20	1.76	1.03	0.05	0.05	0.01	568.30	0.02	0.01
Pumps	2021	500	0.19	1.58	1.01	0.05	0.05	0.01	568.30	0.02	0.01
Pumps	2021	750	0.19	1.62	1.01	0.05	0.05	0.01	568.30	0.02	0.01
Pumps	2021	9999	0.23	3.41	1.07	0.07	0.07	0.01	568.30	0.02	0.01
Rollers	2021	15	0.85	4.35	4.60	0.29	0.27	0.01	525.79	0.17	0.01
Rollers	2021	25	0.85	4.35	4.60	0.29	0.27	0.01	525.79	0.17	0.01
Rollers	2021	50	0.85	4.35	4.60	0.29	0.27	0.01	525.79	0.17	0.01
Rollers	2021	120	0.35	3.59	3.51	0.22	0.20	0.01	473.90	0.15	0.01
Rollers	2021	175	0.19	2.12	2.93	0.10	0.09	0.01	471.98	0.15	0.01
Rollers	2021	250	0.20	2.49	1.23	0.08	0.08	0.01	473.47	0.15	0.01
Rollers	2021	500	0.22	2.59	1.95	0.10	0.09	0.01	479.33	0.16	0.01
Rough Terrain Forklifts	2021	50	0.97	4.41	4.66	0.30	0.28	0.01	525.38	0.17	0.01
Rough Terrain Forklifts	2021	120	0.18	2.29	3.25	0.09	0.08	0.01	473.11	0.15	0.01
Rough Terrain Forklifts	2021	175	0.13	1.62	2.84	0.06	0.06	0.01	471.76	0.15	0.01
Rough Terrain Forklifts	2021	250	0.12	1.61	0.98	0.04	0.03	0.01	472.55	0.15	0.01
Rough Terrain Forklifts	2021	500	0.09	1.30	0.95	0.03	0.03	0.01	465.74	0.15	0.01
Rubber Tired Dozers	2021	175	0.69	6.79	3.85	0.39	0.36	0.01	472.98	0.15	0.01
Rubber Tired Dozers	2021	250	0.60	6.30	2.32	0.31	0.28	0.01	474.80	0.15	0.01
Rubber Tired Dozers	2021	500	0.49	5.08	4.04	0.23	0.21	0.01	478.99	0.16	0.01
Rubber Tired Dozers	2021	750	0.46	6.12	2.60	0.22	0.20	0.01	473.05	0.15	0.01
Rubber Tired Dozers	2021	1000	0.50	5.10	2.06	0.15	0.15	0.01	568.30	0.04	0.01
Rubber Tired Loaders	2021	25	1.33	4.97	6.45	0.41	0.38	0.01	524.55	0.17	0.01
Rubber Tired Loaders	2021	50	1.33	4.97	6.45	0.41	0.38	0.01	524.55	0.17	0.01
Rubber Tired Loaders	2021	120	0.50	4.21	3.89	0.32	0.29	0.01	466.42	0.15	0.01
Rubber Tired Loaders	2021	175	0.35	3.12	3.35	0.17	0.16	0.01	471.08	0.15	0.01
Rubber Tired Loaders	2021	250	0.27	3.00	1.24	0.10	0.09	0.01	469.56	0.15	0.01
Rubber Tired Loaders	2021	500	0.26	2.61	1.53	0.10	0.09	0.01	467.93	0.15	0.01
Rubber Tired Loaders	2021	750	0.27	2.64	1.40	0.10	0.09	0.01	462.05	0.15	0.01
Rubber Tired Loaders	2021	1000	0.29	4.97	1.21	0.13	0.12	0.01	471.26	0.15	0.01
Scrapers	2021	120	0.70	6.66	4.22	0.51	0.47	0.01	483.71	0.16	0.01
Scrapers	2021	175	0.43	4.34	3.46	0.23	0.21	0.01	478.65	0.16	0.01
Scrapers	2021	250	0.39	4.37	1.88	0.19	0.17	0.01	469.13	0.15	0.01
Scrapers	2021	500	0.30	3.44	2.25	0.13	0.12	0.01	472.46	0.15	0.01
Scrapers	2021	750	0.25	2.89	1.66	0.11	0.10	0.01	471.79	0.15	0.01
Signal Boards	2021	15	0.66	4.14	3.47	0.16	0.16	0.01	568.30	0.06	0.01

Construction Equipment Emission Factors - CY 2021

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Signal Boards	2021	50	0.71	4.00	4.38	0.18	0.18	0.01	568.30	0.06	0.01
Signal Boards	2021	120	0.36	2.89	3.49	0.16	0.16	0.01	568.30	0.03	0.01
Signal Boards	2021	175	0.28	2.04	3.04	0.10	0.10	0.01	568.30	0.03	0.01
Signal Boards	2021	250	0.26	2.05	1.27	0.06	0.06	0.01	686.70	0.02	0.02
Skid Steer Loaders	2021	25	0.41	3.57	3.73	0.13	0.12	0.01	527.45	0.17	0.01
Skid Steer Loaders	2021	50	0.41	3.57	3.73	0.13	0.12	0.01	527.45	0.17	0.01
Skid Steer Loaders	2021	120	0.18	2.37	3.28	0.10	0.09	0.01	471.98	0.15	0.01
Surfacing Equipment	2021	50	0.51	4.19	3.93	0.20	0.19	0.01	535.78	0.17	0.01
Surfacing Equipment	2021	120	0.31	3.46	3.44	0.19	0.18	0.01	474.09	0.15	0.01
Surfacing Equipment	2021	175	0.26	3.10	2.92	0.15	0.13	0.01	469.17	0.15	0.01
Surfacing Equipment	2021	250	0.21	2.99	1.22	0.09	0.09	0.01	476.80	0.15	0.01
Surfacing Equipment	2021	500	0.14	1.75	1.20	0.06	0.06	0.01	471.75	0.15	0.01
Surfacing Equipment	2021	750	0.13	1.60	0.99	0.06	0.06	0.01	470.41	0.15	0.01
Sweepers/Scrubbers	2021	15	1.22	4.85	5.90	0.41	0.38	0.01	525.33	0.17	0.01
Sweepers/Scrubbers	2021	25	1.22	4.85	5.90	0.41	0.38	0.01	525.33	0.17	0.01
Sweepers/Scrubbers	2021	50	1.22	4.85	5.90	0.41	0.38	0.01	525.33	0.17	0.01
Sweepers/Scrubbers	2021	120	0.44	3.96	3.76	0.29	0.27	0.01	474.12	0.15	0.01
Sweepers/Scrubbers	2021	175	0.39	3.71	3.25	0.19	0.17	0.01	473.12	0.15	0.01
Sweepers/Scrubbers	2021	250	0.16	1.76	1.11	0.06	0.05	0.01	470.13	0.15	0.01
Tractors/Loaders/Backhoes	2021	25	0.76	4.23	4.90	0.25	0.23	0.01	515.12	0.17	0.01
Tractors/Loaders/Backhoes	2021	50	0.76	4.23	4.90	0.25	0.23	0.01	515.12	0.17	0.01
Tractors/Loaders/Backhoes	2021	120	0.30	3.00	3.57	0.18	0.16	0.01	475.36	0.15	0.01
Tractors/Loaders/Backhoes	2021	175	0.22	2.06	3.09	0.10	0.10	0.01	467.53	0.15	0.01
Tractors/Loaders/Backhoes	2021	250	0.21	2.37	1.19	0.08	0.07	0.01	470.57	0.15	0.01
Tractors/Loaders/Backhoes	2021	500	0.18	1.78	1.34	0.06	0.06	0.01	469.30	0.15	0.01
Tractors/Loaders/Backhoes	2021	750	0.25	2.75	1.43	0.10	0.10	0.01	466.46	0.15	0.01
Trenchers	2021	15	0.81	4.46	4.67	0.31	0.29	0.01	527.02	0.17	0.01
Trenchers	2021	25	0.81	4.46	4.67	0.31	0.29	0.01	527.02	0.17	0.01
Trenchers	2021	50	0.81	4.46	4.67	0.31	0.29	0.01	527.02	0.17	0.01
Trenchers	2021	120	0.56	5.11	3.79	0.37	0.34	0.01	475.29	0.15	0.01
Trenchers	2021	175	0.41	4.27	3.30	0.22	0.20	0.01	467.73	0.15	0.01
Trenchers	2021	250	0.36	4.36	1.67	0.17	0.16	0.01	473.85	0.15	0.01
Trenchers	2021	500	0.22	2.49	1.86	0.10	0.09	0.01	470.70	0.15	0.01
Trenchers	2021	750	0.07	0.48	0.95	0.01	0.01	0.01	472.53	0.15	0.01

Construction Equipment Emission Factors - CY 2022

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Aerial Lifts	2022	15	0.16	2.91	3.11	0.02	0.02	0.01	525.07	0.17	0.01
Aerial Lifts	2022	25	0.16	2.91	3.11	0.02	0.02	0.01	525.07	0.17	0.01
Aerial Lifts	2022	50	0.16	2.91	3.11	0.02	0.02	0.01	525.07	0.17	0.01
Aerial Lifts	2022	120	0.11	1.63	3.18	0.03	0.03	0.01	472.11	0.15	0.01
Aerial Lifts	2022	500	0.08	0.64	0.96	0.01	0.01	0.01	472.05	0.15	0.01
Aerial Lifts	2022	750	0.18	1.42	1.00	0.04	0.04	0.01	568.30	0.02	0.01
Air Compressors	2022	15	0.71	4.41	3.52	0.20	0.20	0.01	568.30	0.06	0.01
Air Compressors	2022	25	0.74	4.47	2.43	0.19	0.19	0.01	568.30	0.07	0.01
Air Compressors	2022	50	0.81	4.09	4.96	0.18	0.18	0.01	568.30	0.07	0.01
Air Compressors	2022	120	0.41	2.84	3.66	0.17	0.17	0.01	568.30	0.04	0.01
Air Compressors	2022	175	0.32	1.96	3.19	0.10	0.10	0.01	568.30	0.03	0.01
Air Compressors	2022	250	0.26	1.62	1.10	0.05	0.05	0.01	568.30	0.02	0.01
Air Compressors	2022	500	0.25	1.47	1.06	0.05	0.05	0.01	568.30	0.02	0.01
Air Compressors	2022	750	0.25	1.50	1.06	0.05	0.05	0.01	568.30	0.02	0.01
Air Compressors	2022	1000	0.27	3.38	1.12	0.08	0.08	0.01	568.30	0.02	0.01
Bore/Drill Rigs	2022	15	0.63	4.28	4.33	0.24	0.22	0.01	529.87	0.17	0.01
Bore/Drill Rigs	2022	25	0.63	4.28	4.33	0.24	0.22	0.01	529.87	0.17	0.01
Bore/Drill Rigs	2022	50	0.63	4.28	4.33	0.24	0.22	0.01	529.87	0.17	0.01
Bore/Drill Rigs	2022	120	0.19	2.42	3.26	0.11	0.10	0.01	462.27	0.15	0.01
Bore/Drill Rigs	2022	175	0.14	1.29	2.95	0.06	0.05	0.01	477.37	0.15	0.01
Bore/Drill Rigs	2022	250	0.12	1.16	1.05	0.04	0.03	0.01	468.76	0.15	0.01
Bore/Drill Rigs	2022	500	0.11	1.04	1.00	0.04	0.03	0.01	467.19	0.15	0.01
Bore/Drill Rigs	2022	750	0.09	0.77	0.98	0.03	0.03	0.01	477.14	0.15	0.01
Bore/Drill Rigs	2022	1000	0.06	2.28	0.95	0.02	0.02	0.01	472.92	0.15	0.01
Cement and Mortar Mixers	2022	15	0.66	4.14	3.47	0.16	0.16	0.01	568.30	0.06	0.01
Cement and Mortar Mixers	2022	25	0.70	4.40	2.37	0.18	0.18	0.01	568.30	0.06	0.01
Concrete/Industrial Saws	2022	25	0.69	4.33	2.34	0.16	0.16	0.01	568.30	0.06	0.01
Concrete/Industrial Saws	2022	50	0.66	3.94	4.42	0.16	0.16	0.01	568.30	0.06	0.01
Concrete/Industrial Saws	2022	120	0.34	2.69	3.51	0.14	0.14	0.01	568.30	0.03	0.01
Concrete/Industrial Saws	2022	175	0.27	1.81	3.07	0.09	0.09	0.01	568.30	0.02	0.01
Cranes	2022	50	2.03	5.90	7.37	0.60	0.56	0.01	517.87	0.17	0.01
Cranes	2022	120	0.58	5.15	3.97	0.35	0.32	0.01	469.99	0.15	0.01
Cranes	2022	175	0.46	4.62	3.48	0.25	0.23	0.01	474.59	0.15	0.01
Cranes	2022	250	0.32	3.54	1.60	0.15	0.14	0.01	472.98	0.15	0.01
Cranes	2022	500	0.26	2.89	2.21	0.12	0.11	0.01	472.18	0.15	0.01
Cranes	2022	750	0.20	2.25	1.28	0.09	0.08	0.01	470.48	0.15	0.01
Cranes	2022	9999	0.20	2.39	1.02	0.06	0.06	0.01	472.05	0.15	0.01
Crawler Tractors	2022	50	1.90	5.38	7.04	0.54	0.50	0.01	516.15	0.17	0.01
Crawler Tractors	2022	120	0.60	5.10	3.92	0.41	0.38	0.01	476.02	0.15	0.01
Crawler Tractors	2022	175	0.39	3.83	3.26	0.21	0.20	0.01	471.57	0.15	0.01
Crawler Tractors	2022	250	0.31	3.74	1.44	0.14	0.13	0.01	472.10	0.15	0.01
Crawler Tractors	2022	500	0.25	2.74	1.92	0.11	0.10	0.01	474.41	0.15	0.01
Crawler Tractors	2022	750	0.20	2.13	1.19	0.08	0.07	0.01	472.88	0.15	0.01
Crawler Tractors	2022	1000	0.36	5.92	1.73	0.16	0.15	0.01	470.70	0.15	0.01
Crushing/Proc. Equipment	2022	50	0.80	4.08	5.08	0.17	0.17	0.01	568.30	0.07	0.01
Crushing/Proc. Equipment	2022	120	0.41	2.76	3.70	0.15	0.15	0.01	568.30	0.04	0.01
Crushing/Proc. Equipment	2022	175	0.32	1.86	3.24	0.10	0.10	0.01	568.30	0.03	0.01
Crushing/Proc. Equipment	2022	250	0.26	1.52	1.11	0.05	0.05	0.01	568.30	0.02	0.01
Crushing/Proc. Equipment	2022	500	0.26	1.39	1.07	0.05	0.05	0.01	568.30	0.02	0.01
Crushing/Proc. Equipment	2022	750	0.26	1.42	1.07	0.05	0.05	0.01	568.30	0.02	0.01
Crushing/Proc. Equipment	2022	9999	0.30	3.31	1.12	0.07	0.07	0.01	568.30	0.03	0.01
Dumpers/Tenders	2022	25	0.69	4.33	2.34	0.16	0.16	0.01	568.30	0.06	0.01
Excavators	2022	25	0.48	3.70	4.27	0.16	0.15	0.01	525.45	0.17	0.01
Excavators	2022	50	0.48	3.70	4.27	0.16	0.15	0.01	525.45	0.17	0.01
Excavators	2022	120	0.25	2.61	3.47	0.14	0.13	0.01	467.63	0.15	0.01
Excavators	2022	175	0.19	1.68	3.07	0.08	0.08	0.01	472.19	0.15	0.01

Construction Equipment Emission Factors - CY 2022

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Excavators	2022	250	0.15	1.39	1.09	0.04	0.04	0.01	472.04	0.15	0.01
Excavators	2022	500	0.13	1.04	1.06	0.04	0.03	0.01	469.71	0.15	0.01
Excavators	2022	750	0.15	1.29	1.14	0.05	0.04	0.01	469.29	0.15	0.01
Forklifts	2022	50	0.86	4.31	5.30	0.27	0.25	0.01	525.48	0.17	0.01
Forklifts	2022	120	0.36	3.36	3.68	0.22	0.21	0.01	471.53	0.15	0.01
Forklifts	2022	175	0.27	2.48	3.20	0.13	0.12	0.01	472.11	0.15	0.01
Forklifts	2022	250	0.24	2.32	1.32	0.09	0.08	0.01	473.33	0.15	0.01
Forklifts	2022	500	0.23	1.99	1.22	0.08	0.07	0.01	473.62	0.15	0.01
Generator Sets	2022	15	0.63	4.39	3.52	0.19	0.19	0.01	568.30	0.06	0.01
Generator Sets	2022	25	0.71	4.47	2.43	0.19	0.19	0.01	568.30	0.06	0.01
Generator Sets	2022	50	0.56	3.80	3.86	0.14	0.14	0.01	568.30	0.05	0.01
Generator Sets	2022	120	0.30	2.67	3.35	0.13	0.13	0.01	568.30	0.03	0.01
Generator Sets	2022	175	0.23	1.83	2.93	0.08	0.08	0.01	568.30	0.02	0.01
Generator Sets	2022	250	0.17	1.51	1.01	0.04	0.04	0.01	568.30	0.02	0.01
Generator Sets	2022	500	0.17	1.38	0.99	0.04	0.04	0.01	568.30	0.02	0.01
Generator Sets	2022	750	0.17	1.41	0.99	0.04	0.04	0.01	568.30	0.02	0.01
Generator Sets	2022	9999	0.21	3.20	1.05	0.06	0.06	0.01	568.30	0.02	0.01
Graders	2022	50	2.11	5.33	7.43	0.60	0.55	0.01	493.02	0.16	0.01
Graders	2022	120	0.80	6.36	4.33	0.49	0.45	0.01	469.63	0.15	0.01
Graders	2022	175	0.44	4.12	3.49	0.23	0.21	0.01	478.57	0.16	0.01
Graders	2022	250	0.31	3.89	1.27	0.12	0.11	0.01	474.24	0.15	0.01
Graders	2022	500	0.31	2.80	1.39	0.11	0.10	0.01	471.93	0.15	0.01
Graders	2022	750	0.29	1.61	1.19	0.06	0.06	0.01	568.30	0.03	0.01
Off-Highway Tractors	2022	120	0.35	3.40	3.71	0.22	0.20	0.01	475.23	0.15	0.01
Off-Highway Tractors	2022	175	0.23	2.24	3.19	0.11	0.10	0.01	472.81	0.15	0.01
Off-Highway Tractors	2022	250	0.18	1.73	1.14	0.06	0.06	0.01	471.13	0.15	0.01
Off-Highway Tractors	2022	750	0.17	1.43	1.12	0.06	0.05	0.01	471.94	0.15	0.01
Off-Highway Tractors	2022	1000	0.17	2.43	1.04	0.07	0.06	0.01	472.05	0.15	0.01
Off-Highway Trucks	2022	175	0.24	1.81	3.28	0.09	0.08	0.01	470.18	0.15	0.01
Off-Highway Trucks	2022	250	0.22	1.62	1.28	0.06	0.06	0.01	469.62	0.15	0.01
Off-Highway Trucks	2022	500	0.20	1.49	1.25	0.05	0.05	0.01	474.71	0.15	0.01
Off-Highway Trucks	2022	750	0.26	2.27	1.75	0.09	0.08	0.01	473.98	0.15	0.01
Off-Highway Trucks	2022	1000	0.23	3.84	1.21	0.09	0.08	0.01	472.34	0.15	0.01
Other Construction Equipment	2022	15	0.92	4.74	5.17	0.35	0.32	0.01	529.18	0.17	0.01
Other Construction Equipment	2022	25	0.92	4.74	5.17	0.35	0.32	0.01	529.18	0.17	0.01
Other Construction Equipment	2022	50	0.92	4.74	5.17	0.35	0.32	0.01	529.18	0.17	0.01
Other Construction Equipment	2022	120	0.44	4.10	3.67	0.29	0.27	0.01	472.32	0.15	0.01
Other Construction Equipment	2022	175	0.30	2.99	3.16	0.16	0.14	0.01	469.61	0.15	0.01
Other Construction Equipment	2022	500	0.19	1.98	1.44	0.07	0.07	0.01	476.00	0.15	0.01
Other General Industrial Equipment	2022	15	0.70	4.20	5.08	0.24	0.22	0.01	526.18	0.17	0.01
Other General Industrial Equipment	2022	25	0.70	4.20	5.08	0.24	0.22	0.01	526.18	0.17	0.01
Other General Industrial Equipment	2022	50	0.70	4.20	5.08	0.24	0.22	0.01	526.18	0.17	0.01
Other General Industrial Equipment	2022	120	0.34	3.20	3.67	0.20	0.18	0.01	470.00	0.15	0.01
Other General Industrial Equipment	2022	175	0.24	2.15	3.23	0.11	0.10	0.01	471.85	0.15	0.01
Other General Industrial Equipment	2022	250	0.19	1.76	1.14	0.06	0.05	0.01	473.22	0.15	0.01
Other General Industrial Equipment	2022	500	0.18	1.43	1.17	0.05	0.05	0.01	472.93	0.15	0.01
Other General Industrial Equipment	2022	750	0.15	1.06	1.46	0.05	0.04	0.01	473.46	0.15	0.01
Other General Industrial Equipment	2022	1000	0.19	3.94	1.04	0.08	0.07	0.01	472.05	0.15	0.01
Other Material Handling Equipment	2022	50	1.10	4.92	5.98	0.39	0.35	0.01	523.71	0.17	0.01
Other Material Handling Equipment	2022	120	0.25	2.57	3.56	0.12	0.11	0.01	473.59	0.15	0.01
Other Material Handling Equipment	2022	175	0.23	1.89	3.18	0.10	0.10	0.01	472.22	0.15	0.01
Other Material Handling Equipment	2022	250	0.23	2.43	1.24	0.08	0.08	0.01	471.48	0.15	0.01
Other Material Handling Equipment	2022	500	0.23	2.06	1.35	0.08	0.08	0.01	470.30	0.15	0.01
Other Material Handling Equipment	2022	9999	0.08	2.33	0.98	0.02	0.02	0.01	472.05	0.15	0.01
Pavers	2022	25	1.09	4.42	5.11	0.33	0.30	0.01	526.90	0.17	0.01
Pavers	2022	50	1.09	4.42	5.11	0.33	0.30	0.01	526.90	0.17	0.01

Construction Equipment Emission Factors - CY 2022

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Pavers	2022	120	0.37	3.66	3.53	0.25	0.23	0.01	470.19	0.15	0.01
Pavers	2022	175	0.22	2.18	2.99	0.10	0.10	0.01	472.76	0.15	0.01
Pavers	2022	250	0.14	1.90	1.01	0.06	0.05	0.01	472.37	0.15	0.01
Pavers	2022	500	0.15	1.81	0.98	0.06	0.06	0.01	466.00	0.15	0.01
Paving Equipment	2022	25	0.57	3.84	4.24	0.19	0.17	0.01	520.66	0.17	0.01
Paving Equipment	2022	50	0.57	3.84	4.24	0.19	0.17	0.01	520.66	0.17	0.01
Paving Equipment	2022	120	0.30	3.00	3.50	0.17	0.16	0.01	473.45	0.15	0.01
Paving Equipment	2022	175	0.21	2.07	3.04	0.10	0.09	0.01	470.66	0.15	0.01
Paving Equipment	2022	250	0.20	2.23	1.20	0.08	0.08	0.01	472.17	0.15	0.01
Plate Compactors	2022	15	0.66	4.14	3.47	0.16	0.16	0.01	568.30	0.06	0.01
Pressure Washers	2022	15	0.63	4.39	3.52	0.19	0.19	0.01	568.30	0.06	0.01
Pressure Washers	2022	25	0.71	4.47	2.43	0.19	0.19	0.01	568.30	0.06	0.01
Pressure Washers	2022	50	0.40	3.65	3.29	0.12	0.12	0.01	568.30	0.04	0.01
Pressure Washers	2022	120	0.24	2.56	3.20	0.11	0.11	0.01	568.30	0.02	0.01
Pressure Washers	2022	175	0.22	1.87	2.91	0.08	0.08	0.01	568.30	0.02	0.01
Pressure Washers	2022	250	0.10	0.27	0.99	0.01	0.01	0.01	568.30	0.01	0.01
Pumps	2022	15	0.71	4.41	3.52	0.20	0.20	0.01	568.30	0.06	0.01
Pumps	2022	25	0.74	4.47	2.43	0.19	0.19	0.01	568.30	0.07	0.01
Pumps	2022	50	0.61	3.85	4.05	0.15	0.15	0.01	568.30	0.06	0.01
Pumps	2022	120	0.32	2.71	3.40	0.14	0.14	0.01	568.30	0.03	0.01
Pumps	2022	175	0.24	1.86	2.97	0.09	0.09	0.01	568.30	0.02	0.01
Pumps	2022	250	0.19	1.53	1.03	0.05	0.05	0.01	568.30	0.02	0.01
Pumps	2022	500	0.18	1.40	1.00	0.04	0.04	0.01	568.30	0.02	0.01
Pumps	2022	750	0.18	1.43	1.00	0.04	0.04	0.01	568.30	0.02	0.01
Pumps	2022	9999	0.22	3.24	1.06	0.07	0.07	0.01	568.30	0.02	0.01
Rollers	2022	15	0.74	4.13	4.40	0.25	0.23	0.01	525.69	0.17	0.01
Rollers	2022	25	0.74	4.13	4.40	0.25	0.23	0.01	525.69	0.17	0.01
Rollers	2022	50	0.74	4.13	4.40	0.25	0.23	0.01	525.69	0.17	0.01
Rollers	2022	120	0.31	3.22	3.47	0.19	0.17	0.01	473.93	0.15	0.01
Rollers	2022	175	0.16	1.71	2.91	0.08	0.07	0.01	471.95	0.15	0.01
Rollers	2022	250	0.19	2.21	1.23	0.08	0.07	0.01	473.51	0.15	0.01
Rollers	2022	500	0.22	2.46	1.95	0.10	0.09	0.01	478.98	0.16	0.01
Rough Terrain Forklifts	2022	50	0.79	4.04	4.30	0.24	0.22	0.01	525.02	0.17	0.01
Rough Terrain Forklifts	2022	120	0.16	2.10	3.24	0.07	0.07	0.01	473.09	0.15	0.01
Rough Terrain Forklifts	2022	175	0.12	1.40	2.84	0.05	0.05	0.01	471.68	0.15	0.01
Rough Terrain Forklifts	2022	250	0.12	1.62	0.99	0.04	0.03	0.01	472.54	0.15	0.01
Rough Terrain Forklifts	2022	500	0.07	0.56	0.94	0.01	0.01	0.01	466.56	0.15	0.01
Rubber Tired Dozers	2022	175	0.60	5.81	3.75	0.33	0.30	0.01	473.91	0.15	0.01
Rubber Tired Dozers	2022	250	0.48	5.05	2.06	0.24	0.22	0.01	474.62	0.15	0.01
Rubber Tired Dozers	2022	500	0.48	4.81	3.89	0.22	0.20	0.01	479.31	0.16	0.01
Rubber Tired Dozers	2022	750	0.46	6.12	2.61	0.22	0.20	0.01	473.04	0.15	0.01
Rubber Tired Dozers	2022	1000	0.48	4.90	1.96	0.14	0.14	0.01	568.30	0.04	0.01
Rubber Tired Loaders	2022	25	1.18	4.75	6.20	0.35	0.33	0.01	524.79	0.17	0.01
Rubber Tired Loaders	2022	50	1.18	4.75	6.20	0.35	0.33	0.01	524.79	0.17	0.01
Rubber Tired Loaders	2022	120	0.44	3.77	3.84	0.27	0.25	0.01	466.49	0.15	0.01
Rubber Tired Loaders	2022	175	0.30	2.52	3.30	0.14	0.13	0.01	470.93	0.15	0.01
Rubber Tired Loaders	2022	250	0.23	2.35	1.19	0.08	0.07	0.01	469.90	0.15	0.01
Rubber Tired Loaders	2022	500	0.24	2.18	1.44	0.08	0.08	0.01	468.13	0.15	0.01
Rubber Tired Loaders	2022	750	0.23	2.10	1.32	0.08	0.07	0.01	463.82	0.15	0.01
Rubber Tired Loaders	2022	1000	0.19	3.62	1.16	0.07	0.07	0.01	472.86	0.15	0.01
Scrapers	2022	120	0.68	6.46	4.20	0.49	0.45	0.01	483.45	0.16	0.01
Scrapers	2022	175	0.39	3.83	3.42	0.20	0.19	0.01	478.74	0.16	0.01
Scrapers	2022	250	0.34	3.67	1.74	0.16	0.15	0.01	469.27	0.15	0.01
Scrapers	2022	500	0.26	2.88	2.05	0.11	0.10	0.01	473.23	0.15	0.01
Scrapers	2022	750	0.22	2.48	1.51	0.09	0.08	0.01	471.28	0.15	0.01
Signal Boards	2022	15	0.66	4.14	3.47	0.16	0.16	0.01	568.30	0.06	0.01

Construction Equipment Emission Factors - CY 2022

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Signal Boards	2022	50	0.66	3.88	4.33	0.15	0.15	0.01	568.30	0.06	0.01
Signal Boards	2022	120	0.34	2.67	3.48	0.14	0.14	0.01	568.30	0.03	0.01
Signal Boards	2022	175	0.26	1.80	3.04	0.09	0.09	0.01	568.30	0.02	0.01
Signal Boards	2022	250	0.25	1.78	1.27	0.06	0.06	0.01	686.70	0.02	0.02
Skid Steer Loaders	2022	25	0.37	3.43	3.66	0.10	0.10	0.01	527.27	0.17	0.01
Skid Steer Loaders	2022	50	0.37	3.43	3.66	0.10	0.10	0.01	527.27	0.17	0.01
Skid Steer Loaders	2022	120	0.16	2.19	3.27	0.08	0.08	0.01	472.43	0.15	0.01
Surfacing Equipment	2022	50	0.43	3.91	3.77	0.15	0.14	0.01	535.84	0.17	0.01
Surfacing Equipment	2022	120	0.29	3.25	3.41	0.18	0.16	0.01	473.64	0.15	0.01
Surfacing Equipment	2022	175	0.24	2.70	2.91	0.13	0.12	0.01	469.13	0.15	0.01
Surfacing Equipment	2022	250	0.20	2.67	1.22	0.09	0.08	0.01	476.95	0.15	0.01
Surfacing Equipment	2022	500	0.13	1.56	1.16	0.06	0.05	0.01	470.52	0.15	0.01
Surfacing Equipment	2022	750	0.12	1.36	0.99	0.05	0.05	0.01	470.40	0.15	0.01
Sweepers/Scrubbers	2022	15	1.01	4.49	5.45	0.34	0.31	0.01	525.33	0.17	0.01
Sweepers/Scrubbers	2022	25	1.01	4.49	5.45	0.34	0.31	0.01	525.33	0.17	0.01
Sweepers/Scrubbers	2022	50	1.01	4.49	5.45	0.34	0.31	0.01	525.33	0.17	0.01
Sweepers/Scrubbers	2022	120	0.37	3.47	3.69	0.23	0.21	0.01	474.12	0.15	0.01
Sweepers/Scrubbers	2022	175	0.32	3.00	3.22	0.15	0.13	0.01	473.12	0.15	0.01
Sweepers/Scrubbers	2022	250	0.15	1.60	1.10	0.05	0.05	0.01	470.13	0.15	0.01
Tractors/Loaders/Backhoes	2022	25	0.69	4.03	4.76	0.22	0.20	0.01	514.46	0.17	0.01
Tractors/Loaders/Backhoes	2022	50	0.69	4.03	4.76	0.22	0.20	0.01	514.46	0.17	0.01
Tractors/Loaders/Backhoes	2022	120	0.26	2.65	3.54	0.14	0.13	0.01	475.90	0.15	0.01
Tractors/Loaders/Backhoes	2022	175	0.20	1.75	3.08	0.09	0.08	0.01	467.80	0.15	0.01
Tractors/Loaders/Backhoes	2022	250	0.19	1.94	1.16	0.07	0.06	0.01	470.12	0.15	0.01
Tractors/Loaders/Backhoes	2022	500	0.16	1.44	1.28	0.05	0.05	0.01	469.26	0.15	0.01
Tractors/Loaders/Backhoes	2022	750	0.23	2.45	1.35	0.09	0.09	0.01	466.63	0.15	0.01
Trenchers	2022	15	0.72	4.27	4.52	0.28	0.25	0.01	527.03	0.17	0.01
Trenchers	2022	25	0.72	4.27	4.52	0.28	0.25	0.01	527.03	0.17	0.01
Trenchers	2022	50	0.72	4.27	4.52	0.28	0.25	0.01	527.03	0.17	0.01
Trenchers	2022	120	0.53	4.91	3.78	0.35	0.32	0.01	475.33	0.15	0.01
Trenchers	2022	175	0.40	4.10	3.31	0.21	0.20	0.01	467.73	0.15	0.01
Trenchers	2022	250	0.34	3.85	1.66	0.16	0.15	0.01	473.85	0.15	0.01
Trenchers	2022	500	0.21	2.21	1.87	0.09	0.09	0.01	470.58	0.15	0.01
Trenchers	2022	750	0.06	0.30	0.94	0.01	0.01	0.01	474.29	0.15	0.01

Construction Equipment Emission Factors - CY 2023

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Aerial Lifts	2023	15	0.16	2.90	3.12	0.02	0.02	0.01	525.07	0.17	0.01
Aerial Lifts	2023	25	0.16	2.90	3.12	0.02	0.02	0.01	525.07	0.17	0.01
Aerial Lifts	2023	50	0.16	2.90	3.12	0.02	0.02	0.01	525.07	0.17	0.01
Aerial Lifts	2023	120	0.10	1.55	3.17	0.03	0.03	0.01	472.11	0.15	0.01
Aerial Lifts	2023	500	0.08	0.64	0.96	0.01	0.01	0.01	472.05	0.15	0.01
Aerial Lifts	2023	750	0.17	1.27	1.00	0.04	0.04	0.01	568.30	0.02	0.01
Air Compressors	2023	15	0.70	4.36	3.51	0.19	0.19	0.01	568.30	0.06	0.01
Air Compressors	2023	25	0.73	4.45	2.41	0.19	0.19	0.01	568.30	0.07	0.01
Air Compressors	2023	50	0.75	3.98	4.91	0.16	0.16	0.01	568.30	0.07	0.01
Air Compressors	2023	120	0.39	2.63	3.66	0.14	0.14	0.01	568.30	0.03	0.01
Air Compressors	2023	175	0.30	1.75	3.20	0.09	0.09	0.01	568.30	0.03	0.01
Air Compressors	2023	250	0.24	1.42	1.10	0.05	0.05	0.01	568.30	0.02	0.01
Air Compressors	2023	500	0.24	1.31	1.06	0.04	0.04	0.01	568.30	0.02	0.01
Air Compressors	2023	750	0.24	1.33	1.06	0.04	0.04	0.01	568.30	0.02	0.01
Air Compressors	2023	1000	0.26	3.22	1.10	0.07	0.07	0.01	568.30	0.02	0.01
Bore/Drill Rigs	2023	15	0.61	4.21	4.31	0.23	0.21	0.01	531.99	0.17	0.01
Bore/Drill Rigs	2023	25	0.61	4.21	4.31	0.23	0.21	0.01	531.99	0.17	0.01
Bore/Drill Rigs	2023	50	0.61	4.21	4.31	0.23	0.21	0.01	531.99	0.17	0.01
Bore/Drill Rigs	2023	120	0.19	2.36	3.26	0.10	0.09	0.01	461.21	0.15	0.01
Bore/Drill Rigs	2023	175	0.13	1.08	2.97	0.05	0.04	0.01	479.65	0.16	0.01
Bore/Drill Rigs	2023	250	0.11	1.05	1.04	0.03	0.03	0.01	469.71	0.15	0.01
Bore/Drill Rigs	2023	500	0.10	0.90	0.99	0.03	0.03	0.01	464.04	0.15	0.01
Bore/Drill Rigs	2023	750	0.09	0.72	0.98	0.03	0.02	0.01	479.22	0.16	0.01
Bore/Drill Rigs	2023	1000	0.05	2.26	0.94	0.02	0.02	0.01	472.02	0.15	0.01
Cement and Mortar Mixers	2023	15	0.66	4.14	3.47	0.16	0.16	0.01	568.30	0.06	0.01
Cement and Mortar Mixers	2023	25	0.70	4.38	2.36	0.17	0.17	0.01	568.30	0.06	0.01
Concrete/Industrial Saws	2023	25	0.69	4.33	2.34	0.16	0.16	0.01	568.30	0.06	0.01
Concrete/Industrial Saws	2023	50	0.61	3.82	4.37	0.13	0.13	0.01	568.30	0.05	0.01
Concrete/Industrial Saws	2023	120	0.32	2.48	3.51	0.12	0.12	0.01	568.30	0.03	0.01
Concrete/Industrial Saws	2023	175	0.25	1.60	3.07	0.08	0.08	0.01	568.30	0.02	0.01
Cranes	2023	50	2.05	5.92	7.45	0.61	0.56	0.01	517.87	0.17	0.01
Cranes	2023	120	0.55	4.87	3.94	0.32	0.30	0.01	469.89	0.15	0.01
Cranes	2023	175	0.42	4.22	3.44	0.22	0.21	0.01	474.60	0.15	0.01
Cranes	2023	250	0.30	3.23	1.55	0.14	0.12	0.01	472.97	0.15	0.01
Cranes	2023	500	0.24	2.51	2.01	0.10	0.09	0.01	472.29	0.15	0.01
Cranes	2023	750	0.20	2.07	1.28	0.08	0.08	0.01	470.25	0.15	0.01
Cranes	2023	9999	0.21	2.40	1.02	0.06	0.06	0.01	472.05	0.15	0.01
Crawler Tractors	2023	50	1.87	5.33	7.03	0.53	0.48	0.01	516.16	0.17	0.01
Crawler Tractors	2023	120	0.56	4.76	3.89	0.37	0.34	0.01	476.16	0.15	0.01
Crawler Tractors	2023	175	0.35	3.33	3.24	0.19	0.17	0.01	471.78	0.15	0.01
Crawler Tractors	2023	250	0.28	3.19	1.40	0.12	0.11	0.01	471.62	0.15	0.01
Crawler Tractors	2023	500	0.24	2.48	1.85	0.10	0.09	0.01	474.61	0.15	0.01
Crawler Tractors	2023	750	0.18	1.87	1.16	0.07	0.06	0.01	472.53	0.15	0.01
Crawler Tractors	2023	1000	0.27	4.77	1.61	0.12	0.11	0.01	473.67	0.15	0.01
Crushing/Proc. Equipment	2023	50	0.74	3.96	5.04	0.15	0.15	0.01	568.30	0.07	0.01
Crushing/Proc. Equipment	2023	120	0.39	2.55	3.70	0.13	0.13	0.01	568.30	0.03	0.01
Crushing/Proc. Equipment	2023	175	0.30	1.65	3.24	0.08	0.08	0.01	568.30	0.03	0.01
Crushing/Proc. Equipment	2023	250	0.25	1.33	1.11	0.04	0.04	0.01	568.30	0.02	0.01
Crushing/Proc. Equipment	2023	500	0.24	1.23	1.06	0.04	0.04	0.01	568.30	0.02	0.01
Crushing/Proc. Equipment	2023	750	0.24	1.25	1.07	0.04	0.04	0.01	568.30	0.02	0.01
Crushing/Proc. Equipment	2023	9999	0.29	3.16	1.11	0.07	0.07	0.01	568.30	0.03	0.01
Dumpers/Tenders	2023	25	0.69	4.33	2.34	0.16	0.16	0.01	568.30	0.06	0.01
Excavators	2023	25	0.45	3.59	4.23	0.14	0.13	0.01	525.43	0.17	0.01
Excavators	2023	50	0.45	3.59	4.23	0.14	0.13	0.01	525.43	0.17	0.01
Excavators	2023	120	0.23	2.38	3.45	0.12	0.11	0.01	467.16	0.15	0.01
Excavators	2023	175	0.18	1.46	3.08	0.07	0.07	0.01	472.28	0.15	0.01

Construction Equipment Emission Factors - CY 2023

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Excavators	2023	250	0.14	1.21	1.09	0.04	0.04	0.01	472.21	0.15	0.01
Excavators	2023	500	0.12	0.89	1.05	0.03	0.03	0.01	469.89	0.15	0.01
Excavators	2023	750	0.14	1.16	1.13	0.04	0.04	0.01	468.68	0.15	0.01
Forklifts	2023	50	0.77	4.15	5.17	0.23	0.21	0.01	525.48	0.17	0.01
Forklifts	2023	120	0.33	3.06	3.65	0.19	0.17	0.01	471.53	0.15	0.01
Forklifts	2023	175	0.24	2.11	3.18	0.11	0.10	0.01	472.11	0.15	0.01
Forklifts	2023	250	0.20	1.81	1.24	0.07	0.06	0.01	473.33	0.15	0.01
Forklifts	2023	500	0.22	1.79	1.22	0.07	0.06	0.01	473.62	0.15	0.01
Generator Sets	2023	15	0.62	4.35	3.51	0.19	0.19	0.01	568.30	0.06	0.01
Generator Sets	2023	25	0.70	4.45	2.41	0.18	0.18	0.01	568.30	0.06	0.01
Generator Sets	2023	50	0.51	3.69	3.82	0.12	0.12	0.01	568.30	0.05	0.01
Generator Sets	2023	120	0.28	2.48	3.35	0.12	0.12	0.01	568.30	0.03	0.01
Generator Sets	2023	175	0.21	1.64	2.93	0.07	0.07	0.01	568.30	0.02	0.01
Generator Sets	2023	250	0.16	1.33	1.01	0.04	0.04	0.01	568.30	0.01	0.01
Generator Sets	2023	500	0.16	1.23	0.99	0.04	0.04	0.01	568.30	0.01	0.01
Generator Sets	2023	750	0.16	1.25	0.99	0.04	0.04	0.01	568.30	0.01	0.01
Generator Sets	2023	9999	0.19	3.06	1.03	0.06	0.06	0.01	568.30	0.02	0.01
Graders	2023	50	1.95	5.15	7.19	0.55	0.51	0.01	494.02	0.16	0.01
Graders	2023	120	0.72	5.74	4.23	0.44	0.40	0.01	469.29	0.15	0.01
Graders	2023	175	0.39	3.55	3.45	0.20	0.18	0.01	478.46	0.16	0.01
Graders	2023	250	0.28	3.44	1.25	0.11	0.10	0.01	473.93	0.15	0.01
Graders	2023	500	0.31	2.70	1.38	0.11	0.10	0.01	471.03	0.15	0.01
Graders	2023	750	0.28	1.43	1.17	0.05	0.05	0.01	568.30	0.02	0.01
Off-Highway Tractors	2023	120	0.32	3.10	3.69	0.19	0.17	0.01	476.09	0.15	0.01
Off-Highway Tractors	2023	175	0.20	1.78	3.14	0.09	0.08	0.01	473.00	0.15	0.01
Off-Highway Tractors	2023	250	0.17	1.49	1.14	0.05	0.05	0.01	470.85	0.15	0.01
Off-Highway Tractors	2023	750	0.17	1.29	1.12	0.05	0.05	0.01	471.93	0.15	0.01
Off-Highway Tractors	2023	1000	0.18	2.45	1.06	0.07	0.06	0.01	472.05	0.15	0.01
Off-Highway Trucks	2023	175	0.24	1.68	3.30	0.08	0.07	0.01	470.29	0.15	0.01
Off-Highway Trucks	2023	250	0.21	1.46	1.27	0.06	0.05	0.01	469.45	0.15	0.01
Off-Highway Trucks	2023	500	0.19	1.32	1.22	0.05	0.04	0.01	475.05	0.15	0.01
Off-Highway Trucks	2023	750	0.26	2.18	1.72	0.08	0.08	0.01	473.77	0.15	0.01
Off-Highway Trucks	2023	1000	0.21	3.54	1.19	0.07	0.07	0.01	472.86	0.15	0.01
Other Construction Equipment	2023	15	0.87	4.59	5.07	0.32	0.30	0.01	529.34	0.17	0.01
Other Construction Equipment	2023	25	0.87	4.59	5.07	0.32	0.30	0.01	529.34	0.17	0.01
Other Construction Equipment	2023	50	0.87	4.59	5.07	0.32	0.30	0.01	529.34	0.17	0.01
Other Construction Equipment	2023	120	0.41	3.79	3.63	0.26	0.24	0.01	471.99	0.15	0.01
Other Construction Equipment	2023	175	0.27	2.70	3.14	0.14	0.13	0.01	469.56	0.15	0.01
Other Construction Equipment	2023	500	0.18	1.81	1.40	0.07	0.06	0.01	476.18	0.15	0.01
Other General Industrial Equipment	2023	15	0.60	3.99	4.88	0.19	0.18	0.01	526.18	0.17	0.01
Other General Industrial Equipment	2023	25	0.60	3.99	4.88	0.19	0.18	0.01	526.18	0.17	0.01
Other General Industrial Equipment	2023	50	0.60	3.99	4.88	0.19	0.18	0.01	526.18	0.17	0.01
Other General Industrial Equipment	2023	120	0.31	2.92	3.65	0.17	0.16	0.01	470.00	0.15	0.01
Other General Industrial Equipment	2023	175	0.20	1.61	3.17	0.08	0.07	0.01	471.85	0.15	0.01
Other General Industrial Equipment	2023	250	0.18	1.53	1.14	0.05	0.05	0.01	473.22	0.15	0.01
Other General Industrial Equipment	2023	500	0.16	1.26	1.12	0.04	0.04	0.01	472.93	0.15	0.01
Other General Industrial Equipment	2023	750	0.11	0.63	1.10	0.02	0.02	0.01	473.46	0.15	0.01
Other General Industrial Equipment	2023	1000	0.19	3.96	1.05	0.08	0.07	0.01	472.05	0.15	0.01
Other Material Handling Equipment	2023	50	1.01	4.68	5.76	0.34	0.31	0.01	523.71	0.17	0.01
Other Material Handling Equipment	2023	120	0.23	2.30	3.52	0.10	0.10	0.01	473.59	0.15	0.01
Other Material Handling Equipment	2023	175	0.22	1.77	3.17	0.10	0.09	0.01	472.22	0.15	0.01
Other Material Handling Equipment	2023	250	0.21	2.00	1.21	0.07	0.06	0.01	471.48	0.15	0.01
Other Material Handling Equipment	2023	500	0.22	1.87	1.34	0.08	0.07	0.01	470.30	0.15	0.01
Other Material Handling Equipment	2023	9999	0.05	2.27	0.94	0.02	0.02	0.01	472.05	0.15	0.01
Pavers	2023	25	1.01	4.28	5.01	0.30	0.28	0.01	526.86	0.17	0.01
Pavers	2023	50	1.01	4.28	5.01	0.30	0.28	0.01	526.86	0.17	0.01

Construction Equipment Emission Factors - CY 2023

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Pavers	2023	120	0.35	3.43	3.51	0.23	0.21	0.01	470.08	0.15	0.01
Pavers	2023	175	0.20	1.96	2.99	0.09	0.09	0.01	472.72	0.15	0.01
Pavers	2023	250	0.13	1.61	1.01	0.05	0.04	0.01	472.61	0.15	0.01
Pavers	2023	500	0.15	1.77	0.99	0.06	0.06	0.01	466.00	0.15	0.01
Paving Equipment	2023	25	0.54	3.77	4.24	0.17	0.16	0.01	521.11	0.17	0.01
Paving Equipment	2023	50	0.54	3.77	4.24	0.17	0.16	0.01	521.11	0.17	0.01
Paving Equipment	2023	120	0.28	2.84	3.50	0.15	0.14	0.01	473.43	0.15	0.01
Paving Equipment	2023	175	0.20	1.91	3.05	0.09	0.09	0.01	470.66	0.15	0.01
Paving Equipment	2023	250	0.18	1.88	1.17	0.07	0.07	0.01	472.17	0.15	0.01
Plate Compactors	2023	15	0.66	4.14	3.47	0.16	0.16	0.01	568.30	0.06	0.01
Pressure Washers	2023	15	0.62	4.35	3.51	0.19	0.19	0.01	568.30	0.06	0.01
Pressure Washers	2023	25	0.70	4.45	2.41	0.18	0.18	0.01	568.30	0.06	0.01
Pressure Washers	2023	50	0.36	3.54	3.26	0.10	0.10	0.01	568.30	0.03	0.01
Pressure Washers	2023	120	0.22	2.38	3.20	0.10	0.10	0.01	568.30	0.02	0.01
Pressure Washers	2023	175	0.21	1.67	2.91	0.07	0.07	0.01	568.30	0.02	0.01
Pressure Washers	2023	250	0.10	0.27	0.99	0.01	0.01	0.01	568.30	0.01	0.01
Pumps	2023	15	0.70	4.36	3.51	0.19	0.19	0.01	568.30	0.06	0.01
Pumps	2023	25	0.73	4.45	2.41	0.19	0.19	0.01	568.30	0.07	0.01
Pumps	2023	50	0.57	3.73	4.01	0.13	0.13	0.01	568.30	0.05	0.01
Pumps	2023	120	0.30	2.51	3.40	0.12	0.12	0.01	568.30	0.03	0.01
Pumps	2023	175	0.23	1.66	2.97	0.08	0.08	0.01	568.30	0.02	0.01
Pumps	2023	250	0.18	1.35	1.02	0.04	0.04	0.01	568.30	0.02	0.01
Pumps	2023	500	0.17	1.25	1.00	0.04	0.04	0.01	568.30	0.02	0.01
Pumps	2023	750	0.17	1.27	1.00	0.04	0.04	0.01	568.30	0.02	0.01
Pumps	2023	9999	0.21	3.09	1.04	0.06	0.06	0.01	568.30	0.02	0.01
Rollers	2023	15	0.66	3.92	4.25	0.21	0.20	0.01	525.86	0.17	0.01
Rollers	2023	25	0.66	3.92	4.25	0.21	0.20	0.01	525.86	0.17	0.01
Rollers	2023	50	0.66	3.92	4.25	0.21	0.20	0.01	525.86	0.17	0.01
Rollers	2023	120	0.29	3.00	3.45	0.17	0.15	0.01	473.94	0.15	0.01
Rollers	2023	175	0.15	1.48	2.91	0.07	0.06	0.01	471.94	0.15	0.01
Rollers	2023	250	0.19	2.17	1.23	0.08	0.07	0.01	473.52	0.15	0.01
Rollers	2023	500	0.21	2.29	1.96	0.09	0.09	0.01	478.30	0.16	0.01
Rough Terrain Forklifts	2023	50	0.69	3.85	4.13	0.20	0.19	0.01	524.80	0.17	0.01
Rough Terrain Forklifts	2023	120	0.15	1.98	3.24	0.06	0.06	0.01	473.16	0.15	0.01
Rough Terrain Forklifts	2023	175	0.11	1.22	2.84	0.04	0.04	0.01	471.62	0.15	0.01
Rough Terrain Forklifts	2023	250	0.12	1.47	0.99	0.03	0.03	0.01	472.78	0.15	0.01
Rough Terrain Forklifts	2023	500	0.07	0.56	0.94	0.01	0.01	0.01	466.55	0.15	0.01
Rubber Tired Dozers	2023	175	0.59	5.66	3.77	0.32	0.29	0.01	473.90	0.15	0.01
Rubber Tired Dozers	2023	250	0.39	4.09	1.78	0.18	0.17	0.01	474.60	0.15	0.01
Rubber Tired Dozers	2023	500	0.45	4.41	3.69	0.20	0.19	0.01	479.47	0.16	0.01
Rubber Tired Dozers	2023	750	0.42	5.33	2.59	0.20	0.18	0.01	473.02	0.15	0.01
Rubber Tired Dozers	2023	1000	0.45	4.71	1.87	0.13	0.13	0.01	568.30	0.04	0.01
Rubber Tired Loaders	2023	25	1.05	4.52	5.97	0.30	0.28	0.01	524.30	0.17	0.01
Rubber Tired Loaders	2023	50	1.05	4.52	5.97	0.30	0.28	0.01	524.30	0.17	0.01
Rubber Tired Loaders	2023	120	0.41	3.51	3.83	0.24	0.22	0.01	466.56	0.15	0.01
Rubber Tired Loaders	2023	175	0.27	2.20	3.29	0.12	0.11	0.01	470.66	0.15	0.01
Rubber Tired Loaders	2023	250	0.21	2.06	1.17	0.07	0.06	0.01	469.82	0.15	0.01
Rubber Tired Loaders	2023	500	0.22	1.87	1.38	0.07	0.06	0.01	468.47	0.15	0.01
Rubber Tired Loaders	2023	750	0.23	1.93	1.32	0.07	0.07	0.01	464.56	0.15	0.01
Rubber Tired Loaders	2023	1000	0.19	3.53	1.17	0.07	0.07	0.01	472.30	0.15	0.01
Scrapers	2023	120	0.63	6.03	4.14	0.46	0.42	0.01	483.03	0.16	0.01
Scrapers	2023	175	0.36	3.48	3.40	0.18	0.17	0.01	478.68	0.16	0.01
Scrapers	2023	250	0.32	3.28	1.68	0.14	0.13	0.01	469.56	0.15	0.01
Scrapers	2023	500	0.25	2.67	1.98	0.11	0.10	0.01	473.18	0.15	0.01
Scrapers	2023	750	0.22	2.39	1.51	0.09	0.08	0.01	471.30	0.15	0.01
Signal Boards	2023	15	0.66	4.14	3.47	0.16	0.16	0.01	568.30	0.06	0.01

Construction Equipment Emission Factors - CY 2023

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Signal Boards	2023	50	0.60	3.77	4.28	0.13	0.13	0.01	568.30	0.05	0.01
Signal Boards	2023	120	0.32	2.47	3.48	0.12	0.12	0.01	568.30	0.03	0.01
Signal Boards	2023	175	0.24	1.60	3.05	0.08	0.08	0.01	568.30	0.02	0.01
Signal Boards	2023	250	0.24	1.56	1.26	0.05	0.05	0.01	686.70	0.02	0.02
Skid Steer Loaders	2023	25	0.35	3.37	3.65	0.09	0.09	0.01	527.42	0.17	0.01
Skid Steer Loaders	2023	50	0.35	3.37	3.65	0.09	0.09	0.01	527.42	0.17	0.01
Skid Steer Loaders	2023	120	0.15	2.04	3.27	0.07	0.06	0.01	472.66	0.15	0.01
Surfacing Equipment	2023	50	0.44	3.92	3.83	0.16	0.14	0.01	535.93	0.17	0.01
Surfacing Equipment	2023	120	0.27	3.06	3.40	0.16	0.14	0.01	474.47	0.15	0.01
Surfacing Equipment	2023	175	0.22	2.46	2.91	0.12	0.11	0.01	470.01	0.15	0.01
Surfacing Equipment	2023	250	0.19	2.50	1.22	0.08	0.08	0.01	476.96	0.15	0.01
Surfacing Equipment	2023	500	0.13	1.48	1.16	0.06	0.05	0.01	470.37	0.15	0.01
Surfacing Equipment	2023	750	0.10	1.08	0.99	0.04	0.04	0.01	472.45	0.15	0.01
Sweepers/Scrubbers	2023	15	0.76	4.13	4.97	0.25	0.23	0.01	525.33	0.17	0.01
Sweepers/Scrubbers	2023	25	0.76	4.13	4.97	0.25	0.23	0.01	525.33	0.17	0.01
Sweepers/Scrubbers	2023	50	0.76	4.13	4.97	0.25	0.23	0.01	525.33	0.17	0.01
Sweepers/Scrubbers	2023	120	0.35	3.29	3.69	0.21	0.19	0.01	474.12	0.15	0.01
Sweepers/Scrubbers	2023	175	0.29	2.61	3.22	0.13	0.12	0.01	473.12	0.15	0.01
Sweepers/Scrubbers	2023	250	0.16	1.61	1.11	0.05	0.05	0.01	470.13	0.15	0.01
Tractors/Loaders/Backhoes	2023	25	0.62	3.86	4.63	0.19	0.17	0.01	513.80	0.17	0.01
Tractors/Loaders/Backhoes	2023	50	0.62	3.86	4.63	0.19	0.17	0.01	513.80	0.17	0.01
Tractors/Loaders/Backhoes	2023	120	0.24	2.43	3.53	0.12	0.11	0.01	476.43	0.15	0.01
Tractors/Loaders/Backhoes	2023	175	0.18	1.52	3.08	0.08	0.07	0.01	468.82	0.15	0.01
Tractors/Loaders/Backhoes	2023	250	0.17	1.59	1.15	0.06	0.05	0.01	469.75	0.15	0.01
Tractors/Loaders/Backhoes	2023	500	0.15	1.25	1.28	0.05	0.04	0.01	469.47	0.15	0.01
Tractors/Loaders/Backhoes	2023	750	0.23	2.42	1.36	0.10	0.09	0.01	466.68	0.15	0.01
Trenchers	2023	15	0.64	3.96	4.30	0.22	0.20	0.01	527.10	0.17	0.01
Trenchers	2023	25	0.64	3.96	4.30	0.22	0.20	0.01	527.10	0.17	0.01
Trenchers	2023	50	0.64	3.96	4.30	0.22	0.20	0.01	527.10	0.17	0.01
Trenchers	2023	120	0.50	4.70	3.77	0.33	0.30	0.01	475.69	0.15	0.01
Trenchers	2023	175	0.36	3.66	3.29	0.19	0.17	0.01	467.73	0.15	0.01
Trenchers	2023	250	0.33	3.74	1.64	0.16	0.14	0.01	473.85	0.15	0.01
Trenchers	2023	500	0.20	2.01	1.72	0.09	0.08	0.01	471.61	0.15	0.01
Trenchers	2023	750	0.06	0.30	0.95	0.01	0.01	0.01	474.47	0.15	0.01

Construction Equipment Emission Factors - CY 2024

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Aerial Lifts	2024	15	0.16	2.89	3.11	0.02	0.02	0.01	525.07	0.17	0.01
Aerial Lifts	2024	25	0.16	2.89	3.11	0.02	0.02	0.01	525.07	0.17	0.01
Aerial Lifts	2024	50	0.16	2.89	3.11	0.02	0.02	0.01	525.07	0.17	0.01
Aerial Lifts	2024	120	0.10	1.53	3.17	0.03	0.02	0.01	472.11	0.15	0.01
Aerial Lifts	2024	500	0.08	0.65	0.97	0.01	0.01	0.01	472.05	0.15	0.01
Aerial Lifts	2024	750	0.16	1.12	0.99	0.03	0.03	0.01	568.30	0.01	0.01
Air Compressors	2024	15	0.69	4.32	3.50	0.19	0.19	0.01	568.30	0.06	0.01
Air Compressors	2024	25	0.72	4.43	2.39	0.18	0.18	0.01	568.30	0.06	0.01
Air Compressors	2024	50	0.70	3.86	4.88	0.14	0.14	0.01	568.30	0.06	0.01
Air Compressors	2024	120	0.37	2.46	3.66	0.12	0.12	0.01	568.30	0.03	0.01
Air Compressors	2024	175	0.29	1.56	3.20	0.08	0.08	0.01	568.30	0.03	0.01
Air Compressors	2024	250	0.23	1.25	1.10	0.04	0.04	0.01	568.30	0.02	0.01
Air Compressors	2024	500	0.23	1.15	1.05	0.04	0.04	0.01	568.30	0.02	0.01
Air Compressors	2024	750	0.23	1.17	1.05	0.04	0.04	0.01	568.30	0.02	0.01
Air Compressors	2024	1000	0.24	3.08	1.09	0.06	0.06	0.01	568.30	0.02	0.01
Bore/Drill Rigs	2024	15	0.61	4.16	4.33	0.22	0.20	0.01	529.87	0.17	0.01
Bore/Drill Rigs	2024	25	0.61	4.16	4.33	0.22	0.20	0.01	529.87	0.17	0.01
Bore/Drill Rigs	2024	50	0.61	4.16	4.33	0.22	0.20	0.01	529.87	0.17	0.01
Bore/Drill Rigs	2024	120	0.18	2.22	3.25	0.09	0.08	0.01	461.21	0.15	0.01
Bore/Drill Rigs	2024	175	0.13	1.03	2.98	0.05	0.04	0.01	478.94	0.16	0.01
Bore/Drill Rigs	2024	250	0.11	0.98	1.05	0.03	0.03	0.01	470.71	0.15	0.01
Bore/Drill Rigs	2024	500	0.10	0.86	0.99	0.03	0.03	0.01	464.48	0.15	0.01
Bore/Drill Rigs	2024	750	0.09	0.67	0.98	0.03	0.02	0.01	480.22	0.16	0.01
Bore/Drill Rigs	2024	1000	0.06	2.27	0.94	0.02	0.02	0.01	471.93	0.15	0.01
Cement and Mortar Mixers	2024	15	0.66	4.14	3.47	0.16	0.16	0.01	568.30	0.06	0.01
Cement and Mortar Mixers	2024	25	0.69	4.37	2.35	0.17	0.17	0.01	568.30	0.06	0.01
Concrete/Industrial Saws	2024	25	0.69	4.33	2.34	0.16	0.16	0.01	568.30	0.06	0.01
Concrete/Industrial Saws	2024	50	0.56	3.70	4.33	0.12	0.12	0.01	568.30	0.05	0.01
Concrete/Industrial Saws	2024	120	0.30	2.32	3.50	0.11	0.11	0.01	568.30	0.03	0.01
Concrete/Industrial Saws	2024	175	0.24	1.42	3.07	0.07	0.07	0.01	568.30	0.02	0.01
Cranes	2024	50	1.94	5.79	7.27	0.58	0.53	0.01	517.87	0.17	0.01
Cranes	2024	120	0.52	4.62	3.91	0.30	0.28	0.01	469.90	0.15	0.01
Cranes	2024	175	0.38	3.70	3.39	0.20	0.18	0.01	474.64	0.15	0.01
Cranes	2024	250	0.28	2.97	1.50	0.12	0.11	0.01	472.96	0.15	0.01
Cranes	2024	500	0.23	2.38	1.93	0.10	0.09	0.01	472.07	0.15	0.01
Cranes	2024	750	0.19	1.90	1.28	0.08	0.07	0.01	470.33	0.15	0.01
Cranes	2024	9999	0.22	2.41	1.03	0.06	0.06	0.01	472.05	0.15	0.01
Crawler Tractors	2024	50	1.76	4.98	6.68	0.47	0.43	0.01	515.47	0.17	0.01
Crawler Tractors	2024	120	0.51	4.41	3.85	0.34	0.31	0.01	476.23	0.15	0.01
Crawler Tractors	2024	175	0.33	3.04	3.23	0.17	0.16	0.01	471.83	0.15	0.01
Crawler Tractors	2024	250	0.26	2.95	1.37	0.12	0.11	0.01	471.86	0.15	0.01
Crawler Tractors	2024	500	0.23	2.24	1.78	0.09	0.09	0.01	474.03	0.15	0.01
Crawler Tractors	2024	750	0.18	1.77	1.16	0.07	0.06	0.01	472.28	0.15	0.01
Crawler Tractors	2024	1000	0.26	4.69	1.59	0.12	0.11	0.01	474.64	0.15	0.01
Crushing/Proc. Equipment	2024	50	0.69	3.85	5.01	0.13	0.13	0.01	568.30	0.06	0.01
Crushing/Proc. Equipment	2024	120	0.36	2.39	3.70	0.11	0.11	0.01	568.30	0.03	0.01
Crushing/Proc. Equipment	2024	175	0.29	1.47	3.24	0.07	0.07	0.01	568.30	0.03	0.01
Crushing/Proc. Equipment	2024	250	0.24	1.17	1.11	0.04	0.04	0.01	568.30	0.02	0.01
Crushing/Proc. Equipment	2024	500	0.23	1.08	1.06	0.04	0.04	0.01	568.30	0.02	0.01
Crushing/Proc. Equipment	2024	750	0.23	1.10	1.06	0.04	0.04	0.01	568.30	0.02	0.01
Crushing/Proc. Equipment	2024	9999	0.27	3.03	1.10	0.06	0.06	0.01	568.30	0.02	0.01
Dumpers/Tenders	2024	25	0.69	4.33	2.34	0.16	0.16	0.01	568.30	0.06	0.01
Excavators	2024	25	0.42	3.51	4.21	0.12	0.11	0.01	525.98	0.17	0.01
Excavators	2024	50	0.42	3.51	4.21	0.12	0.11	0.01	525.98	0.17	0.01
Excavators	2024	120	0.22	2.25	3.45	0.10	0.09	0.01	467.38	0.15	0.01
Excavators	2024	175	0.17	1.32	3.08	0.07	0.06	0.01	472.43	0.15	0.01

Construction Equipment Emission Factors - CY 2024

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Excavators	2024	250	0.14	1.11	1.09	0.04	0.03	0.01	472.44	0.15	0.01
Excavators	2024	500	0.12	0.83	1.05	0.03	0.03	0.01	469.71	0.15	0.01
Excavators	2024	750	0.14	1.10	1.13	0.04	0.04	0.01	468.65	0.15	0.01
Forklifts	2024	50	0.69	4.04	5.09	0.20	0.19	0.01	525.48	0.17	0.01
Forklifts	2024	120	0.30	2.81	3.63	0.16	0.15	0.01	471.53	0.15	0.01
Forklifts	2024	175	0.22	1.86	3.17	0.10	0.09	0.01	472.11	0.15	0.01
Forklifts	2024	250	0.20	1.63	1.22	0.06	0.06	0.01	473.33	0.15	0.01
Forklifts	2024	500	0.22	1.72	1.22	0.07	0.06	0.01	473.62	0.15	0.01
Generator Sets	2024	15	0.61	4.31	3.50	0.18	0.18	0.01	568.30	0.06	0.01
Generator Sets	2024	25	0.70	4.43	2.39	0.18	0.18	0.01	568.30	0.06	0.01
Generator Sets	2024	50	0.48	3.58	3.79	0.11	0.11	0.01	568.30	0.04	0.01
Generator Sets	2024	120	0.26	2.32	3.34	0.10	0.10	0.01	568.30	0.02	0.01
Generator Sets	2024	175	0.20	1.46	2.93	0.06	0.06	0.01	568.30	0.02	0.01
Generator Sets	2024	250	0.16	1.17	1.00	0.03	0.03	0.01	568.30	0.01	0.01
Generator Sets	2024	500	0.15	1.08	0.98	0.03	0.03	0.01	568.30	0.01	0.01
Generator Sets	2024	750	0.15	1.10	0.98	0.03	0.03	0.01	568.30	0.01	0.01
Generator Sets	2024	9999	0.18	2.93	1.02	0.05	0.05	0.01	568.30	0.02	0.01
Graders	2024	50	1.85	5.03	7.05	0.52	0.48	0.01	493.79	0.16	0.01
Graders	2024	120	0.68	5.43	4.20	0.41	0.38	0.01	469.82	0.15	0.01
Graders	2024	175	0.36	3.20	3.43	0.18	0.16	0.01	478.50	0.16	0.01
Graders	2024	250	0.26	3.07	1.22	0.10	0.09	0.01	473.67	0.15	0.01
Graders	2024	500	0.29	2.43	1.36	0.10	0.09	0.01	470.27	0.15	0.01
Graders	2024	750	0.26	1.27	1.16	0.05	0.05	0.01	568.30	0.02	0.01
Off-Highway Tractors	2024	120	0.30	2.95	3.69	0.17	0.16	0.01	476.37	0.15	0.01
Off-Highway Tractors	2024	175	0.18	1.50	3.13	0.07	0.07	0.01	473.10	0.15	0.01
Off-Highway Tractors	2024	250	0.17	1.38	1.13	0.05	0.05	0.01	470.69	0.15	0.01
Off-Highway Tractors	2024	750	0.17	1.23	1.13	0.05	0.04	0.01	471.92	0.15	0.01
Off-Highway Tractors	2024	1000	0.19	2.47	1.07	0.07	0.06	0.01	472.05	0.15	0.01
Off-Highway Trucks	2024	175	0.22	1.49	3.32	0.07	0.06	0.01	470.26	0.15	0.01
Off-Highway Trucks	2024	250	0.20	1.36	1.26	0.05	0.05	0.01	469.11	0.15	0.01
Off-Highway Trucks	2024	500	0.18	1.24	1.21	0.04	0.04	0.01	475.22	0.15	0.01
Off-Highway Trucks	2024	750	0.26	2.08	1.65	0.08	0.07	0.01	473.84	0.15	0.01
Off-Highway Trucks	2024	1000	0.21	3.44	1.20	0.07	0.06	0.01	473.10	0.15	0.01
Other Construction Equipment	2024	15	0.83	4.51	5.03	0.31	0.28	0.01	529.21	0.17	0.01
Other Construction Equipment	2024	25	0.83	4.51	5.03	0.31	0.28	0.01	529.21	0.17	0.01
Other Construction Equipment	2024	50	0.83	4.51	5.03	0.31	0.28	0.01	529.21	0.17	0.01
Other Construction Equipment	2024	120	0.38	3.58	3.62	0.24	0.22	0.01	472.13	0.15	0.01
Other Construction Equipment	2024	175	0.26	2.52	3.15	0.13	0.12	0.01	469.54	0.15	0.01
Other Construction Equipment	2024	500	0.18	1.68	1.38	0.06	0.06	0.01	476.48	0.15	0.01
Other General Industrial Equipment	2024	15	0.55	3.86	4.78	0.17	0.15	0.01	526.18	0.17	0.01
Other General Industrial Equipment	2024	25	0.55	3.86	4.78	0.17	0.15	0.01	526.18	0.17	0.01
Other General Industrial Equipment	2024	50	0.55	3.86	4.78	0.17	0.15	0.01	526.18	0.17	0.01
Other General Industrial Equipment	2024	120	0.29	2.71	3.64	0.15	0.13	0.01	470.00	0.15	0.01
Other General Industrial Equipment	2024	175	0.19	1.45	3.19	0.07	0.07	0.01	471.85	0.15	0.01
Other General Industrial Equipment	2024	250	0.17	1.32	1.14	0.05	0.04	0.01	473.22	0.15	0.01
Other General Industrial Equipment	2024	500	0.16	1.15	1.11	0.04	0.04	0.01	472.93	0.15	0.01
Other General Industrial Equipment	2024	750	0.12	0.63	1.11	0.02	0.02	0.01	473.46	0.15	0.01
Other General Industrial Equipment	2024	1000	0.20	3.97	1.06	0.08	0.07	0.01	472.05	0.15	0.01
Other Material Handling Equipment	2024	50	0.94	4.58	5.67	0.31	0.29	0.01	523.71	0.17	0.01
Other Material Handling Equipment	2024	120	0.22	2.22	3.51	0.10	0.09	0.01	473.59	0.15	0.01
Other Material Handling Equipment	2024	175	0.21	1.64	3.18	0.09	0.08	0.01	472.22	0.15	0.01
Other Material Handling Equipment	2024	250	0.21	1.99	1.22	0.07	0.06	0.01	471.48	0.15	0.01
Other Material Handling Equipment	2024	500	0.21	1.76	1.26	0.07	0.07	0.01	470.30	0.15	0.01
Other Material Handling Equipment	2024	9999	0.06	2.28	0.95	0.02	0.02	0.01	472.05	0.15	0.01
Pavers	2024	25	0.95	4.20	4.96	0.28	0.26	0.01	526.86	0.17	0.01
Pavers	2024	50	0.95	4.20	4.96	0.28	0.26	0.01	526.86	0.17	0.01

Construction Equipment Emission Factors - CY 2024

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Pavers	2024	120	0.34	3.28	3.51	0.21	0.20	0.01	470.23	0.15	0.01
Pavers	2024	175	0.19	1.81	3.00	0.08	0.08	0.01	472.66	0.15	0.01
Pavers	2024	250	0.12	1.34	1.01	0.04	0.04	0.01	473.24	0.15	0.01
Pavers	2024	500	0.14	1.55	0.99	0.05	0.05	0.01	467.17	0.15	0.01
Paving Equipment	2024	25	0.52	3.74	4.27	0.16	0.15	0.01	521.06	0.17	0.01
Paving Equipment	2024	50	0.52	3.74	4.27	0.16	0.15	0.01	521.06	0.17	0.01
Paving Equipment	2024	120	0.26	2.67	3.50	0.14	0.13	0.01	473.17	0.15	0.01
Paving Equipment	2024	175	0.20	1.79	3.07	0.09	0.08	0.01	470.66	0.15	0.01
Paving Equipment	2024	250	0.14	1.30	1.11	0.05	0.04	0.01	472.21	0.15	0.01
Plate Compactors	2024	15	0.66	4.14	3.47	0.16	0.16	0.01	568.30	0.06	0.01
Pressure Washers	2024	15	0.61	4.31	3.50	0.18	0.18	0.01	568.30	0.06	0.01
Pressure Washers	2024	25	0.70	4.43	2.39	0.18	0.18	0.01	568.30	0.06	0.01
Pressure Washers	2024	50	0.33	3.44	3.23	0.09	0.09	0.01	568.30	0.03	0.01
Pressure Washers	2024	120	0.20	2.23	3.19	0.08	0.08	0.01	568.30	0.02	0.01
Pressure Washers	2024	175	0.19	1.48	2.91	0.06	0.06	0.01	568.30	0.02	0.01
Pressure Washers	2024	250	0.10	0.27	0.99	0.01	0.01	0.01	568.30	0.01	0.01
Pumps	2024	15	0.69	4.32	3.50	0.19	0.19	0.01	568.30	0.06	0.01
Pumps	2024	25	0.72	4.43	2.39	0.18	0.18	0.01	568.30	0.06	0.01
Pumps	2024	50	0.52	3.63	3.97	0.11	0.11	0.01	568.30	0.05	0.01
Pumps	2024	120	0.28	2.35	3.39	0.11	0.11	0.01	568.30	0.03	0.01
Pumps	2024	175	0.21	1.49	2.97	0.07	0.07	0.01	568.30	0.02	0.01
Pumps	2024	250	0.17	1.19	1.02	0.03	0.03	0.01	568.30	0.02	0.01
Pumps	2024	500	0.16	1.10	0.99	0.03	0.03	0.01	568.30	0.01	0.01
Pumps	2024	750	0.16	1.12	0.99	0.03	0.03	0.01	568.30	0.01	0.01
Pumps	2024	9999	0.20	2.96	1.03	0.05	0.05	0.01	568.30	0.02	0.01
Rollers	2024	15	0.62	3.82	4.21	0.19	0.18	0.01	525.96	0.17	0.01
Rollers	2024	25	0.62	3.82	4.21	0.19	0.18	0.01	525.96	0.17	0.01
Rollers	2024	50	0.62	3.82	4.21	0.19	0.18	0.01	525.96	0.17	0.01
Rollers	2024	120	0.27	2.84	3.45	0.15	0.14	0.01	474.01	0.15	0.01
Rollers	2024	175	0.14	1.32	2.91	0.06	0.06	0.01	472.01	0.15	0.01
Rollers	2024	250	0.18	1.98	1.21	0.07	0.06	0.01	473.51	0.15	0.01
Rollers	2024	500	0.21	2.22	1.96	0.09	0.08	0.01	477.90	0.16	0.01
Rough Terrain Forklifts	2024	50	0.57	3.65	3.92	0.17	0.15	0.01	524.92	0.17	0.01
Rough Terrain Forklifts	2024	120	0.15	1.91	3.24	0.06	0.05	0.01	473.06	0.15	0.01
Rough Terrain Forklifts	2024	175	0.10	1.04	2.83	0.04	0.04	0.01	471.53	0.15	0.01
Rough Terrain Forklifts	2024	250	0.12	1.48	1.00	0.04	0.03	0.01	472.85	0.15	0.01
Rough Terrain Forklifts	2024	500	0.07	0.48	0.94	0.01	0.01	0.01	466.55	0.15	0.01
Rubber Tired Dozers	2024	175	0.53	5.01	3.70	0.28	0.26	0.01	473.51	0.15	0.01
Rubber Tired Dozers	2024	250	0.40	4.09	1.80	0.18	0.17	0.01	474.59	0.15	0.01
Rubber Tired Dozers	2024	500	0.42	4.03	3.46	0.18	0.17	0.01	479.39	0.16	0.01
Rubber Tired Dozers	2024	750	0.43	5.33	2.60	0.20	0.18	0.01	473.01	0.15	0.01
Rubber Tired Dozers	2024	1000	0.43	4.53	1.80	0.12	0.12	0.01	568.30	0.04	0.01
Rubber Tired Loaders	2024	25	1.01	4.47	5.99	0.29	0.26	0.01	524.23	0.17	0.01
Rubber Tired Loaders	2024	50	1.01	4.47	5.99	0.29	0.26	0.01	524.23	0.17	0.01
Rubber Tired Loaders	2024	120	0.40	3.34	3.83	0.22	0.20	0.01	466.81	0.15	0.01
Rubber Tired Loaders	2024	175	0.25	1.88	3.29	0.10	0.09	0.01	470.36	0.15	0.01
Rubber Tired Loaders	2024	250	0.20	1.81	1.16	0.06	0.06	0.01	469.79	0.15	0.01
Rubber Tired Loaders	2024	500	0.21	1.70	1.35	0.06	0.06	0.01	468.51	0.15	0.01
Rubber Tired Loaders	2024	750	0.23	1.88	1.33	0.07	0.07	0.01	464.87	0.15	0.01
Rubber Tired Loaders	2024	1000	0.20	3.54	1.19	0.07	0.07	0.01	472.35	0.15	0.01
Scrapers	2024	120	0.58	5.63	4.09	0.41	0.38	0.01	482.70	0.16	0.01
Scrapers	2024	175	0.34	3.16	3.37	0.17	0.15	0.01	478.81	0.16	0.01
Scrapers	2024	250	0.30	3.01	1.63	0.13	0.12	0.01	469.35	0.15	0.01
Scrapers	2024	500	0.25	2.48	1.92	0.10	0.09	0.01	472.85	0.15	0.01
Scrapers	2024	750	0.21	2.19	1.46	0.08	0.07	0.01	471.43	0.15	0.01
Signal Boards	2024	15	0.66	4.14	3.47	0.16	0.16	0.01	568.30	0.06	0.01

Construction Equipment Emission Factors - CY 2024

Source: CalEEMod version 2016.3.2 (Unmitigated)

Equipment Type	Year	HP	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Signal Boards	2024	50	0.56	3.66	4.25	0.11	0.11	0.01	568.30	0.05	0.01
Signal Boards	2024	120	0.30	2.32	3.47	0.11	0.11	0.01	568.30	0.03	0.01
Signal Boards	2024	175	0.23	1.43	3.05	0.07	0.07	0.01	568.30	0.02	0.01
Signal Boards	2024	250	0.22	1.37	1.26	0.04	0.04	0.01	686.70	0.02	0.02
Skid Steer Loaders	2024	25	0.35	3.35	3.67	0.09	0.08	0.01	527.80	0.17	0.01
Skid Steer Loaders	2024	50	0.35	3.35	3.67	0.09	0.08	0.01	527.80	0.17	0.01
Skid Steer Loaders	2024	120	0.15	1.95	3.26	0.06	0.06	0.01	472.85	0.15	0.01
Surfacing Equipment	2024	50	0.33	3.72	3.66	0.12	0.11	0.01	536.03	0.17	0.01
Surfacing Equipment	2024	120	0.25	2.88	3.39	0.14	0.13	0.01	475.38	0.15	0.01
Surfacing Equipment	2024	175	0.23	2.46	2.93	0.12	0.11	0.01	470.08	0.15	0.01
Surfacing Equipment	2024	250	0.18	2.24	1.18	0.07	0.07	0.01	477.10	0.15	0.01
Surfacing Equipment	2024	500	0.13	1.48	1.17	0.06	0.05	0.01	470.25	0.15	0.01
Surfacing Equipment	2024	750	0.09	0.95	0.98	0.03	0.03	0.01	472.98	0.15	0.01
Sweepers/Scrubbers	2024	15	0.75	4.08	5.00	0.24	0.22	0.01	525.33	0.17	0.01
Sweepers/Scrubbers	2024	25	0.75	4.08	5.00	0.24	0.22	0.01	525.33	0.17	0.01
Sweepers/Scrubbers	2024	50	0.75	4.08	5.00	0.24	0.22	0.01	525.33	0.17	0.01
Sweepers/Scrubbers	2024	120	0.33	3.10	3.69	0.19	0.17	0.01	474.12	0.15	0.01
Sweepers/Scrubbers	2024	175	0.27	2.25	3.23	0.11	0.10	0.01	473.12	0.15	0.01
Sweepers/Scrubbers	2024	250	0.16	1.61	1.13	0.05	0.05	0.01	470.13	0.15	0.01
Tractors/Loaders/Backhoes	2024	25	0.59	3.77	4.61	0.17	0.15	0.01	513.85	0.17	0.01
Tractors/Loaders/Backhoes	2024	50	0.59	3.77	4.61	0.17	0.15	0.01	513.85	0.17	0.01
Tractors/Loaders/Backhoes	2024	120	0.23	2.29	3.53	0.11	0.10	0.01	476.73	0.15	0.01
Tractors/Loaders/Backhoes	2024	175	0.18	1.38	3.09	0.07	0.06	0.01	469.40	0.15	0.01
Tractors/Loaders/Backhoes	2024	250	0.17	1.49	1.15	0.05	0.05	0.01	469.91	0.15	0.01
Tractors/Loaders/Backhoes	2024	500	0.15	1.16	1.28	0.04	0.04	0.01	470.08	0.15	0.01
Tractors/Loaders/Backhoes	2024	750	0.22	2.22	1.31	0.09	0.08	0.01	466.64	0.15	0.01
Trenchers	2024	15	0.60	3.83	4.23	0.20	0.18	0.01	527.02	0.17	0.01
Trenchers	2024	25	0.60	3.83	4.23	0.20	0.18	0.01	527.02	0.17	0.01
Trenchers	2024	50	0.60	3.83	4.23	0.20	0.18	0.01	527.02	0.17	0.01
Trenchers	2024	120	0.49	4.59	3.77	0.32	0.29	0.01	475.63	0.15	0.01
Trenchers	2024	175	0.36	3.67	3.31	0.19	0.17	0.01	467.73	0.15	0.01
Trenchers	2024	250	0.31	3.48	1.60	0.15	0.13	0.01	473.85	0.15	0.01
Trenchers	2024	500	0.19	1.86	1.67	0.08	0.07	0.01	469.99	0.15	0.01
Trenchers	2024	750	0.06	0.30	0.96	0.01	0.01	0.01	474.48	0.15	0.01

CalEEMod Construction Equipment Defaults

Source: CalEEMod version 2016.3.2

OFFROAD Equipment Type	Horsepower	CMOD High	Carl Moyer LF
Aerial Lifts	63	50	0.31
Air Compressors	78	120	0.48
Bore/Drill Rigs	221	250	0.50
Cement and Mortar Mixers	9	15	0.56
Concrete/Industrial Saws	81	120	0.73
Cranes	231	250	0.29
Crawler Tractors	212	250	0.43
Crushing/Proc. Equipment	85	120	0.78
Dumpers/Tenders	16	15	0.38
Excavators	158	175	0.38
Forklifts	89	120	0.20
Generator Sets	84	120	0.74
Graders	187	175	0.41
Off-Highway Tractors	124	120	0.44
Off-Highway Trucks	402	500	0.38
Other Construction Equipment	172	175	0.42
Other General Industrial Equipment	88	120	0.34
Other Material Handling Equipment	168	175	0.40
Pavers	130	120	0.42
Paving Equipment	132	120	0.36
Plate Compactors	8	15	0.43
Pressure Washers	13	15	0.30
Pumps	84	120	0.74
Rollers	80	120	0.38
Rough Terrain Forklifts	100	120	0.40
Rubber Tired Dozers	247	250	0.40
Rubber Tired Loaders	203	250	0.36
Scrapers	367	500	0.48
Signal Boards	6	15	0.82
Skid Steer Loaders	65	75	0.37
Surfacing Equipment	263	250	0.30
Sweepers/Scrubbers	64	75	0.46
Tractors/Loaders/Backhoes	97	120	0.37
Trenchers	78	120	0.50
Welders	46	50	0.45

On-Road Emission Factors

Source: EMFAC2017. Offsite emission factors for aggregate speeds. Onsite emission factors for 5 mph.

				Running (RUNEX, PMTW, PMBW) grams per mile											Process (IDLEX, STREX, TOTEX, DIURN, HTSK, RUNLS, RESTL) grams per trip										
Year	**Air Basin**	**VehType**	**Lookup**	**ROG**	**NOx**	**CO**	**PM10 Ex**	**PM10 D**	**PM2.5 Ex**	**PM2.5 D**	**SO2**	**CO2**	**CH4**	**N2O**	**ROG**	**NOx**	**CO**	**PM10 Ex**	**PM10 D**	**PM2.5 Ex**	**PM2.5 D**	**SO2**	**CO2**	**CH4**	**N2O**
2020	SDAB	T6	2020SDABT6	0.21	3.46	0.59	0.09	0.26	0.08	0.08	0.01	1,050	0.01	0.17	0.01	1.81	0.17	0.00	0.00	0.00	0.00	0.00	58	0.00	0.01
2021	SDAB	T6	2021SDABT6	0.16	2.81	0.47	0.07	0.26	0.07	0.08	0.01	1,022	0.01	0.16	0.01	1.92	0.17	0.00	0.00	0.00	0.00	0.00	57	0.00	0.01
2022	SDAB	T6	2022SDABT6	0.05	1.84	0.20	0.02	0.26	0.02	0.08	0.01	980	0.00	0.15	0.01	2.16	0.17	0.00	0.00	0.00	0.00	0.00	54	0.00	0.01
2023	SDAB	T6	2023SDABT6	0.01	1.38	0.10	0.01	0.26	0.01	0.08	0.01	947	0.00	0.15	0.00	2.38	0.18	0.00	0.00	0.00	0.00	0.00	52	0.00	0.01
2024	SDAB	T6	2024SDABT6	0.01	1.40	0.10	0.01	0.26	0.01	0.08	0.01	930	0.00	0.15	0.00	2.38	0.18	0.00	0.00	0.00	0.00	0.00	51	0.00	0.01
2025	SDAB	T6	2025SDABT6	0.01	1.42	0.10	0.01	0.26	0.01	0.08	0.01	912	0.00	0.14	0.00	2.38	0.18	0.00	0.00	0.00	0.00	0.00	51	0.00	0.01
2026	SDAB	T6	2026SDABT6	0.01	1.44	0.10	0.01	0.26	0.01	0.08	0.01	897	0.00	0.14	0.00	2.38	0.18	0.00	0.00	0.00	0.00	0.00	50	0.00	0.01
2020	SDAB	T7	2020SDABT7	0.53	7.52	1.30	0.14	0.21	0.14	0.05	0.02	1,892	0.02	0.30	0.35	8.46	4.27	0.01	0.00	0.01	0.00	0.01	855	0.02	0.13
2021	SDAB	T7	2021SDABT7	0.43	6.46	1.14	0.12	0.21	0.11	0.05	0.02	1,860	0.02	0.29	0.35	8.53	4.43	0.01	0.00	0.01	0.00	0.01	867	0.02	0.14
2022	SDAB	T7	2022SDABT7	0.18	4.69	0.66	0.04	0.21	0.04	0.05	0.02	1,794	0.01	0.28	0.35	8.72	4.78	0.00	0.00	0.00	0.00	0.01	904	0.02	0.14
2023	SDAB	T7	2023SDABT7	0.04	3.52	0.43	0.02	0.21	0.02	0.05	0.02	1,727	0.00	0.27	0.35	8.63	5.13	0.00	0.00	0.00	0.00	0.01	883	0.02	0.14
2024	SDAB	T7	2024SDABT7	0.04	3.48	0.43	0.02	0.21	0.02	0.05	0.02	1,704	0.00	0.27	0.35	8.64	5.14	0.00	0.00	0.00	0.00	0.01	874	0.02	0.14
2025	SDAB	T7	2025SDABT7	0.04	3.44	0.43	0.02	0.21	0.02	0.05	0.02	1,682	0.00	0.26	0.35	8.65	5.15	0.00	0.00	0.00	0.00	0.01	866	0.02	0.14
2026	SDAB	T7	2026SDABT7	0.04	3.41	0.43	0.02	0.21	0.02	0.05	0.02	1,661	0.00	0.26	0.35	8.66	5.16	0.00	0.00	0.00	0.00	0.01	857	0.02	0.13
2020	SDAB	LDA-LDT	2020SDABLDA-LDT	0.02	0.07	0.80	0.00	0.12	0.00	0.02	0.00	302	0.00	0.01	0.90	0.25	2.45	0.00	0.00	0.00	0.00	0.00	62	0.07	0.03
2021	SDAB	LDA-LDT	2021SDABLDA-LDT	0.01	0.06	0.74	0.00	0.12	0.00	0.02	0.00	292	0.00	0.01	0.84	0.23	2.37	0.00	0.00	0.00	0.00	0.00	60	0.06	0.03
2022	SDAB	LDA-LDT	2022SDABLDA-LDT	0.01	0.05	0.68	0.00	0.12	0.00	0.02	0.00	283	0.00	0.01	0.79	0.22	2.29	0.00	0.00	0.00	0.00	0.00	58	0.06	0.03
2023	SDAB	LDA-LDT	2023SDABLDA-LDT	0.01	0.04	0.63	0.00	0.12	0.00	0.02	0.00	274	0.00	0.00	0.74	0.20	2.22	0.00	0.00	0.00	0.00	0.00	56	0.05	0.03
2024	SDAB	LDA-LDT	2024SDABLDA-LDT	0.01	0.04	0.59	0.00	0.12	0.00	0.02	0.00	264	0.00	0.00	0.70	0.19	2.14	0.00	0.00	0.00	0.00	0.00	54	0.05	0.02
2025	SDAB	LDA-LDT	2025SDABLDA-LDT	0.01	0.04	0.55	0.00	0.12	0.00	0.02	0.00	255	0.00	0.00	0.66	0.17	2.05	0.00	0.00	0.00	0.00	0.00	52	0.04	0.02
2026	SDAB	LDA-LDT	2026SDABLDA-LDT	0.01	0.03	0.52	0.00	0.12	0.00	0.02	0.00	247	0.00	0.00	0.63	0.16	1.97	0.00	0.00	0.00	0.00	0.00	51	0.04	0.02
2020	SDAB	T6Onsite	2020SDABT6Onsite	1.48	10.03	2.51	0.23	0.26	0.22	0.08	0.01	2,373	0.07	0.37	0.01	1.81	0.17	0.00	0.00	0.00	0.00	0.00	58	0.00	0.01
2021	SDAB	T6Onsite	2021SDABT6Onsite	1.11	8.75	2.10	0.16	0.26	0.15	0.08	0.01	2,338	0.05	0.37	0.01	1.92	0.17	0.00	0.00	0.00	0.00	0.00	57	0.00	0.01
2022	SDAB	T6Onsite	2022SDABT6Onsite	0.35	6.86	1.14	0.06	0.26	0.05	0.08	0.01	2,299	0.02	0.36	0.01	2.16	0.17	0.00	0.00	0.00	0.00	0.00	54	0.00	0.01
2023	SDAB	T6Onsite	2023SDABT6Onsite	0.05	6.23	0.76	0.00	0.26	0.00	0.08	0.01	2,262	0.00	0.36	0.00	2.38	0.18	0.00	0.00	0.00	0.00	0.00	52	0.00	0.01
2024	SDAB	T6Onsite	2024SDABT6Onsite	0.05	6.36	0.77	0.00	0.26	0.00	0.08	0.01	2,219	0.00	0.35	0.00	2.38	0.18	0.00	0.00	0.00	0.00	0.00	51	0.00	0.01
2025	SDAB	T6Onsite	2025SDABT6Onsite	0.05	6.48	0.78	0.00	0.26	0.00	0.08	0.01	2,176	0.00	0.34	0.00	2.38	0.18	0.00	0.00	0.00	0.00	0.00	51	0.00	0.01
2026	SDAB	T6Onsite	2026SDABT6Onsite	0.05	6.58	0.79	0.00	0.26	0.00	0.08	0.01	2,138	0.00	0.34	0.00	2.38	0.18	0.00	0.00	0.00	0.00	0.00	50	0.00	0.01
2020	SDAB	T7Onsite	2020SDABT7Onsite	2.11	17.47	4.14	0.29	0.21	0.27	0.05	0.02	3,669	0.10	0.58	0.35	8.46	4.27	0.01	0.00	0.01	0.00	0.01	855	0.02	0.13
2021	SDAB	T7Onsite	2021SDABT7Onsite	1.70	15.55	3.72	0.21	0.21	0.20	0.05	0.02	3,632	0.08	0.57	0.35	8.53	4.43	0.01	0.00	0.01	0.00	0.01	867	0.02	0.14
2022	SDAB	T7Onsite	2022SDABT7Onsite	0.70	12.30	2.51	0.09	0.21	0.09	0.05	0.02	3,568	0.03	0.56	0.35	8.72	4.78	0.00	0.00	0.00	0.00	0.01	904	0.02	0.14
2023	SDAB	T7Onsite	2023SDABT7Onsite	0.16	10.61	1.78	0.02	0.21	0.02	0.05	0.02	3,499	0.01	0.55	0.35	8.63	5.13	0.00	0.00	0.00	0.00	0.01	883	0.02	0.14
2024	SDAB	T7Onsite	2024SDABT7Onsite	0.15	10.61	1.79	0.02	0.21	0.02	0.05	0.02	3,455	0.01	0.54	0.35	8.64	5.14	0.00	0.00	0.00	0.00	0.01	874	0.02	0.14
2025	SDAB	T7Onsite	2025SDABT7Onsite	0.15	10.63	1.80	0.02	0.21	0.02	0.05	0.02	3,413	0.01	0.54	0.35	8.65	5.15	0.00	0.00	0.00	0.00	0.01	866	0.02	0.14
2026	SDAB	T7Onsite	2026SDABT7Onsite	0.14	10.65	1.81	0.01	0.21	0.01	0.05	0.02	3,370	0.01	0.53	0.35	8.66	5.16	0.00	0.00	0.00	0.00	0.01	857	0.02	0.13

Material Movement Emission Factors

Calculation Details in CalEEMod Users Guide, Appendix A

No Controls or Mitigation

Paving ROG EF	2.6200	lbs/acre	CalEEMod (no mitigation)	(no equation)
Grading PM10 EF	1.0605	lbs/acre	CalEEMod (no mitigation)	
Grading PM2.5 EF	0.1145	lbs/acre	CalEEMod (no mitigation)	
Bulldozing PM10 EF	0.7528	lbs/hr	CalEEMod (no mitigation)	
Bulldozing PM2.5 EF	0.4138	lbs/hr	CalEEMod (no mitigation)	
Truck loading PM10 EF	0.000467	lb/ton	CalEEMod (no mitigation)	
Truck loading PM2.5 EF	0.000071	lb/ton	CalEEMod (no mitigation)	
Truck loading PM10 EF Dredge	0.000025	lb/ton		
Truck loading PM2.5 EF Dredge	0.000004	lb/ton		
Demo PM10 EF	0.0235	lb/ton	CalEEMod (no mitigation)	
Demo PM2.5 EF	0.0036	lb/ton	CalEEMod (no mitigation)	

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Construction

Scenario

Summary of Total Emissions

	Tons per year										Metric tons per year			
Year	ROG	NOX	CO	PM10 E	PM10 D	PM 10 T	PM2.5 E	PM2.5 D	PM2.5 T	SO2	CO2	CH4	N2O	CO2e
2020	0.7	6.1	4.1	0.2	0.1	0.3	0.2	0.0	0.2	0.0	667	0	0	681
2021	0.2	1.8	1.3	0.1	0.0	0.1	0.1	0.0	0.1	0.0	220	0	0	224
2022	0.4	2.1	1.8	0.1	0.0	0.1	0.1	0.0	0.1	0.0	359	0	0	366
2023	0.7	1.8	1.7	0.1	0.0	0.1	0.1	0.0	0.1	0.0	304	0	0	309
2024	0.5	1.7	1.7	0.1	0.0	0.1	0.1	0.0	0.1	0.0	295	0	0	299
Max	0.7	6.1	4.1	0.2	0.1	0.3	0.2	0.0	0.2	0.0	667	0.1	0.0	681
Total	2.6	13.5	10.5	0.6	0.1	0.7	0.6	0.0	0.6	0.0	1,844	0	0	1,879
	2	*3*	*4*	*5*	*7*		*6*	*8*		*9*	*10*	*11*	*12*	*13*
											132	0	0	134

Summary of Total Fuel Consumption

Year	Gallons (diesel/gasoline)
2020	65,591
2021	21,629
2022	35,361
2023	30,186
2024	29,200
Total	181,967

Demolition	Location	Onsite	2020	6

Code	Air Basin	Structures	tons/day	Pounds per day								Tons per year								Metric tons per year				Gal per year
				ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	
Phase1c	SDAB		0.0						0.0	0.0							0.00	0.00						
Phase2a	SDAB		38.4						0.9	0.1							0.01	0.00						
Phase3a	SDAB		71.2						1.7	0.3							0.02	0.00						
Phase6a	SDAB		9.6						0.2	0.0							0.00	0.00						
Phase8a	SDAB		0.0						0.0	0.0							0.00	0.00						
Phase9a	SDAB		0.0						0.0	0.0							0.00	0.00						
Phase10a	SDAB		6.7						0.2	0.0							0.00	0.00						
Phase12a	SDAB		9.4						0.2	0.0							0.00	0.00						
Phase13a	SDAB		0.3						0.0	0.0							0.00	0.00						
Phase14a	SDAB		0.0						0.0	0.0							0.00	0.00						
Phase15a	SDAB		0.0						0.0	0.0							0.00	0.00						

Phase	Pounds per day								Tons per year								Metric tons per year				Gal per year
	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	1.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Demolition	Location	Onsite	2021	7

Code	Air Basin	Structures	tons/day	Pounds per day								Tons per year								Metric tons per year				Gal per year
				ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	
Phase1c	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase2a	SDAB		38.4						0.9	0.1							0.0	0.0						
Phase3a	SDAB		71.2						1.7	0.3							0.0	0.0						
Phase6a	SDAB		9.6						0.2	0.0							0.0	0.0						
Phase8a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase9a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase10a	SDAB		6.7						0.2	0.0							0.0	0.0						
Phase12a	SDAB		9.4						0.2	0.0							0.0	0.0						
Phase13a	SDAB		0.3						0.0	0.0							0.0	0.0						
Phase14a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase15a	SDAB		0.0						0.0	0.0							0.0	0.0						

Phase	Pounds per day								Tons per year								Metric tons per year				Gal per year
	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	1.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Demolition	Location	Onsite	2022	8

Code	Air Basin	Structures	tons/day	Pounds per day								Tons per year								Metric tons per year				Gal per year
				ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	
Phase1c	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase2a	SDAB		38.4						0.9	0.1							0.0	0.0						
Phase3a	SDAB		71.2						1.7	0.3							0.0	0.0						
Phase6a	SDAB		9.6						0.2	0.0							0.0	0.0						
Phase8a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase9a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase10a	SDAB		6.7						0.2	0.0							0.0	0.0						
Phase12a	SDAB		9.4						0.2	0.0							0.0	0.0						
Phase13a	SDAB		0.3						0.0	0.0							0.0	0.0						
Phase14a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase15a	SDAB		0.0						0.0	0.0							0.0	0.0						

Phase	Pounds per day								Tons per year								Metric tons per year				Gal per year
	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	1.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Demolition	Location	Onsite	2023	9

Code	Air Basin	Structures	tons/day	Pounds per day								Tons per year								Metric tons per year				Gal per year
				ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	
Phase1c	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase2a	SDAB		38.4						0.9	0.1							0.0	0.0						
Phase3a	SDAB		71.2						1.7	0.3							0.0	0.0						
Phase6a	SDAB		9.6						0.2	0.0							0.0	0.0						
Phase8a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase9a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase10a	SDAB		6.7						0.2	0.0							0.0	0.0						
Phase12a	SDAB		9.4						0.2	0.0							0.0	0.0						
Phase13a	SDAB		0.3						0.0	0.0							0.0	0.0						
Phase14a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase15a	SDAB		0.0						0.0	0.0							0.0	0.0						

Phase	Pounds per day								Tons per year								Metric tons per year				Gal per year
	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	1.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Demolition	Location	Onsite	2024	10

Code	Air Basin	Structures	tons/day	Pounds per day								Tons per year								Metric tons per year				Gal per year
				ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	
Phase1c	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase2a	SDAB		38.4						0.9	0.1							0.0	0.0						
Phase3a	SDAB		71.2						1.7	0.3							0.0	0.0						
Phase6a	SDAB		9.6						0.2	0.0							0.0	0.0						
Phase8a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase9a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase10a	SDAB		6.7						0.2	0.0							0.0	0.0						
Phase12a	SDAB		9.4						0.2	0.0							0.0	0.0						
Phase13a	SDAB		0.3						0.0	0.0							0.0	0.0						
Phase14a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase15a	SDAB		0.0						0.0	0.0							0.0	0.0						

Phase	Pounds per day								Tons per year								Metric tons per year				Gal per year
	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	1.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Demolition - Unmitigated 50/50 Scenario

	Tons per year								Metric tons per year			
Year	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e
2020	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2021	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0
2022	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0
2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0

Year	Gal/yr
2020	0
2021	0
2022	0
2023	0
2024	0

Earthmoving/Paving Calculations-Unmitigated 50/50 Scenario

Code	Air Basin	Strip (acres/day)	Borrow/Excavate (cy/day)	Dozing hr/day	Dredge (cy/day)	Paving (sf/day)	2020						2021						2022					
							Pounds per day			Tons per year			Pounds per day			Tons per year			Pounds per day			Tons per year		
							ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D
Phase1a	SDAB		0		2581		0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Phase4a	SDAB		0		217		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	SDAB		0		154		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	SDAB		57		0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	SDAB		10		0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	SDAB		433		0		0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Phase12a	SDAB		21		0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	SDAB		2		0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Phase	Pounds per day			Tons per year			Pounds per day			Tons per year			Pounds per day			Tons per year		
	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Earthmoving/Paving Calculations-Unmitigated 50/50 Scenario

Code	Air Basin	Strip (acres/day)	Borrow/Excavate (cy/day)	Dozing hr/day	Dredge (cy/day)	Paving (sf/day)	2023 Pounds per day ROG	2023 Pounds per day PM10 D	2023 Pounds per day PM2.5 D	2023 Tons per year ROG	2023 Tons per year PM10 D	2023 Tons per year PM2.5 D	2024 Pounds per day ROG	2024 Pounds per day PM10 D	2024 Pounds per day PM2.5 D	2024 Tons per year ROG	2024 Tons per year PM10 D	2024 Tons per year PM2.5 D
Phase1a	SDAB		0		2581		0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Phase4a	SDAB		0		217		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	SDAB		0		154		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	SDAB		57		0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	SDAB		10		0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	SDAB		433		0		0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Phase12a	SDAB		21		0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	SDAB		2		0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Phase	2023 Pounds per day ROG	2023 Pounds per day PM10 D	2023 Pounds per day PM2.5 D	2023 Tons per year ROG	2023 Tons per year PM10 D	2023 Tons per year PM2.5 D	2024 Pounds per day ROG	2024 Pounds per day PM10 D	2024 Pounds per day PM2.5 D	2024 Tons per year ROG	2024 Tons per year PM10 D	2024 Tons per year PM2.5 D
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Earthmoving/Paving Calculations-Unmitigated 50/50 Scenario

	Tons per year								Metric tons per year			
Year	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e
2020	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2021	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2022	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Year	Gal/yr
2020	0
2021	0
2022	0
2023	0
2024	0

Onroad Calculations- Unmitigated 50/50 Scenario

	Tons per year								Metric tons per year			
Year	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e
2020	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	17	0.0	0.0	17
2021	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	0.0	0.0	8
2022	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	0.0	0.0	12
2023	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	24	0.0	0.0	25
2024	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	22	0.0	0.0	22

Year	Gal/yr
2020	1,890
2021	889
2022	1,379
2023	2,788
2024	2,483

Onroad Calculations- Unmitigated 50/50 Scenario

Code	Air Basin	Vehicles/ day	Single Trips/day	Hrs/Trip/Day	Miles/day	Vehicle	Vehicle Type	Fuel	Concat	2020 Pounds per day ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	2020 Tons per year ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	2020 Metric tons per year CO2	CH4	N2O	CO2e	Gal per
Phase1	SDAB	12	24	372.4	259	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	0.0	0.0	6.7	753
Phase2	SDAB	13	26	372.4	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	5.6	629
Phase3	SDAB	6	12	372.4	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	2.1	236
Phase4	SDAB	10	20	372.4	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	SDAB	5	10	372.4	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	SDAB	7	14	372.4	151	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	SDAB	10	20	372.4	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	1.6	181
Phase8	SDAB	6	12	372.4	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	SDAB	5	10	372.4	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	91
Phase10	SDAB	13	26	372.4	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	SDAB	16	32	372.4	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.8	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12	SDAB	16	32	372.4	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.8	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13	SDAB	10	20	372.4	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	SDAB	5	10	372.4	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	SDAB	3	6	372.4	65	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Phase	Pounds per day ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	Tons per year ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	Metric tons per year CO2	CH4	N2O	CO2e	Gal per
Phase1	0.1	0.1	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	0.0	0.0	6.7	753
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	0.1	0.1	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	5.6	629
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	2.1	236
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	1.6	181
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	91
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	0.1	0.1	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	0.1	0.1	0.8	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12	0.1	0.1	0.8	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Onroad Calculations- Unmitigated 50/50 Scenario

									2021														7
									Pounds per day								Tons per year								Metric tons per year				Gal
Code	Air Basin	Vehicles/ day	Single Trips/day	Hrs/Trip/Day	Miles/day	Vehicle	Vehicle Type	Fuel	Concat	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	per
Phase1	SDAB	12	24	372.4	259	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	SDAB	13	26	372.4	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	SDAB	6	12	372.4	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	SDAB	10	20	372.4	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	SDAB	5	10	372.4	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	SDAB	7	14	372.4	151	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	405
Phase7	SDAB	10	20	372.4	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	SDAB	6	12	372.4	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.8	198
Phase9	SDAB	5	10	372.4	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	SDAB	13	26	372.4	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	SDAB	16	32	372.4	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12	SDAB	16	32	372.4	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13	SDAB	10	20	372.4	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	SDAB	5	10	372.4	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.5	286
Phase15	SDAB	3	6	372.4	65	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

	Pounds per day								Tons per year								Metric tons per year				Gal
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	per
Phase1	0.1	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase2	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase4	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase6	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	3.6	0.0	0.0	3.6	405
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase7	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase8	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	1.7	0.0	0.0	1.8	198
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase9	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase10	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase11	0.1	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase12	0.1	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase13	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase14	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	2.5	0.0	0.0	2.5	286
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase15	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0

Onroad Calculations- Unmitigated 50/50 Scenario

Code	Air Basin	Vehicles/ day	Single Trips/day	Hrs/Trip/Day	Miles/day	Vehicle	Vehicle Type	Fuel	Concat	2022 Pounds per day ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	2022 Tons per year ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	2022 Metric tons per year CO2	CH4	N2O	CO2e	Gal per
Phase1	SDAB	12	24	372.4	259	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	SDAB	13	26	372.4	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	SDAB	6	12	372.4	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	SDAB	10	20	372.4	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	4.3	490
Phase5	SDAB	5	10	372.4	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	114
Phase6	SDAB	7	14	372.4	151	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	SDAB	10	20	372.4	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	SDAB	6	12	372.4	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	SDAB	5	10	372.4	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	SDAB	13	26	372.4	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	SDAB	16	32	372.4	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0	5.6	636
Phase12	SDAB	16	32	372.4	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13	SDAB	10	20	372.4	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	SDAB	5	10	372.4	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	SDAB	3	6	372.4	65	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	140

Phase	Pounds per day ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	Tons per year ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	Metric tons per year CO2	CH4	N2O	CO2e	Gal per
Phase1	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase4	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	4.3	489.61
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	113.53
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase10	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase11	0.1	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0	5.6	635.79
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase12	0.1	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase13	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase15	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	140.50
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00

Onroad Calculations- Unmitigated 50/50 Scenario

									2023													
									Pounds per day							Tons per year								Metric tons per year				Gal
Code	Air Basin	Vehicles/ day	Single Trips/day	Hrs/Trip/Day	Miles/day	Vehicle	Vehicle Type	Fuel	Concat	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	per
Phase1	SDAB	12	24	372.4	259	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	SDAB	13	26	372.4	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	SDAB	6	12	372.4	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	SDAB	10	20	372.4	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	SDAB	5	10	372.4	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	SDAB	7	14	372.4	151	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	SDAB	10	20	372.4	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	SDAB	6	12	372.4	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	SDAB	5	10	372.4	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	SDAB	13	26	372.4	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	SDAB	16	32	372.4	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	0.0	14.1	1591
Phase12	SDAB	16	32	372.4	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	0.0	0.0	10.6	1196
Phase13	SDAB	10	20	372.4	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	SDAB	5	10	372.4	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	SDAB	3	6	372.4	65	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

	Pounds per day								Tons per year								Metric tons per year				Gal
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	per
Phase1	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase4	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase10	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase11	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	0.0	14.1	#####
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase12	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	0.0	0.0	10.6	#####
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase13	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase15	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00

Onroad Calculations- Unmitigated 50/50 Scenario

Code	Air Basin	Vehicles/ day	Single Trips/day	Hrs/Trip/Day	Miles/day	Vehicle	Vehicle Type	Fuel	Concat	2024														10
										Pounds per day								Tons per year								Metric tons per year				Gal
										ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	per
Phase1	SDAB	12	24	372.4	259	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	SDAB	13	26	372.4	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	SDAB	6	12	372.4	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	SDAB	10	20	372.4	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	SDAB	5	10	372.4	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	SDAB	7	14	372.4	151	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	SDAB	10	20	372.4	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	SDAB	6	12	372.4	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	SDAB	5	10	372.4	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	SDAB	13	26	372.4	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	0.0	0.0	11.6	1309
Phase11	SDAB	16	32	372.4	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12	SDAB	16	32	372.4	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	0.0	0.0	9.1	1028
Phase13	SDAB	10	20	372.4	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	1.3	146
Phase14	SDAB	5	10	372.4	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	SDAB	3	6	372.4	65	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Phase	Pounds per day								Tons per year								Metric tons per year				Gal
	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	per
Phase1	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase4	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase10	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	0.0	0.0	11.6	#####
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase11	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase12	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	0.0	0.0	9.1	#####
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase13	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	1.3	145.73
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase15	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00

Offroad Calculations 50/50

										2020																	6	2021											
										3	4	5	6	7	8							9	10	11				3	4	5	6	7	8						
										Pounds per day						Tons per year						Metric tons per year				Gal per year		Pounds per day						Tons per year					
Code	Equip	#/day	hrs/day	CMOD	HP Bin	HP	LF	Fuel	Concat	ROG	NOX	CO	PM10	PM2.5	SO2	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e		ROG	NOX	CO	PM10	PM2.5	SO2	ROG	NOX	CO	PM10	PM2.5	SO2
Phase1b	Tractor/Loader/Backhoe	2	10	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.3	13.5	8.8	0.5	0.4	0.0	0.0	0.1	0.1	0.0	0.0	0.0	16.6	0.0	0.0	16.8	1622	1.2	11.5	8.7	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	8.5	0.0	0.0	8.7	835	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.9	179	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.1	296	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	252	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	1.6	152	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.1	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.6	152	0.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0	13.7	0.0	0.0	13.9	1343	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	3.0	289	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	4.9	0.0	0.0	4.9	477	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	4.1	0.0	0.0	4.2	405	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.5	245	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.1	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.5	244	0.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	1.9	183	0.1	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	8.5	0.0	0.0	8.7	835	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.9	179	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.1	296	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	252	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	1.6	152	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.1	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.6	152	0.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.2	0.1	0.0	0.0	0.0	15.2	0.0	0.0	15.4	1488	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	6.5	0.0	0.0	6.6	639	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	5.4	0.0	0.0	5.5	528	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	4.6	0.0	0.0	4.7	449	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	2.8	271	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.1	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	2.8	270	0.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.5	244	0.1	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	7.0	0.0	0.0	7.2	690	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.5	148	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	Pile Extracting & Driving Vibratory Hammer	1	8	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.3	3.5	2.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9	0.0	0.0	8.0	772	0.3	3.0	2.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	1.3	122	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1	104	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0	12.2	0.0	0.0	12.4	1198	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	5.3	0.0	0.0	5.3	515	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	Pile Driving Vibratory Hammer	1	5	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.2	2.2	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.6	0.0	0.0	8.7	838	0.2	1.9	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	4.4	425	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	0.0	3.7	361	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Phase3c	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	Pile Extracting & Driving Vibratory Hammer	1	3	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.3	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.1	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Phase3c	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	Tractor/Loader/Backhoe	2	12	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.5	16.2	10.6	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	1.4	13.9	10.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.1	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	Tractor/Loader/Backhoe	2	10	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.3	13.5	8.8	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	1.2	11.5	8.7	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.2	0.1	0.0	0.0	0.0
Phase6b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Phase6b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Phase6b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.1	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	5.2	0.0	0.0	5.3	508	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	Tractor/Loader/Backhoe	2	8	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.0	10.8	7.1	0.4	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	15.5	0.0	0.0	15.7	1514	0.9	9.2	7.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	4.1	399	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.9	86	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	1.5	142	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	Pile Driving Vibratory Hammer	1	6	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.2	2.7	1.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	3.5	335	0.2	2.3	1.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	120	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.8	73	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.1	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.7	72	0.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Offroad Calculations 50/50

										2020																6	2021											
										3	4	5	6	7	8							9	10	11			3	4	5	6	7	8						
										Pounds per day						Tons per year						Metric tons per year				Gal per	Pounds per day						Tons per year					
Code	Equip	#/day	hrs/day	CMOD	HP Bin	HP	LF	Fuel	Concat	ROG	NOX	CO	PM10	PM2.5	SO2	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e	year	ROG	NOX	CO	PM10	PM2.5	SO2	ROG	NOX	CO	PM10	PM2.5	SO2
Phase8a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Phase8b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.9	1.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1	109	0.3	3.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	Forklifts	1	4	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.0	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	31	0.1	0.9	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	Pile Extracting Vibratory Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.3	122	0.1	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	Other Construction Equipment	1	4	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	0.9	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	26	0.2	0.9	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	Other Material Handling Equipment	1	4	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	0.8	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	22	0.2	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.9	1.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0	3.6	345	0.3	3.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	Forklifts	1	4	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.0	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	99	0.1	0.9	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	Other Construction Equipment	1	4	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	0.9	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	82	0.2	0.9	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	Other Material Handling Equipment	1	4	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	0.8	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.7	69	0.2	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	41	0.1	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.9	1.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	3.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.9	2.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.3	2.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.9	1.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	3.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.9	2.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.3	2.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.9	1.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	3.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.9	2.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.3	2.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.9	1.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	3.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Offroad Calculations 50/50

Code	Equip	#/day	hrs/day	CMOD	HP Bin	HP	LF	Fuel	Concat	Metric tons per year (9) CO2	(10) CH4	(11) N2O	CO2e	7 Gal per year	Pounds per day (3) ROG	(4) NOX	(5) CO	(6) PM10	(7) PM2.5	(8) SO2
Phase1b	Tractor/Loader/Backhoe	2	10	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0	1.0	9.3	8.3	0.3	0.3	0.0
Phase1c	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.5	6.1	2.8	0.3	0.2	0.0
Phase1c	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.1	1.3	1.4	0.1	0.1	0.0
Phase1c	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.6	2.8	0.2	0.2	0.0
Phase1c	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0
Phase1c	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0
Phase1c	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0
Phase1d	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.5	6.1	2.8	0.3	0.2	0.0
Phase1d	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.1	1.3	1.4	0.1	0.1	0.0
Phase1d	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.6	2.8	0.2	0.2	0.0
Phase1d	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0
Phase1d	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0
Phase1d	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0
Phase1e	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0	0.1	1.1	1.0	0.0	0.0	0.0
Phase2a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.5	6.1	2.8	0.3	0.2	0.0
Phase2a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.1	1.3	1.4	0.1	0.1	0.0
Phase2a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.6	2.8	0.2	0.2	0.0
Phase2a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0
Phase2a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0
Phase2a	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0
Phase2b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.5	6.1	2.8	0.3	0.2	0.0
Phase2b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.3	2.5	2.7	0.2	0.2	0.0
Phase2b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.6	2.8	0.2	0.2	0.0
Phase2b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0
Phase2b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0
Phase2b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0
Phase2c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0	0.1	1.1	1.0	0.0	0.0	0.0
Phase3a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.5	6.1	2.8	0.3	0.2	0.0
Phase3a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.1	1.3	1.4	0.1	0.1	0.0
Phase3a	Pile Extracting & Driving Vibratory Hammer	1	8	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0	0.2	2.3	2.1	0.1	0.1	0.0
Phase3a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.3	1.3	1.4	0.1	0.1	0.0
Phase3a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.3	1.2	1.4	0.1	0.1	0.0
Phase3b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.5	6.1	2.8	0.3	0.2	0.0
Phase3b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.3	2.5	2.7	0.2	0.2	0.0
Phase3b	Pile Driving Vibratory Hammer	1	5	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0	0.1	1.4	1.3	0.0	0.0	0.0
Phase3b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.6	2.8	0.2	0.2	0.0
Phase3b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0
Phase3c	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	13.0	0.0	0.0	13.2	1270	0.5	6.1	2.8	0.3	0.2	0.0
Phase3c	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	5.6	0.0	0.0	5.7	546	0.3	2.5	2.7	0.2	0.2	0.0
Phase3c	Pile Extracting & Driving Vibratory Hammer	1	3	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	5.5	0.0	0.0	5.5	534	0.1	0.9	0.8	0.0	0.0	0.0
Phase3c	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	4.6	0.0	0.0	4.7	451	0.5	2.6	2.8	0.2	0.2	0.0
Phase3c	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	3.9	0.0	0.0	4.0	383	0.5	2.3	2.8	0.2	0.2	0.0
Phase4a	Tractor/Loader/Backhoe	2	12	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0	1.2	11.2	10.0	0.4	0.4	0.0
Phase5a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.5	6.1	2.8	0.3	0.2	0.0
Phase5a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.3	1.3	1.4	0.1	0.1	0.0
Phase5a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.3	1.2	1.4	0.1	0.1	0.0
Phase5b	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0	0.1	1.1	1.0	0.0	0.0	0.0
Phase6a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	4.8	0.0	0.0	4.9	472	0.5	6.1	2.8	0.3	0.2	0.0
Phase6a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	1.0	0.0	0.0	1.1	101	0.1	1.3	1.4	0.1	0.1	0.0
Phase6a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	1.7	0.0	0.0	1.7	167	0.5	2.6	2.8	0.2	0.2	0.0
Phase6a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	1.5	0.0	0.0	1.5	142	0.5	2.3	2.8	0.2	0.2	0.0
Phase6a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.9	0.0	0.0	0.9	86	0.2	1.2	0.6	0.1	0.1	0.0
Phase6a	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.9	0.0	0.0	0.9	86	0.1	1.0	1.0	0.0	0.0	0.0
Phase6a	Tractor/Loader/Backhoe	2	10	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	2.8	0.0	0.0	2.8	271	1.0	9.3	8.3	0.3	0.3	0.0
Phase6b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	24.8	0.0	0.0	25.2	2432	0.5	6.1	2.8	0.3	0.2	0.0
Phase6b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	5.3	0.0	0.0	5.4	522	0.1	1.3	1.4	0.1	0.1	0.0
Phase6b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	8.8	0.0	0.0	9.0	863	0.5	2.6	2.8	0.2	0.2	0.0
Phase6b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	7.5	0.0	0.0	7.6	734	0.5	2.3	2.8	0.2	0.2	0.0
Phase6b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	4.5	0.0	0.0	4.6	443	0.2	1.2	0.6	0.1	0.1	0.0
Phase6b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	4.5	0.0	0.0	4.6	442	0.1	1.0	1.0	0.0	0.0	0.0
Phase6c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	2.5	0.0	0.0	2.5	244	0.1	1.1	1.0	0.0	0.0	0.0
Phase7a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.5	6.1	2.8	0.3	0.2	0.0
Phase7a	Tractor/Loader/Backhoe	2	8	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0	0.8	7.5	6.7	0.3	0.3	0.0
Phase7b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.5	6.1	2.8	0.3	0.2	0.0
Phase7b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.1	1.3	1.4	0.1	0.1	0.0
Phase7b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.6	2.8	0.2	0.2	0.0
Phase7b	Pile Driving Vibratory Hammer	1	6	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0	0.2	1.7	1.5	0.1	0.0	0.0
Phase7b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0
Phase7b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0
Phase7b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0

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Code	Equip	Tons per year ROG	NOX	CO	PM10	PM2.5	SO2	Metric tons per year (9) CO2	(10) CH4	(11) N2O	CO2e	8 Gal per year	Pounds per day (3) ROG	(4) NOX	(5) CO	(6) PM10	(7) PM2.5	(8) SO2	ROG
Phase1b	Tractor/Loader/Backhoe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	1.0	8.1	8.3	0.3	0.3	0.0	0.0
Phase1c	Cranes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.6	2.7	0.2	0.2	0.0	0.0
Phase1c	Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.1	1.4	0.1	0.1	0.0	0.0
Phase1c	Other Construction Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0
Phase1c	Other Material Handling Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.2	2.7	0.2	0.1	0.0	0.0
Phase1c	Welders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0
Phase1c	Generators	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0
Phase1d	Cranes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.6	2.7	0.2	0.2	0.0	0.0
Phase1d	Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.1	1.4	0.1	0.1	0.0	0.0
Phase1d	Other Construction Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0
Phase1d	Other Material Handling Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.2	2.7	0.2	0.1	0.0	0.0
Phase1d	Welders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0
Phase1d	Generators	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0
Phase1e	Pile Driving Hammer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0
Phase2a	Cranes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.6	2.7	0.2	0.2	0.0	0.0
Phase2a	Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.1	1.4	0.1	0.1	0.0	0.0
Phase2a	Other Construction Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0
Phase2a	Other Material Handling Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.2	2.7	0.2	0.1	0.0	0.0
Phase2a	Welders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0
Phase2a	Generators	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0
Phase2b	Cranes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.6	2.7	0.2	0.2	0.0	0.0
Phase2b	Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.3	2.7	0.1	0.1	0.0	0.0
Phase2b	Other Construction Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0
Phase2b	Other Material Handling Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.2	2.7	0.2	0.1	0.0	0.0
Phase2b	Welders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0
Phase2b	Generators	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0
Phase2c	Pile Driving Hammer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0
Phase3a	Cranes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.6	2.7	0.2	0.2	0.0	0.0
Phase3a	Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.1	1.4	0.1	0.1	0.0	0.0
Phase3a	Pile Extracting & Driving Vibratory Hammer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.0	2.0	0.1	0.1	0.0	0.0
Phase3a	Other Construction Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.3	1.4	0.1	0.1	0.0	0.0
Phase3a	Other Material Handling Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.1	1.4	0.1	0.1	0.0	0.0
Phase3b	Cranes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.6	2.7	0.2	0.2	0.0	0.0
Phase3b	Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.3	2.7	0.1	0.1	0.0	0.0
Phase3b	Pile Driving Vibratory Hammer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.3	1.3	0.0	0.0	0.0	0.0
Phase3b	Other Construction Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0
Phase3b	Other Material Handling Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.2	2.7	0.2	0.1	0.0	0.0
Phase3c	Cranes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.6	2.7	0.2	0.2	0.0	0.0
Phase3c	Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.3	2.7	0.1	0.1	0.0	0.0
Phase3c	Pile Extracting & Driving Vibratory Hammer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	0.8	0.8	0.0	0.0	0.0	0.0
Phase3c	Other Construction Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0
Phase3c	Other Material Handling Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.2	2.7	0.2	0.1	0.0	0.0
Phase4a	Tractor/Loader/Backhoe	0.0	0.4	0.3	0.0	0.0	0.0	114.5	0.0	0.0	116.3	11219	1.2	9.7	10.0	0.4	0.3	0.0	0.0
Phase5a	Cranes	0.0	0.1	0.0	0.0	0.0	0.0	11.9	0.0	0.0	12.0	1162	0.5	5.6	2.7	0.2	0.2	0.0	0.0
Phase5a	Other Construction Equipment	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	2.1	207	0.2	1.3	1.4	0.1	0.1	0.0	0.0
Phase5a	Other Material Handling Equipment	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.8	175	0.2	1.1	1.4	0.1	0.1	0.0	0.0
Phase5b	Pile Driving Hammer	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.6	61	0.1	1.0	1.0	0.0	0.0	0.0	0.0
Phase6a	Cranes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.6	2.7	0.2	0.2	0.0	0.0
Phase6a	Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.1	1.4	0.1	0.1	0.0	0.0
Phase6a	Other Construction Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0
Phase6a	Other Material Handling Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.2	2.7	0.2	0.1	0.0	0.0
Phase6a	Welders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0
Phase6a	Generators	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0
Phase6a	Tractor/Loader/Backhoe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	1.0	8.1	8.3	0.3	0.3	0.0	0.0
Phase6b	Cranes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.6	2.7	0.2	0.2	0.0	0.0
Phase6b	Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.1	1.4	0.1	0.1	0.0	0.0
Phase6b	Other Construction Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0
Phase6b	Other Material Handling Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.2	2.7	0.2	0.1	0.0	0.0
Phase6b	Welders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0
Phase6b	Generators	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0
Phase6c	Pile Driving Hammer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0
Phase7a	Cranes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.6	2.7	0.2	0.2	0.0	0.0
Phase7a	Tractor/Loader/Backhoe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.8	6.5	6.7	0.2	0.2	0.0	0.0
Phase7b	Cranes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.6	2.7	0.2	0.2	0.0	0.0
Phase7b	Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.1	1.4	0.1	0.1	0.0	0.0
Phase7b	Other Construction Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0
Phase7b	Pile Driving Vibratory Hammer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.5	1.5	0.0	0.0	0.0	0.0
Phase7b	Other Material Handling Equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.2	2.7	0.2	0.1	0.0	0.0
Phase7b	Welders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0
Phase7b	Generators	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0

Offroad Calculations 50/50

														7									2022								8							
										9	10	11			3	4	5	6	7	8							9	10	11			3	4	5	6	7	8	
										Metric tons per year				Gal per	Pounds per day						Tons per year						Metric tons per year				Gal per	Pounds per day						
Code	Equip	#/day	hrs/day	CMOD	HP Bin	HP	LF	Fuel	Concat	CO2	CH4	N2O	CO2e	year	ROG	NOX	CO	PM10	PM2.5	SO2	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e	year	ROG	NOX	CO	PM10	PM2.5	SO2	ROG
Phase8a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	4.1	0.0	0.0	4.1	399	0.5	6.1	2.8	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.6	2.7	0.2	0.2	0.0	0.0
Phase8a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.7	0.0	0.0	0.7	71	0.3	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.3	1.4	0.1	0.1	0.0	0.0
Phase8a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	0.0	0.0	0.6	60	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.1	1.4	0.1	0.1	0.0	0.0
Phase8b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	13.0	0.0	0.0	13.2	1270	0.5	6.1	2.8	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.6	2.7	0.2	0.2	0.0	0.0
Phase8b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	2.3	0.0	0.0	2.3	225	0.3	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.3	1.4	0.1	0.1	0.0	0.0
Phase8b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	2.0	0.0	0.0	2.0	192	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.1	1.4	0.1	0.1	0.0	0.0
Phase9a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.3	3.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	2.8	1.3	0.1	0.1	0.0	0.0
Phase9a	Forklifts	1	4	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.1	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	0.8	0.9	0.0	0.0	0.0	0.0
Phase9a	Pile Extracting Vibratory Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0	0.1	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0
Phase9a	Other Construction Equipment	1	4	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.2	0.9	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	0.8	0.9	0.1	0.1	0.0	0.0
Phase9a	Other Material Handling Equipment	1	4	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.2	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	0.7	0.9	0.1	0.0	0.0	0.0
Phase9b	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.3	3.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	2.8	1.3	0.1	0.1	0.0	0.0
Phase9b	Forklifts	1	4	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.1	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	0.8	0.9	0.0	0.0	0.0	0.0
Phase9b	Other Construction Equipment	1	4	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.2	0.9	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	0.8	0.9	0.1	0.1	0.0	0.0
Phase9b	Other Material Handling Equipment	1	4	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.2	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	0.7	0.9	0.1	0.0	0.0	0.0
Phase9c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0	0.1	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0
Phase10a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.3	3.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	2.8	1.3	0.1	0.1	0.0	0.0
Phase10a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.3	2.5	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.3	2.7	0.1	0.1	0.0	0.0
Phase10a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0
Phase10a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.2	2.7	0.2	0.1	0.0	0.0
Phase10a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.6	1.7	0.1	0.1	0.0	0.0
Phase10a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0
Phase10b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.4	4.6	2.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.4	4.2	2.0	0.2	0.2	0.0	0.0
Phase10b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.3	2.5	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.3	2.7	0.1	0.1	0.0	0.0
Phase10b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0
Phase10b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.2	2.7	0.2	0.1	0.0	0.0
Phase10b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.6	1.7	0.1	0.1	0.0	0.0
Phase10b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0
Phase11a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.3	3.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1	109	0.3	2.8	1.3	0.1	0.1	0.0	0.0
Phase11a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.3	2.5	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	94	0.2	2.3	2.7	0.1	0.1	0.0	0.0
Phase11a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	78	0.5	2.5	2.8	0.2	0.2	0.0	0.0
Phase11a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.7	66	0.5	2.2	2.7	0.2	0.1	0.0	0.0
Phase11a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.7	163	0.2	1.6	1.7	0.1	0.1	0.0	0.0
Phase11a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	40	0.2	1.2	0.6	0.0	0.0	0.0	0.0
Phase11b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.4	4.6	2.1	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	14.2	0.0	0.0	14.4	1389	0.4	4.2	2.0	0.2	0.2	0.0	0.0
Phase11b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.3	2.5	2.7	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	8.1	0.0	0.0	8.2	795	0.2	2.3	2.7	0.1	0.1	0.0	0.0
Phase11b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	6.7	0.0	0.0	6.8	659	0.5	2.5	2.8	0.2	0.2	0.0	0.0
Phase11b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	5.7	0.0	0.0	5.8	558	0.5	2.2	2.7	0.2	0.1	0.0	0.0
Phase11b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.1	0.0	0.0	14.3	1382	0.2	1.6	1.7	0.1	0.1	0.0	0.0
Phase11b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	3.5	337	0.2	1.2	0.6	0.0	0.0	0.0	0.0
Phase12a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.3	3.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	2.8	1.3	0.1	0.1	0.0	0.0
Phase12a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.3	2.5	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.3	2.7	0.1	0.1	0.0	0.0
Phase12a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0
Phase12a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.2	2.7	0.2	0.1	0.0	0.0
Phase12a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.6	1.7	0.1	0.1	0.0	0.0
Phase12a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0
Phase12b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.4	4.6	2.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.4	4.2	2.0	0.2	0.2	0.0	0.0
Phase12b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.3	2.5	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.3	2.7	0.1	0.1	0.0	0.0
Phase12b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0
Phase12b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.2	2.7	0.2	0.1	0.0	0.0
Phase12b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.6	1.7	0.1	0.1	0.0	0.0
Phase12b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0
Phase13a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0	0.3	3.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.3	2.8	1.3	0.1	0.1	0.0	0.0
Phase13a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.1	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.1	1.4	0.1	0.1	0.0	0.0
Phase13a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.3	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.3	1.4	0.1	0.1	0.0	0.0
Phase13a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.1	1.4	0.1	0.1	0.0	0.0
Phase14a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	2.1	0.0	0.0	2.1	203	0.1	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.1	1.4	0.1	0.1	0.0	0.0
Phase14a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	1.7	0.0	0.0	1.7	167	0.3	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.3	1.4	0.1	0.1	0.0	0.0
Phase14a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	1.5	0.0	0.0	1.5	142	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.1	1.4	0.1	0.1	0.0	0.0
Phase14a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	7.2	0.0	0.0	7.3	705	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.6	1.7	0.1	0.1	0.0	0.0
Phase14b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	1.2	0.0	0.0	1.2	117	0.1	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.1	296	0.1	1.1	1.4	0.1	0.1	0.0	0.0
Phase14b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	1.0	0.0	0.0	1.0	97	0.3	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.5	245	0.2	1.3	1.4	0.1	0.1	0.0	0.0
Phase14b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.8	0.0	0.0	0.9	82	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	2.2	208	0.2	1.1	1.4	0.1	0.1	0.0	0.0
Phase14b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	4.2	0.0	0.0	4.2	407	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	0.0	0.0	10.7	1030	0.2	1.6	1.7	0.1	0.1	0.0	0.0
Phase15a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.1	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	1.3	125	0.1	1.1	1.4	0.1	0.1	0.0	0.0
Phase15a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.3	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1	103	0.2	1.3	1.4	0.1	0.1	0.0	0.0
Phase15a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.9	88	0.2	1.1	1.4	0.1	0.1	0.0	0.0
Phase15a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	4.5	434	0.2	1.6	1.7	0.1	0.1	0.0	0.0
Phase15b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0	0.1	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	4.1	398	0.1	1.1	1.4	0.1	0.1	0.0	0.0
Phase15b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0	0.3	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	3.4	329	0.2	1.3	1.4	0.1	0.1	0.0	0.0
Phase15b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	2.9	279	0.2	1.1	1.4	0.1	0.1	0.0	0.0
Phase15b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.1	0.0	0.0	14.3	1382	0.2	1.6	1.7	0.1	0.1	0.0	0.0

Offroad Calculations 50/50

										2023											9	2024											10
																9	10	11				3	4	5	6	7	8					9	10	11	
										Tons per year						Metric tons per year				Gal per	Pounds per day						Tons per year						Metric tons per year				Gal per
Code	Equip	#/day	hrs/day	CMOD	HP Bin	HP	LF	Fuel	Concat	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e	year	ROG	NOX	CO	PM10	PM2.5	SO2	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e	year
Phase1b	Tractor/Loader/Backhoe	2	10	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	1.0	7.6	8.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1e	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Pile Extracting & Driving Vibratory Hammer	1	8	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.9	2.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Pile Driving Vibratory Hammer	1	5	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.2	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Pile Extracting & Driving Vibratory Hammer	1	3	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	0.7	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4a	Tractor/Loader/Backhoe	2	12	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	1.2	9.1	10.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5b	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Tractor/Loader/Backhoe	2	10	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	1.0	7.6	8.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7a	Tractor/Loader/Backhoe	2	8	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.8	6.0	6.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Pile Driving Vibratory Hammer	1	6	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.4	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Offroad Calculations 50/50

Code	Equip	#/day	hrs/day	CMOD	HP Bin	HP	LF	Fuel	Concat	2023									9	2024																10
															9	10	11			3	4	5	6	7	8							9	10	11		
										Tons per year					Metric tons per year				Gal per	Pounds per day						Tons per year						Metric tons per year				Gal per
										NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e	year	ROG	NOX	CO	PM10	PM2.5	SO2	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e	year
Phase8a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.6	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Forklifts	1	4	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	0.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Pile Extracting Vibratory Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Other Construction Equipment	1	4	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Other Material Handling Equipment	1	4	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	0.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.6	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Forklifts	1	4	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	0.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Other Construction Equipment	1	4	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Other Material Handling Equipment	1	4	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	0.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.6	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	2.8	272
Phase10a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	2.4	234
Phase10a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	194
Phase10a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.7	164
Phase10a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	4.2	407
Phase10a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	99
Phase10b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.4	3.8	1.9	0.2	0.1	0.0	0.0	0.3	0.1	0.0	0.0	0.0	38.1	0.0	0.0	38.7	3730
Phase10b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.0	21.8	0.0	0.0	22.2	2137
Phase10b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.2	0.2	0.0	0.0	0.0	18.1	0.0	0.0	18.4	1770
Phase10b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.0	15.3	0.0	0.0	15.6	1500
Phase10b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	38.0	0.0	0.0	38.6	3719
Phase10b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	9.2	0.0	0.0	9.3	906
Phase11a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.6	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.3	0.1	0.0	0.0	0.0	40.3	0.0	0.0	40.9	3948	0.4	3.8	1.9	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	0.2	0.0	0.0	0.0	23.1	0.0	0.0	23.4	2261	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	0.2	0.0	0.0	0.0	19.1	0.0	0.0	19.4	1874	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	0.2	0.0	0.0	0.0	16.2	0.0	0.0	16.5	1588	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.1	0.1	0.0	0.0	0.0	40.1	0.0	0.0	40.8	3931	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.1	0.0	0.0	0.0	0.0	9.8	0.0	0.0	9.9	959	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	5.7	0.0	0.0	5.8	563	0.2	2.6	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	4.9	0.0	0.0	5.0	483	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	4.2	401	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0	3.5	339	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0.0	8.6	0.0	0.0	8.7	840	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	2.1	205	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.2	0.1	0.0	0.0	0.0	22.0	0.0	0.0	22.3	2151	0.4	3.8	1.9	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	27.0	0.0	0.0	27.4	2641
Phase12b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	0.1	0.0	0.0	0.0	12.6	0.0	0.0	12.8	1232	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	15.4	0.0	0.0	15.7	1513
Phase12b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.1	0.1	0.0	0.0	0.0	10.4	0.0	0.0	10.6	1021	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	12.8	0.0	0.0	13.0	1253
Phase12b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.1	0.1	0.0	0.0	0.0	8.8	0.0	0.0	9.0	865	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	10.8	0.0	0.0	11.0	1062
Phase12b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.1	0.1	0.0	0.0	0.0	21.9	0.0	0.0	22.2	2142	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	26.9	0.0	0.0	27.3	2633
Phase12b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0	5.4	522	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	6.5	0.0	0.0	6.6	641
Phase13a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	2.6	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	4.1	399
Phase13a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.8	172
Phase13a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.5	142
Phase13a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	120
Phase14a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Offroad Calculations 50/50

	Tons per year						Metric tons per year			
Year	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e
2020	0	2	1	0	0	0	223	0	0	226
2021	0	1	1	0	0	0	146	0	0	149
2022	0	1	1	0	0	0	239	0	0	243
2023	0	2	2	0	0	0	259	0	0	263
2024	0	2	2	0	0	0	262	0	0	266

Year	Gal/yr
2020	21,798
2021	14,328
2022	23,409
2023	25,325
2024	25,709

Truck Calculations 50/50

			Yearly		Daily						
Code	Air Basin	Total Trucks	Single Trips/day Yearly	Miles/day Yearly	Vehicles/day Daily	Single Trips/day Daily	Miles/day Daily	Vehicle	Vehicle Type	Fuel	Concat
Phase1	SDAB	1380	33	665	17	34	680	General Truck	T7	Diesel	SDABT7
Phase2	SDAB	256	8	160	4	8	160	General Truck	T7	Diesel	SDABT7
Phase3	SDAB	180	7	138	4	8	160	General Truck	T7	Diesel	SDABT7
Phase4	SDAB	500	14	290	8	16	320	General Truck	T7	Diesel	SDABT7
Phase5	SDAB	24	2	30	1	2	40	General Truck	T7	Diesel	SDABT7
Phase6	SDAB	289	7	146	4	8	160	General Truck	T7	Diesel	SDABT7
Phase7	SDAB	10	1	17	1	2	40	General Truck	T7	Diesel	SDABT7
Phase8	SDAB	75	3	67	2	4	80	General Truck	T7	Diesel	SDABT7
Phase9	SDAB	7	1	12	1	2	40	General Truck	T7	Diesel	SDABT7
Phase10	SDAB	22	0	6	1	2	40	General Truck	T7	Diesel	SDABT7
Phase11	SDAB	258	3	51	2	4	80	General Truck	T7	Diesel	SDABT7
Phase12	SDAB	213	2	41	2	4	80	General Truck	T7	Diesel	SDABT7
Phase13	SDAB	25	2	45	2	4	80	General Truck	T7	Diesel	SDABT7
Phase14	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7
Phase15	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7

	2020																				6
STREX and HTSK	13	14	15	16	17	18	19	20									21	22	23		
RUNEX, PMBW,	2	3	4	5	7	6	8	9									10	11	12		
	Pounds per day								Tons per year								Metric tons per year				
Code	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	Gal per year
Phase1	0.8	11.9	2.3	0.2	0.2	0.3	0.1	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	106.8	0.0	0.0	111.8	10460
Phase2	0.2	2.8	0.5	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	19.8	0.0	0.0	20.7	1940
Phase3	0.2	2.8	0.5	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	13.9	0.0	0.0	14.6	1364
Phase4	0.4	5.6	1.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	0.2	2.8	0.5	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	76
Phase8	0.1	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.6	53
Phase10	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	0.1	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12	0.1	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13	0.1	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

	Pounds per day								Tons per year								Metric tons per year				Gal per
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.8	11.9	2.3	0.2	0.2	0.3	0.1	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	106.8	0.0	0.0	111.8	######
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.2	2.8	0.5	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	19.8	0.0	0.0	20.7	1940.5
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.2	2.8	0.5	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	13.9	0.0	0.0	14.6	1364.4
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.4	5.6	1.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.2	2.8	0.5	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	75.8
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.1	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.6	53.1
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.1	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.1	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.1	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Truck Calculations 50/50

			Yearly		Daily						2021																	7
STREX and HTSK											*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*							*21*	*22*	*23*	
RUNEX_PMBW:											*2*	*3*	*4*	*5*	*7*	*6*	*8*	*9*							*10*	*11*	*12*	
											Pounds per day								Tons per year							Metric tons per year				
Code	**Air Basin**	**Total Trucks**	**Single Trips/day Yearly**	**Miles/day Yearly**	**Vehicles/day Daily**	**Single Trips/day Daily**	**Miles/day Daily**	**Vehicle**	**Vehicle Type**	**Fuel**	**Concat**	**ROG**	**NOX**	**CO**	**PM10**	**PM2.5**	**PM10 D**	**PM2.5 D**	**SO2**	**ROG**	**NOX**	**CO**	**PM10**	**PM2.5**	**PM10 D**	**PM2.5 D**	**SO2**	**CO2**	**CH4**	**N2O**	**CO2e**	**Gal per year**
Phase1	SDAB	1380	33	665	17	34	680	General Truck	T7	Diesel	SDABT7	0.7	10.3	2.0	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	SDAB	256	8	160	4	8	160	General Truck	T7	Diesel	SDABT7	0.2	2.4	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	SDAB	180	7	138	4	8	160	General Truck	T7	Diesel	SDABT7	0.2	2.4	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	SDAB	500	14	290	8	16	320	General Truck	T7	Diesel	SDABT7	0.3	4.9	1.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	SDAB	24	2	30	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	SDAB	289	7	146	4	8	160	General Truck	T7	Diesel	SDABT7	0.2	2.4	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	22.0	0.0	0.0	23.0	2155
Phase7	SDAB	10	1	17	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	SDAB	75	3	67	2	4	80	General Truck	T7	Diesel	SDABT7	0.1	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	0.0	0.0	6.0	559
Phase9	SDAB	7	1	12	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	SDAB	22	0	6	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	SDAB	258	3	51	2	4	80	General Truck	T7	Diesel	SDABT7	0.1	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12	SDAB	213	2	41	2	4	80	General Truck	T7	Diesel	SDABT7	0.1	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13	SDAB	25	2	45	2	4	80	General Truck	T7	Diesel	SDABT7	0.1	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	37
Phase15	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

	Pounds per day								Tons per year								Metric tons per year				Gal per
Phase	**ROG**	**NOX**	**CO**	**PM10**	**PM2.5**	**PM10 D**	**PM2.5 D**	**SO2**	**ROG**	**NOX**	**CO**	**PM10**	**PM2.5**	**PM10 D**	**PM2.5 D**	**SO2**	**CO2**	**CH4**	**N2O**	**CO2e**	**year**
Phase1	0.7	10.3	2.0	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.2	2.4	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.2	2.4	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.3	4.9	1.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.2	2.4	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	22.0	0.0	0.0	23.0	2154.8
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.1	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	0.0	0.0	6.0	559.2
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.1	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.1	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.1	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	37.3
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Truck Calculations 50/50

			Yearly		Daily						2022																8
											STREX and HTSK	13	14	15	16	17	18	19	20							21	22	23	
											RUNEX, PMBW	2	3	4	5	7	6	8	9							10	11	12	
												Pounds per day									Tons per year							Metric tons per year				Gal
Code	Air Basin	Total Trucks	Single Trips/day Yearly	Miles/day Yearly	Vehicles/day Daily	Single Trips/day Daily	Miles/day Daily	Vehicle	Vehicle Type	Fuel	Concat	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	per year
Phase1	SDAB	1380	33	665	17	34	680	General Truck	T7	Diesel	SDAB7	0.3	7.7	1.4	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	SDAB	256	8	160	4	8	160	General Truck	T7	Diesel	SDAB7	0.1	1.8	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	SDAB	180	7	138	4	8	160	General Truck	T7	Diesel	SDAB7	0.1	1.8	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	SDAB	500	14	290	8	16	320	General Truck	T7	Diesel	SDAB7	0.1	3.6	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0	0.0	38.5	3602
Phase5	SDAB	24	2	30	1	2	40	General Truck	T7	Diesel	SDAB7	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.8	173
Phase6	SDAB	289	7	146	4	8	160	General Truck	T7	Diesel	SDAB7	0.1	1.8	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	SDAB	10	1	17	1	2	40	General Truck	T7	Diesel	SDAB7	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	SDAB	75	3	67	2	4	80	General Truck	T7	Diesel	SDAB7	0.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	SDAB	7	1	12	1	2	40	General Truck	T7	Diesel	SDAB7	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	SDAB	22	0	6	1	2	40	General Truck	T7	Diesel	SDAB7	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	SDAB	258	3	51	2	4	80	General Truck	T7	Diesel	SDAB7	0.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0	5.5	518
Phase12	SDAB	213	2	41	2	4	80	General Truck	T7	Diesel	SDAB7	0.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13	SDAB	25	2	45	2	4	80	General Truck	T7	Diesel	SDAB7	0.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDAB7	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDAB7	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	36

	Pounds per day								Tons per year								Metric tons per year				Gal
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	per
Phase1	0.3	7.7	1.4	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.1	1.8	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.1	1.8	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.1	3.6	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0	0.0	38.5	3602.2
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.8	172.9
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.1	1.8	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0	5.5	517.9
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	36.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Truck Calculations 50/50

			Yearly		Daily						2023																	9
											STREX and HTSK	13	14	15	16	17	18	19	20							21	22	23	
											RUNEX_PMBW	2	3	4	5	7	6	8	9							10	11	12	
												Pounds per day									Tons per year									Metric tons per year				
Code	Air Basin	Total Trucks	Single Trips/day Yearly	Miles/day Yearly	Vehicles/day Daily	Single Trips/day Daily	Miles/day Daily	Vehicle	Vehicle Type	Fuel	Concat	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	Gal per year
Phase1	SDAB	1380	33	665	17	34	680	General Truck	T7	Diesel	SDABT7	0.1	5.9	1.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	SDAB	256	8	160	4	8	160	General Truck	T7	Diesel	SDABT7	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	SDAB	180	7	138	4	8	160	General Truck	T7	Diesel	SDABT7	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	SDAB	500	14	290	8	16	320	General Truck	T7	Diesel	SDABT7	0.0	2.8	0.5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	SDAB	24	2	30	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	SDAB	289	7	146	4	8	160	General Truck	T7	Diesel	SDABT7	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	SDAB	10	1	17	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	SDAB	75	3	67	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	SDAB	7	1	12	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	SDAB	22	0	6	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	SDAB	258	3	51	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.2	0.0	0.0	13.8	1291
Phase12	SDAB	213	2	41	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	8.4	782
Phase13	SDAB	25	2	45	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

	Pounds per day								Tons per year								Metric tons per year				Gal per
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.1	5.9	1.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	2.8	0.5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.2	0.0	0.0	13.8	1291.3
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	8.4	781.9
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Truck Calculations 50/50

			Yearly		Daily						2024																10
											STREX and HTSK	13	14	15	16	17	18	19	20							21	22	23	
											RUNEX, PMBW,	2	3	4	5	7	6	8	9							10	11	12	
												Pounds per day									Tons per year							Metric tons per year				
Code	Air Basin	Total Trucks	Single Trips/day Yearly	Miles/day Yearly	Vehicles/day Daily	Single Trips/day Daily	Miles/day Daily	Vehicle	Vehicle Type	Fuel	Concat	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	Gal per year
Phase1	SDAB	1380	33	665	17	34	680	General Truck	T7	Diesel	SDABT7	0.1	5.9	1.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	SDAB	256	8	160	4	8	160	General Truck	T7	Diesel	SDABT7	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	SDAB	180	7	138	4	8	160	General Truck	T7	Diesel	SDABT7	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	SDAB	500	14	290	8	16	320	General Truck	T7	Diesel	SDABT7	0.0	2.8	0.5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	SDAB	24	2	30	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	SDAB	289	7	146	4	8	160	General Truck	T7	Diesel	SDABT7	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	SDAB	10	1	17	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	SDAB	75	3	67	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	SDAB	7	1	12	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	SDAB	22	0	6	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.6	151
Phase11	SDAB	258	3	51	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12	SDAB	213	2	41	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0	7.3	687
Phase13	SDAB	25	2	45	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.8	171
Phase14	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

	Pounds per day								Tons per year								Metric tons per year				Gal per
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.1	5.9	1.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	2.8	0.5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.6	150.6
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0	7.3	686.8
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.8	171.2
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Truck Calculations 50/50

	Tons per year								Metric tons per year			
Year	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e
2020	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	142	0.0	0.0	149
2021	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	28	0.0	0.0	29
2022	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	44	0.0	0.0	46
2023	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	21	0.0	0.0	22
2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	0.0	0.0	11

Year	Gal/yr
2020	13,894
2021	2,751
2022	4,329
2023	2,073
2024	1,009

Marine Calculations- 50/50 Scenario

	2020																				6	2021														7
	Pounds per day								Tons per year								Metric tons per year					Pounds per day								Tons per year								Metric tons per year				
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	Gal per year	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	Gal per year
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Phase1a	20.1	160.2	117.2	5.7	5.6	0.0	0.0	0.2	0.38	3.0	2.2	0.1	0.1	0.0	0.0	0.0	249.1	0.0	0.0	252.6	24402.5	20.1	160.2	117.2	5.7	5.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	3.4	332.8	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	3.3	318.9	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	3.3	318.9	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	5.8	0.0	0.0	5.9	568.5	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	5.4	0.0	0.0	5.5	526.9	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	9.3	0.0	0.0	9.5	915.2	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	9.9	0.0	0.0	10.0	970.7
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	14.7	116.0	85.8	4.1	4.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.7	116.0	85.8	4.1	4.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.9	180.3
Phase6b	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	9.5	0.0	0.0	9.6	929.1
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	1.2	10.3	8.2	0.3	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	6.4	0.0	0.0	6.5	625.5	1.2	10.3	8.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	1.5	13.1	10.2	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	13.1	10.2	0.4	0.4	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	6.2	0.0	0.0	6.3	610.1
Phase8b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	9.9	0.0	0.0	10.0	970.7
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Marine Calculations- 50/50 Scenario

	2022																			8	2023															9
	Pounds per day								Tons per year								Metric tons per year					Pounds per day								Tons per year								Metric tons per year				
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	Gal per year	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	Gal per year
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Phase1a	20.1	160.2	117.2	5.7	5.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.1	160.2	117.2	5.7	5.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	14.7	116.0	85.8	4.1	4.0	0.0	0.0	0.1	0.1	0.6	0.5	0.0	0.0	0.0	0.0	0.0	59.2	0.0	0.0	60.1	5800.2	14.7	116.0	85.8	4.1	4.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	4.6	443.7	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	1.2	10.3	8.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	10.3	8.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	1.5	13.1	10.2	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	13.1	10.2	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Marine Calculations- 50/50 Scenario

								2024														10
	Pounds per day								Tons per year								Metric tons per year					
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	Gal per year	
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	
Phase1a	20.1	160.2	117.2	5.7	5.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase1b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase1c	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase2a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase2b	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase3a	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase3b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase3c	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase4a	14.7	116.0	85.8	4.1	4.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase5a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase6a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase6b	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase7a	1.2	10.3	8.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase8a	1.5	13.1	10.2	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase8b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Marine Calculations- 50/50 Scenario

	Tons per year								Metric tons per year			
Year	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e
2020	0.4	3.5	2.6	0.1	0.1	0.0	0.0	0.0	286.0	0.0	0.0	290.0
2021	0.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0	37.4	0.0	0.0	37.9
2022	0.1	0.7	0.6	0.0	0.0	0.0	0.0	0.0	63.8	0.0	0.0	64.6
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Year	Gal/yr
2020	28,009
2021	3,661
2022	6,244
2023	0
2024	0

Total ***37,914***

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2020	1/1/2020	0	0	0	0	0	0	0	0	0	0
2020	1/2/2020	0	0	0	0	0	0	0	0	0	0
2020	1/3/2020	0	0	0	0	0	0	0	0	0	0
2020	1/4/2020	0	0	0	0	0	0	0	0	0	0
2020	1/5/2020	0	0	0	0	0	0	0	0	0	0
2020	1/6/2020	0	0	0	0	0	0	0	0	0	0
2020	1/7/2020	0	0	0	0	0	0	0	0	0	0
2020	1/8/2020	0	0	0	0	0	0	0	0	0	0
2020	1/9/2020	0	0	0	0	0	0	0	0	0	0
2020	1/10/2020	0	0	0	0	0	0	0	0	0	0
2020	1/11/2020	0	0	0	0	0	0	0	0	0	0
2020	1/12/2020	0	0	0	0	0	0	0	0	0	0
2020	1/13/2020	0	0	0	0	0	0	0	0	0	0
2020	1/14/2020	0	0	0	0	0	0	0	0	0	0
2020	1/15/2020	0	0	0	0	0	0	0	0	0	0
2020	1/16/2020	0	0	0	0	0	0	0	0	0	0
2020	1/17/2020	0	0	0	0	0	0	0	0	0	0
2020	1/18/2020	0	0	0	0	0	0	0	0	0	0
2020	1/19/2020	0	0	0	0	0	0	0	0	0	0
2020	1/20/2020	0	0	0	0	0	0	0	0	0	0
2020	1/21/2020	0	0	0	0	0	0	0	0	0	0
2020	1/22/2020	0	0	0	0	0	0	0	0	0	0
2020	1/23/2020	0	0	0	0	0	0	0	0	0	0
2020	1/24/2020	0	0	0	0	0	0	0	0	0	0
2020	1/25/2020	0	0	0	0	0	0	0	0	0	0
2020	1/26/2020	0	0	0	0	0	0	0	0	0	0
2020	1/27/2020	0	0	0	0	0	0	0	0	0	0
2020	1/28/2020	0	0	0	0	0	0	0	0	0	0
2020	1/29/2020	0	0	0	0	0	0	0	0	0	0
2020	1/30/2020	0	0	0	0	0	0	0	0	0	0
2020	1/31/2020	0	0	0	0	0	0	0	0	0	0
2020	2/1/2020	0	0	0	0	0	0	0	0	0	0
2020	2/2/2020	0	0	0	0	0	0	0	0	0	0
2020	2/3/2020	0	0	0	0	0	0	0	0	0	0
2020	2/4/2020	0	0	0	0	0	0	0	0	0	0
2020	2/5/2020	0	0	0	0	0	0	0	0	0	0
2020	2/6/2020	0	0	0	0	0	0	0	0	0	0
2020	2/7/2020	0	0	0	0	0	0	0	0	0	0
2020	2/8/2020	0	0	0	0	0	0	0	0	0	0
2020	2/9/2020	0	0	0	0	0	0	0	0	0	0
2020	2/10/2020	0	0	0	0	0	0	0	0	0	0
2020	2/11/2020	0	0	0	0	0	0	0	0	0	0
2020	2/12/2020	0	0	0	0	0	0	0	0	0	0
2020	2/13/2020	0	0	0	0	0	0	0	0	0	0
2020	2/14/2020	0	0	0	0	0	0	0	0	0	0
2020	2/15/2020	0	0	0	0	0	0	0	0	0	0
2020	2/16/2020	0	0	0	0	0	0	0	0	0	0
2020	2/17/2020	0	0	0	0	0	0	0	0	0	0
2020	2/18/2020	0	0	0	0	0	0	0	0	0	0
2020	2/19/2020	0	0	0	0	0	0	0	0	0	0
2020	2/20/2020	0	0	0	0	0	0	0	0	0	0
2020	2/21/2020	0	0	0	0	0	0	0	0	0	0
2020	2/22/2020	0	0	0	0	0	0	0	0	0	0
2020	2/23/2020	0	0	0	0	0	0	0	0	0	0
2020	2/24/2020	0	0	0	0	0	0	0	0	0	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2020	2/25/2020	0	0	0	0	0	0	0	0	0	0
2020	2/26/2020	0	0	0	0	0	0	0	0	0	0
2020	2/27/2020	0	0	0	0	0	0	0	0	0	0
2020	2/28/2020	0	0	0	0	0	0	0	0	0	0
2020	2/29/2020	0	0	0	0	0	0	0	0	0	0
2020	3/1/2020	0	0	0	0	0	0	0	0	0	0
2020	3/2/2020	0	0	0	0	0	0	0	0	0	0
2020	3/3/2020	0	0	0	0	0	0	0	0	0	0
2020	3/4/2020	0	0	0	0	0	0	0	0	0	0
2020	3/5/2020	0	0	0	0	0	0	0	0	0	0
2020	3/6/2020	0	0	0	0	0	0	0	0	0	0
2020	3/7/2020	0	0	0	0	0	0	0	0	0	0
2020	3/8/2020	0	0	0	0	0	0	0	0	0	0
2020	3/9/2020	0	0	0	0	0	0	0	0	0	0
2020	3/10/2020	0	0	0	0	0	0	0	0	0	0
2020	3/11/2020	0	0	0	0	0	0	0	0	0	0
2020	3/12/2020	0	0	0	0	0	0	0	0	0	0
2020	3/13/2020	0	0	0	0	0	0	0	0	0	0
2020	3/14/2020	0	0	0	0	0	0	0	0	0	0
2020	3/15/2020	0	0	0	0	0	0	0	0	0	0
2020	3/16/2020	0	0	0	0	0	0	0	0	0	0
2020	3/17/2020	0	0	0	0	0	0	0	0	0	0
2020	3/18/2020	0	0	0	0	0	0	0	0	0	0
2020	3/19/2020	0	0	0	0	0	0	0	0	0	0
2020	3/20/2020	0	0	0	0	0	0	0	0	0	0
2020	3/21/2020	0	0	0	0	0	0	0	0	0	0
2020	3/22/2020	0	0	0	0	0	0	0	0	0	0
2020	3/23/2020	0	0	0	0	0	0	0	0	0	0
2020	3/24/2020	3	25	15	1	2	3	1	0	1	0
2020	3/25/2020	3	25	15	1	2	3	1	0	1	0
2020	3/26/2020	3	25	15	1	2	3	1	0	1	0
2020	3/27/2020	3	25	15	1	2	3	1	0	1	0
2020	3/28/2020	3	25	15	1	2	3	1	0	1	0
2020	3/29/2020	3	25	15	1	2	3	1	0	1	0
2020	3/30/2020	3	25	15	1	2	3	1	0	1	0
2020	3/31/2020	3	25	15	1	2	3	1	0	1	0
2020	4/1/2020	3	25	15	1	2	3	1	0	1	0
2020	4/2/2020	3	25	15	1	2	3	1	0	1	0
2020	4/3/2020	3	25	15	1	2	3	1	0	1	0
2020	4/4/2020	3	25	15	1	2	3	1	0	1	0
2020	4/5/2020	3	25	15	1	2	3	1	0	1	0
2020	4/6/2020	3	25	15	1	2	3	1	0	1	0
2020	4/7/2020	3	25	15	1	2	3	1	0	1	0
2020	4/8/2020	3	25	15	1	2	3	1	0	1	0
2020	4/9/2020	3	25	15	1	2	3	1	0	1	0
2020	4/10/2020	3	25	15	1	2	3	1	0	1	0
2020	4/11/2020	3	25	15	1	2	3	1	0	1	0
2020	4/12/2020	3	25	15	1	2	3	1	0	1	0
2020	4/13/2020	3	25	15	1	2	3	1	0	1	0
2020	4/14/2020	3	25	15	1	2	3	1	0	1	0
2020	4/15/2020	3	25	15	1	2	3	1	0	1	0
2020	4/16/2020	3	25	15	1	2	3	1	0	1	0
2020	4/17/2020	3	25	15	1	2	3	1	0	1	0
2020	4/18/2020	0	3	1	0	0	0	0	0	0	0
2020	4/19/2020	0	3	1	0	0	0	0	0	0	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2020	4/20/2020	0	3	1	0	0	0	0	0	0	0
2020	4/21/2020	1	12	7	0	0	1	0	0	0	0
2020	4/22/2020	1	12	7	0	0	1	0	0	0	0
2020	4/23/2020	1	12	7	0	0	1	0	0	0	0
2020	4/24/2020	1	12	7	0	0	1	0	0	0	0
2020	4/25/2020	1	12	7	0	0	1	0	0	0	0
2020	4/26/2020	1	12	7	0	0	1	0	0	0	0
2020	4/27/2020	1	12	7	0	0	1	0	0	0	0
2020	4/28/2020	2	20	12	1	0	1	1	0	1	0
2020	4/29/2020	1	12	7	0	0	1	0	0	0	0
2020	4/30/2020	1	10	6	0	0	1	0	0	0	0
2020	5/1/2020	1	10	6	0	0	1	0	0	0	0
2020	5/2/2020	1	10	6	0	0	1	0	0	0	0
2020	5/3/2020	1	10	6	0	0	1	0	0	0	0
2020	5/4/2020	1	10	6	0	0	1	0	0	0	0
2020	5/5/2020	1	10	6	0	0	1	0	0	0	0
2020	5/6/2020	1	10	6	0	0	1	0	0	0	0
2020	5/7/2020	1	10	6	0	0	1	0	0	0	0
2020	5/8/2020	1	10	6	0	0	1	0	0	0	0
2020	5/9/2020	1	10	6	0	0	1	0	0	0	0
2020	5/10/2020	1	10	6	0	0	1	0	0	0	0
2020	5/11/2020	1	10	6	0	0	1	0	0	0	0
2020	5/12/2020	1	10	6	0	0	1	0	0	0	0
2020	5/13/2020	1	10	6	0	0	1	0	0	0	0
2020	5/14/2020	1	10	6	0	0	1	0	0	0	0
2020	5/15/2020	1	10	6	0	0	1	0	0	0	0
2020	5/16/2020	1	10	6	0	0	1	0	0	0	0
2020	5/17/2020	1	10	6	0	0	1	0	0	0	0
2020	5/18/2020	1	10	6	0	0	1	0	0	0	0
2020	5/19/2020	1	10	6	0	0	1	0	0	0	0
2020	5/20/2020	1	10	6	0	0	1	0	0	0	0
2020	5/21/2020	1	10	6	0	0	1	0	0	0	0
2020	5/22/2020	1	10	6	0	0	1	0	0	0	0
2020	5/23/2020	0	3	1	0	0	0	0	0	0	0
2020	5/24/2020	0	3	1	0	0	0	0	0	0	0
2020	5/25/2020	0	3	1	0	0	0	0	0	0	0
2020	5/26/2020	0	3	1	0	0	0	0	0	0	0
2020	5/27/2020	0	3	1	0	0	0	0	0	0	0
2020	5/28/2020	0	3	1	0	0	0	0	0	0	0
2020	5/29/2020	0	3	1	0	0	0	0	0	0	0
2020	5/30/2020	0	3	1	0	0	0	0	0	0	0
2020	5/31/2020	0	3	1	0	0	0	0	0	0	0
2020	6/1/2020	3	26	17	1	1	2	1	0	1	0
2020	6/2/2020	3	26	17	1	1	2	1	0	1	0
2020	6/3/2020	3	26	17	1	1	2	1	0	1	0
2020	6/4/2020	3	26	17	1	1	2	1	0	1	0
2020	6/5/2020	3	26	17	1	1	2	1	0	1	0
2020	6/6/2020	3	26	17	1	1	2	1	0	1	0
2020	6/7/2020	3	26	17	1	1	2	1	0	1	0
2020	6/8/2020	3	26	17	1	1	2	1	0	1	0
2020	6/9/2020	3	26	17	1	1	2	1	0	1	0
2020	6/10/2020	3	26	17	1	1	2	1	0	1	0
2020	6/11/2020	3	26	17	1	1	2	1	0	1	0
2020	6/12/2020	3	26	17	1	1	2	1	0	1	0
2020	6/13/2020	3	26	17	1	1	2	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2020	6/14/2020	3	26	17	1	1	2	1	0	1	0
2020	6/15/2020	3	26	17	1	1	2	1	0	1	0
2020	6/16/2020	3	26	17	1	1	2	1	0	1	0
2020	6/17/2020	3	26	17	1	1	2	1	0	1	0
2020	6/18/2020	3	26	17	1	1	2	1	0	1	0
2020	6/19/2020	3	26	17	1	1	2	1	0	1	0
2020	6/20/2020	3	26	17	1	1	2	1	0	1	0
2020	6/21/2020	3	26	17	1	1	2	1	0	1	0
2020	6/22/2020	7	58	34	2	2	4	2	0	3	0
2020	6/23/2020	7	58	34	2	2	4	2	0	3	0
2020	6/24/2020	7	58	34	2	2	4	2	0	3	0
2020	6/25/2020	7	58	34	2	2	4	2	0	3	0
2020	6/26/2020	7	58	34	2	2	4	2	0	3	0
2020	6/27/2020	7	58	34	2	2	4	2	0	3	0
2020	6/28/2020	7	58	34	2	2	4	2	0	3	0
2020	6/29/2020	7	58	34	2	2	4	2	0	3	0
2020	6/30/2020	7	58	34	2	2	4	2	0	3	0
2020	7/1/2020	7	58	34	2	2	4	2	0	3	0
2020	7/2/2020	4	38	19	1	1	2	1	0	1	0
2020	7/3/2020	4	38	19	1	1	2	1	0	1	0
2020	7/4/2020	4	38	19	1	1	2	1	0	1	0
2020	7/5/2020	4	38	19	1	1	2	1	0	1	0
2020	7/6/2020	24	198	137	7	1	8	7	0	7	0
2020	7/7/2020	24	198	137	7	1	8	7	0	7	0
2020	7/8/2020	24	198	137	7	1	8	7	0	7	0
2020	7/9/2020	24	198	137	7	1	8	7	0	7	0
2020	7/10/2020	24	198	137	7	1	8	7	0	7	0
2020	7/11/2020	24	198	137	7	1	8	7	0	7	0
2020	7/12/2020	24	198	137	7	1	8	7	0	7	0
2020	7/13/2020	24	198	137	7	1	8	7	0	7	0
2020	7/14/2020	24	198	137	7	1	8	7	0	7	0
2020	7/15/2020	24	198	137	7	1	8	7	0	7	0
2020	7/16/2020	24	198	137	7	1	8	7	0	7	0
2020	7/17/2020	24	198	137	7	1	8	7	0	7	0
2020	7/18/2020	24	198	137	7	1	8	7	0	7	0
2020	7/19/2020	24	198	137	7	1	8	7	0	7	0
2020	7/20/2020	24	198	137	7	1	8	7	0	7	0
2020	7/21/2020	24	198	137	7	1	8	7	0	7	0
2020	7/22/2020	24	198	137	7	1	8	7	0	7	0
2020	7/23/2020	23	198	136	7	1	7	6	0	7	0
2020	7/24/2020	23	198	136	7	1	7	6	0	7	0
2020	7/25/2020	23	198	136	7	1	7	6	0	7	0
2020	7/26/2020	23	198	136	7	1	7	6	0	7	0
2020	7/27/2020	23	198	136	7	1	7	6	0	7	0
2020	7/28/2020	23	198	136	7	1	7	6	0	7	0
2020	7/29/2020	23	198	136	7	1	7	6	0	7	0
2020	7/30/2020	23	198	136	7	1	7	6	0	7	0
2020	7/31/2020	23	198	136	7	1	7	6	0	7	0
2020	8/1/2020	23	198	136	7	1	7	6	0	7	0
2020	8/2/2020	23	198	136	7	1	7	6	0	7	0
2020	8/3/2020	23	198	136	7	1	7	6	0	7	0
2020	8/4/2020	27	221	153	8	1	9	8	0	8	0
2020	8/5/2020	25	201	139	7	1	8	7	0	7	0
2020	8/6/2020	25	201	139	7	1	8	7	0	7	0
2020	8/7/2020	25	201	139	7	1	8	7	0	7	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2020	8/8/2020	25	201	139	7	1	8	7	0	7	0
2020	8/9/2020	25	201	139	7	1	8	7	0	7	0
2020	8/10/2020	25	201	139	7	1	8	7	0	7	0
2020	8/11/2020	27	220	152	8	1	9	8	0	8	0
2020	8/12/2020	27	220	152	8	1	9	8	0	8	0
2020	8/13/2020	27	220	152	8	1	9	8	0	8	0
2020	8/14/2020	7	60	35	3	1	3	2	0	3	0
2020	8/15/2020	7	60	35	3	1	3	2	0	3	0
2020	8/16/2020	7	60	35	3	1	3	2	0	3	0
2020	8/17/2020	7	60	35	3	1	3	2	0	3	0
2020	8/18/2020	7	60	35	3	1	3	2	0	3	0
2020	8/19/2020	7	60	35	3	1	3	2	0	3	0
2020	8/20/2020	7	58	34	3	1	3	2	0	3	0
2020	8/21/2020	7	58	34	3	1	3	2	0	3	0
2020	8/22/2020	7	56	33	2	1	3	2	0	2	0
2020	8/23/2020	7	56	33	2	1	3	2	0	2	0
2020	8/24/2020	7	56	33	2	1	3	2	0	2	0
2020	8/25/2020	7	56	33	2	1	3	2	0	2	0
2020	8/26/2020	7	56	33	2	1	3	2	0	2	0
2020	8/27/2020	7	56	33	2	1	3	2	0	2	0
2020	8/28/2020	7	56	33	2	1	3	2	0	2	0
2020	8/29/2020	7	56	33	2	1	3	2	0	2	0
2020	8/30/2020	7	56	33	2	1	3	2	0	2	0
2020	8/31/2020	7	56	33	2	1	3	2	0	2	0
2020	9/1/2020	7	56	33	2	1	3	2	0	2	0
2020	9/2/2020	7	56	33	2	1	3	2	0	2	0
2020	9/3/2020	7	56	33	2	1	3	2	0	2	0
2020	9/4/2020	7	56	33	2	1	3	2	0	2	0
2020	9/5/2020	7	56	33	2	1	3	2	0	2	0
2020	9/6/2020	7	56	33	2	1	3	2	0	2	0
2020	9/7/2020	7	56	33	2	1	3	2	0	2	0
2020	9/8/2020	7	56	33	2	1	3	2	0	2	0
2020	9/9/2020	7	56	33	2	1	3	2	0	2	0
2020	9/10/2020	7	56	33	2	1	3	2	0	2	0
2020	9/11/2020	7	56	33	2	1	3	2	0	2	0
2020	9/12/2020	7	56	33	2	1	3	2	0	2	0
2020	9/13/2020	7	56	33	2	1	3	2	0	2	0
2020	9/14/2020	7	56	33	2	1	3	2	0	2	0
2020	9/15/2020	7	56	33	2	1	3	2	0	2	0
2020	9/16/2020	7	56	33	2	1	3	2	0	2	0
2020	9/17/2020	7	56	33	2	1	3	2	0	2	0
2020	9/18/2020	7	56	33	2	1	3	2	0	2	0
2020	9/19/2020	7	56	33	2	1	3	2	0	2	0
2020	9/20/2020	7	56	33	2	1	3	2	0	2	0
2020	9/21/2020	7	56	33	2	1	3	2	0	2	0
2020	9/22/2020	7	56	33	2	1	3	2	0	2	0
2020	9/23/2020	7	56	33	2	1	3	2	0	2	0
2020	9/24/2020	7	56	33	2	1	3	2	0	2	0
2020	9/25/2020	7	56	33	2	1	3	2	0	2	0
2020	9/26/2020	7	56	33	2	1	3	2	0	2	0
2020	9/27/2020	7	56	33	2	1	3	2	0	2	0
2020	9/28/2020	7	56	33	2	1	3	2	0	2	0
2020	9/29/2020	7	56	33	2	1	3	2	0	2	0
2020	9/30/2020	3	32	16	1	0	2	1	0	1	0
2020	10/1/2020	0	3	1	0	0	0	0	0	0	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2020	10/2/2020	0	3	1	0	0	0	0	0	0	0
2020	10/3/2020	0	3	1	0	0	0	0	0	0	0
2020	10/4/2020	0	3	1	0	0	0	0	0	0	0
2020	10/5/2020	3	22	14	1	0	1	1	0	1	0
2020	10/6/2020	3	22	14	1	0	1	1	0	1	0
2020	10/7/2020	3	22	14	1	0	1	1	0	1	0
2020	10/8/2020	3	22	14	1	0	1	1	0	1	0
2020	10/9/2020	3	22	14	1	0	1	1	0	1	0
2020	10/10/2020	3	22	14	1	0	1	1	0	1	0
2020	10/11/2020	3	22	14	1	0	1	1	0	1	0
2020	10/12/2020	3	22	14	1	0	1	1	0	1	0
2020	10/13/2020	3	22	14	1	0	1	1	0	1	0
2020	10/14/2020	3	22	14	1	0	1	1	0	1	0
2020	10/15/2020	3	22	14	1	0	1	1	0	1	0
2020	10/16/2020	3	22	14	1	0	1	1	0	1	0
2020	10/17/2020	3	22	14	1	0	1	1	0	1	0
2020	10/18/2020	3	22	14	1	0	1	1	0	1	0
2020	10/19/2020	6	52	33	2	0	2	2	0	2	0
2020	10/20/2020	3	33	20	1	0	1	1	0	1	0
2020	10/21/2020	3	33	20	1	0	1	1	0	1	0
2020	10/22/2020	3	33	20	1	0	1	1	0	1	0
2020	10/23/2020	3	33	20	1	0	1	1	0	1	0
2020	10/24/2020	3	33	20	1	0	1	1	0	1	0
2020	10/25/2020	3	33	20	1	0	1	1	0	1	0
2020	10/26/2020	3	33	20	1	0	1	1	0	1	0
2020	10/27/2020	3	33	20	1	0	1	1	0	1	0
2020	10/28/2020	3	33	20	1	0	1	1	0	1	0
2020	10/29/2020	3	33	20	1	0	1	1	0	1	0
2020	10/30/2020	3	33	20	1	0	1	1	0	1	0
2020	10/31/2020	3	33	20	1	0	1	1	0	1	0
2020	11/1/2020	3	33	20	1	0	1	1	0	1	0
2020	11/2/2020	3	33	20	1	0	1	1	0	1	0
2020	11/3/2020	3	33	20	1	0	1	1	0	1	0
2020	11/4/2020	3	33	20	1	0	1	1	0	1	0
2020	11/5/2020	3	33	20	1	0	1	1	0	1	0
2020	11/6/2020	3	28	19	1	0	1	1	0	1	0
2020	11/7/2020	3	28	19	1	0	1	1	0	1	0
2020	11/8/2020	3	28	19	1	0	1	1	0	1	0
2020	11/9/2020	3	28	19	1	0	1	1	0	1	0
2020	11/10/2020	3	28	19	1	0	1	1	0	1	0
2020	11/11/2020	3	28	19	1	0	1	1	0	1	0
2020	11/12/2020	3	28	19	1	0	1	1	0	1	0
2020	11/13/2020	3	28	19	1	0	1	1	0	1	0
2020	11/14/2020	3	28	19	1	0	1	1	0	1	0
2020	11/15/2020	3	28	19	1	0	1	1	0	1	0
2020	11/16/2020	3	28	19	1	0	1	1	0	1	0
2020	11/17/2020	3	28	19	1	0	1	1	0	1	0
2020	11/18/2020	3	28	19	1	0	1	1	0	1	0
2020	11/19/2020	3	28	19	1	0	1	1	0	1	0
2020	11/20/2020	3	28	19	1	0	1	1	0	1	0
2020	11/21/2020	3	28	19	1	0	1	1	0	1	0
2020	11/22/2020	3	28	19	1	0	1	1	0	1	0
2020	11/23/2020	3	28	19	1	0	1	1	0	1	0
2020	11/24/2020	3	28	19	1	0	1	1	0	1	0
2020	11/25/2020	3	28	19	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2020	11/26/2020	3	28	19	1	0	1	1	0	1	0
2020	11/27/2020	3	28	19	1	0	1	1	0	1	0
2020	11/28/2020	3	28	19	1	0	1	1	0	1	0
2020	11/29/2020	3	28	19	1	0	1	1	0	1	0
2020	11/30/2020	3	28	19	1	0	1	1	0	1	0
2020	12/1/2020	3	28	19	1	0	1	1	0	1	0
2020	12/2/2020	3	28	19	1	0	1	1	0	1	0
2020	12/3/2020	3	28	19	1	0	1	1	0	1	0
2020	12/4/2020	3	28	19	1	0	1	1	0	1	0
2020	12/5/2020	3	28	19	1	0	1	1	0	1	0
2020	12/6/2020	3	28	19	1	0	1	1	0	1	0
2020	12/7/2020	3	28	19	1	0	1	1	0	1	0
2020	12/8/2020	3	28	19	1	0	1	1	0	1	0
2020	12/9/2020	3	28	19	1	0	1	1	0	1	0
2020	12/10/2020	3	28	19	1	0	1	1	0	1	0
2020	12/11/2020	3	28	19	1	0	1	1	0	1	0
2020	12/12/2020	3	28	19	1	0	1	1	0	1	0
2020	12/13/2020	3	28	19	1	0	1	1	0	1	0
2020	12/14/2020	3	28	19	1	0	1	1	0	1	0
2020	12/15/2020	3	28	19	1	0	1	1	0	1	0
2020	12/16/2020	3	28	19	1	0	1	1	0	1	0
2020	12/17/2020	3	28	19	1	0	1	1	0	1	0
2020	12/18/2020	3	28	19	1	0	1	1	0	1	0
2020	12/19/2020	3	28	19	1	0	1	1	0	1	0
2020	12/20/2020	3	28	19	1	0	1	1	0	1	0
2020	12/21/2020	3	28	19	1	0	1	1	0	1	0
2020	12/22/2020	3	28	19	1	0	1	1	0	1	0
2020	12/23/2020	0	0	0	0	0	0	0	0	0	0
2020	12/24/2020	0	0	0	0	0	0	0	0	0	0
2020	12/25/2020	0	0	0	0	0	0	0	0	0	0
2020	12/26/2020	0	0	0	0	0	0	0	0	0	0
2020	12/27/2020	0	0	0	0	0	0	0	0	0	0
2020	12/28/2020	0	0	0	0	0	0	0	0	0	0
2020	12/29/2020	0	0	0	0	0	0	0	0	0	0
2020	12/30/2020	0	0	0	0	0	0	0	0	0	0
2020	12/31/2020	0	0	0	0	0	0	0	0	0	0
2021	1/1/2021	0	0	0	0	0	0	0	0	0	0
2021	1/2/2021	0	0	0	0	0	0	0	0	0	0
2021	1/3/2021	0	0	0	0	0	0	0	0	0	0
2021	1/4/2021	0	0	0	0	0	0	0	0	0	0
2021	1/5/2021	0	0	0	0	0	0	0	0	0	0
2021	1/6/2021	0	0	0	0	0	0	0	0	0	0
2021	1/7/2021	0	0	0	0	0	0	0	0	0	0
2021	1/8/2021	0	0	0	0	0	0	0	0	0	0
2021	1/9/2021	0	0	0	0	0	0	0	0	0	0
2021	1/10/2021	0	0	0	0	0	0	0	0	0	0
2021	1/11/2021	0	0	0	0	0	0	0	0	0	0
2021	1/12/2021	0	0	0	0	0	0	0	0	0	0
2021	1/13/2021	0	0	0	0	0	0	0	0	0	0
2021	1/14/2021	0	0	0	0	0	0	0	0	0	0
2021	1/15/2021	0	0	0	0	0	0	0	0	0	0
2021	1/16/2021	0	0	0	0	0	0	0	0	0	0
2021	1/17/2021	0	0	0	0	0	0	0	0	0	0
2021	1/18/2021	0	0	0	0	0	0	0	0	0	0
2021	1/19/2021	0	0	0	0	0	0	0	0	0	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2021	1/20/2021	0	0	0	0	0	0	0	0	0	0
2021	1/21/2021	0	0	0	0	0	0	0	0	0	0
2021	1/22/2021	0	0	0	0	0	0	0	0	0	0
2021	1/23/2021	0	0	0	0	0	0	0	0	0	0
2021	1/24/2021	0	0	0	0	0	0	0	0	0	0
2021	1/25/2021	0	0	0	0	0	0	0	0	0	0
2021	1/26/2021	0	0	0	0	0	0	0	0	0	0
2021	1/27/2021	0	0	0	0	0	0	0	0	0	0
2021	1/28/2021	0	0	0	0	0	0	0	0	0	0
2021	1/29/2021	0	0	0	0	0	0	0	0	0	0
2021	1/30/2021	0	0	0	0	0	0	0	0	0	0
2021	1/31/2021	0	0	0	0	0	0	0	0	0	0
2021	2/1/2021	3	24	16	1	0	1	1	0	1	0
2021	2/2/2021	3	24	16	1	0	1	1	0	1	0
2021	2/3/2021	3	24	16	1	0	1	1	0	1	0
2021	2/4/2021	3	24	16	1	0	1	1	0	1	0
2021	2/5/2021	3	24	16	1	0	1	1	0	1	0
2021	2/6/2021	3	24	16	1	0	1	1	0	1	0
2021	2/7/2021	3	24	16	1	0	1	1	0	1	0
2021	2/8/2021	3	24	16	1	0	1	1	0	1	0
2021	2/9/2021	3	24	16	1	0	1	1	0	1	0
2021	2/10/2021	3	24	16	1	0	1	1	0	1	0
2021	2/11/2021	3	24	16	1	0	1	1	0	1	0
2021	2/12/2021	3	24	16	1	0	1	1	0	1	0
2021	2/13/2021	3	24	16	1	0	1	1	0	1	0
2021	2/14/2021	3	24	16	1	0	1	1	0	1	0
2021	2/15/2021	5	40	27	2	0	2	1	0	1	0
2021	2/16/2021	2	17	11	1	0	1	1	0	1	0
2021	2/17/2021	2	17	11	1	0	1	1	0	1	0
2021	2/18/2021	2	17	11	1	0	1	1	0	1	0
2021	2/19/2021	2	17	11	1	0	1	1	0	1	0
2021	2/20/2021	2	17	11	1	0	1	1	0	1	0
2021	2/21/2021	2	17	11	1	0	1	1	0	1	0
2021	2/22/2021	2	17	11	1	0	1	1	0	1	0
2021	2/23/2021	2	17	11	1	0	1	1	0	1	0
2021	2/24/2021	2	17	11	1	0	1	1	0	1	0
2021	2/25/2021	2	17	11	1	0	1	1	0	1	0
2021	2/26/2021	2	17	11	1	0	1	1	0	1	0
2021	2/27/2021	2	17	11	1	0	1	1	0	1	0
2021	2/28/2021	2	17	11	1	0	1	1	0	1	0
2021	3/1/2021	2	17	11	1	0	1	1	0	1	0
2021	3/2/2021	2	17	11	1	0	1	1	0	1	0
2021	3/3/2021	2	17	11	1	0	1	1	0	1	0
2021	3/4/2021	2	17	11	1	0	1	1	0	1	0
2021	3/5/2021	2	17	11	1	0	1	1	0	1	0
2021	3/6/2021	2	17	11	1	0	1	1	0	1	0
2021	3/7/2021	2	17	11	1	0	1	1	0	1	0
2021	3/8/2021	2	17	11	1	0	1	1	0	1	0
2021	3/9/2021	2	17	11	1	0	1	1	0	1	0
2021	3/10/2021	2	17	11	1	0	1	1	0	1	0
2021	3/11/2021	2	17	11	1	0	1	1	0	1	0
2021	3/12/2021	2	17	11	1	0	1	1	0	1	0
2021	3/13/2021	2	17	11	1	0	1	1	0	1	0
2021	3/14/2021	2	17	11	1	0	1	1	0	1	0
2021	3/15/2021	2	17	11	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2021	3/16/2021	2	17	11	1	0	1	1	0	1	0
2021	3/17/2021	2	17	11	1	0	1	1	0	1	0
2021	3/18/2021	2	17	11	1	0	1	1	0	1	0
2021	3/19/2021	2	17	11	1	0	1	1	0	1	0
2021	3/20/2021	2	17	11	1	0	1	1	0	1	0
2021	3/21/2021	2	17	11	1	0	1	1	0	1	0
2021	3/22/2021	2	17	11	1	0	1	1	0	1	0
2021	3/23/2021	2	17	11	1	0	1	1	0	1	0
2021	3/24/2021	2	17	11	1	0	1	1	0	1	0
2021	3/25/2021	2	17	11	1	0	1	1	0	1	0
2021	3/26/2021	2	17	11	1	0	1	1	0	1	0
2021	3/27/2021	2	17	11	1	0	1	1	0	1	0
2021	3/28/2021	2	17	11	1	0	1	1	0	1	0
2021	3/29/2021	2	17	11	1	0	1	1	0	1	0
2021	3/30/2021	2	17	11	1	0	1	1	0	1	0
2021	3/31/2021	2	17	11	1	0	1	1	0	1	0
2021	4/1/2021	2	17	11	1	0	1	1	0	1	0
2021	4/2/2021	2	17	11	1	0	1	1	0	1	0
2021	4/3/2021	0	0	0	0	0	0	0	0	0	0
2021	4/4/2021	0	0	0	0	0	0	0	0	0	0
2021	4/5/2021	3	23	17	1	0	1	1	0	1	0
2021	4/6/2021	3	23	17	1	0	1	1	0	1	0
2021	4/7/2021	3	23	17	1	0	1	1	0	1	0
2021	4/8/2021	3	23	17	1	0	1	1	0	1	0
2021	4/9/2021	3	23	17	1	0	1	1	0	1	0
2021	4/10/2021	3	23	17	1	0	1	1	0	1	0
2021	4/11/2021	3	23	17	1	0	1	1	0	1	0
2021	4/12/2021	3	23	17	1	0	1	1	0	1	0
2021	4/13/2021	3	23	17	1	0	1	1	0	1	0
2021	4/14/2021	3	23	17	1	0	1	1	0	1	0
2021	4/15/2021	3	23	17	1	0	1	1	0	1	0
2021	4/16/2021	3	23	17	1	0	1	1	0	1	0
2021	4/17/2021	3	23	17	1	0	1	1	0	1	0
2021	4/18/2021	3	23	17	1	0	1	1	0	1	0
2021	4/19/2021	3	23	17	1	0	1	1	0	1	0
2021	4/20/2021	3	23	17	1	0	1	1	0	1	0
2021	4/21/2021	3	23	17	1	0	1	1	0	1	0
2021	4/22/2021	3	23	17	1	0	1	1	0	1	0
2021	4/23/2021	3	23	17	1	0	1	1	0	1	0
2021	4/24/2021	3	23	17	1	0	1	1	0	1	0
2021	4/25/2021	3	23	17	1	0	1	1	0	1	0
2021	4/26/2021	3	23	17	1	0	1	1	0	1	0
2021	4/27/2021	3	23	17	1	0	1	1	0	1	0
2021	4/28/2021	3	23	17	1	0	1	1	0	1	0
2021	4/29/2021	3	23	17	1	0	1	1	0	1	0
2021	4/30/2021	3	23	17	1	0	1	1	0	1	0
2021	5/1/2021	3	23	17	1	0	1	1	0	1	0
2021	5/2/2021	3	23	17	1	0	1	1	0	1	0
2021	5/3/2021	3	23	17	1	0	1	1	0	1	0
2021	5/4/2021	3	23	17	1	0	1	1	0	1	0
2021	5/5/2021	3	23	17	1	0	1	1	0	1	0
2021	5/6/2021	3	23	17	1	0	1	1	0	1	0
2021	5/7/2021	3	23	17	1	0	1	1	0	1	0
2021	5/8/2021	3	23	17	1	0	1	1	0	1	0
2021	5/9/2021	3	23	17	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2021	5/10/2021	3	23	17	1	0	1	1	0	1	0
2021	5/11/2021	3	23	17	1	0	1	1	0	1	0
2021	5/12/2021	3	23	17	1	0	1	1	0	1	0
2021	5/13/2021	3	23	17	1	0	1	1	0	1	0
2021	5/14/2021	3	23	17	1	0	1	1	0	1	0
2021	5/15/2021	3	23	17	1	0	1	1	0	1	0
2021	5/16/2021	3	23	17	1	0	1	1	0	1	0
2021	5/17/2021	3	23	17	1	0	1	1	0	1	0
2021	5/18/2021	3	23	17	1	0	1	1	0	1	0
2021	5/19/2021	3	23	17	1	0	1	1	0	1	0
2021	5/20/2021	3	23	17	1	0	1	1	0	1	0
2021	5/21/2021	3	23	17	1	0	1	1	0	1	0
2021	5/22/2021	0	0	0	0	0	0	0	0	0	0
2021	5/23/2021	0	0	0	0	0	0	0	0	0	0
2021	5/24/2021	0	0	0	0	0	0	0	0	0	0
2021	5/25/2021	0	0	0	0	0	0	0	0	0	0
2021	5/26/2021	0	0	0	0	0	0	0	0	0	0
2021	5/27/2021	0	0	0	0	0	0	0	0	0	0
2021	5/28/2021	0	0	0	0	0	0	0	0	0	0
2021	5/29/2021	0	0	0	0	0	0	0	0	0	0
2021	5/30/2021	0	0	0	0	0	0	0	0	0	0
2021	5/31/2021	0	0	0	0	0	0	0	0	0	0
2021	6/1/2021	0	0	0	0	0	0	0	0	0	0
2021	6/2/2021	0	0	0	0	0	0	0	0	0	0
2021	6/3/2021	0	0	0	0	0	0	0	0	0	0
2021	6/4/2021	0	0	0	0	0	0	0	0	0	0
2021	6/5/2021	0	0	0	0	0	0	0	0	0	0
2021	6/6/2021	0	0	0	0	0	0	0	0	0	0
2021	6/7/2021	0	0	0	0	0	0	0	0	0	0
2021	6/8/2021	0	0	0	0	0	0	0	0	0	0
2021	6/9/2021	0	0	0	0	0	0	0	0	0	0
2021	6/10/2021	0	0	0	0	0	0	0	0	0	0
2021	6/11/2021	0	0	0	0	0	0	0	0	0	0
2021	6/12/2021	0	0	0	0	0	0	0	0	0	0
2021	6/13/2021	0	0	0	0	0	0	0	0	0	0
2021	6/14/2021	4	33	24	1	0	2	1	0	1	0
2021	6/15/2021	4	33	24	1	0	2	1	0	1	0
2021	6/16/2021	4	33	24	1	0	2	1	0	1	0
2021	6/17/2021	4	33	24	1	0	2	1	0	1	0
2021	6/18/2021	4	33	24	1	0	2	1	0	1	0
2021	6/19/2021	4	33	24	1	0	2	1	0	1	0
2021	6/20/2021	4	33	24	1	0	2	1	0	1	0
2021	6/21/2021	4	33	24	1	0	2	1	0	1	0
2021	6/22/2021	4	33	24	1	0	2	1	0	1	0
2021	6/23/2021	4	33	24	1	0	2	1	0	1	0
2021	6/24/2021	4	33	24	1	0	2	1	0	1	0
2021	6/25/2021	4	33	24	1	0	2	1	0	1	0
2021	6/26/2021	4	33	24	1	0	2	1	0	1	0
2021	6/27/2021	4	33	24	1	0	2	1	0	1	0
2021	6/28/2021	4	35	25	1	0	2	1	0	1	0
2021	6/29/2021	4	35	25	1	0	2	1	0	1	0
2021	6/30/2021	7	53	39	2	0	3	2	0	2	0
2021	7/1/2021	3	23	16	1	0	1	1	0	1	0
2021	7/2/2021	3	23	16	1	0	1	1	0	1	0
2021	7/3/2021	3	23	16	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
2021	7/4/2021	3	23	16	1	0	1	1	0	1	0
2021	7/5/2021	3	23	16	1	0	1	1	0	1	0
2021	7/6/2021	3	23	16	1	0	1	1	0	1	0
2021	7/7/2021	3	23	16	1	0	1	1	0	1	0
2021	7/8/2021	3	23	16	1	0	1	1	0	1	0
2021	7/9/2021	3	23	16	1	0	1	1	0	1	0
2021	7/10/2021	3	23	16	1	0	1	1	0	1	0
2021	7/11/2021	3	23	16	1	0	1	1	0	1	0
2021	7/12/2021	3	23	16	1	0	1	1	0	1	0
2021	7/13/2021	3	23	16	1	0	1	1	0	1	0
2021	7/14/2021	3	21	15	1	0	1	1	0	1	0
2021	7/15/2021	3	21	15	1	0	1	1	0	1	0
2021	7/16/2021	3	21	15	1	0	1	1	0	1	0
2021	7/17/2021	3	21	15	1	0	1	1	0	1	0
2021	7/18/2021	3	21	15	1	0	1	1	0	1	0
2021	7/19/2021	3	21	15	1	0	1	1	0	1	0
2021	7/20/2021	3	21	15	1	0	1	1	0	1	0
2021	7/21/2021	3	21	15	1	0	1	1	0	1	0
2021	7/22/2021	3	21	15	1	0	1	1	0	1	0
2021	7/23/2021	3	21	15	1	0	1	1	0	1	0
2021	7/24/2021	3	21	15	1	0	1	1	0	1	0
2021	7/25/2021	3	21	15	1	0	1	1	0	1	0
2021	7/26/2021	3	21	15	1	0	1	1	0	1	0
2021	7/27/2021	3	21	15	1	0	1	1	0	1	0
2021	7/28/2021	3	21	15	1	0	1	1	0	1	0
2021	7/29/2021	3	21	15	1	0	1	1	0	1	0
2021	7/30/2021	3	21	15	1	0	1	1	0	1	0
2021	7/31/2021	3	21	15	1	0	1	1	0	1	0
2021	8/1/2021	3	21	15	1	0	1	1	0	1	0
2021	8/2/2021	3	21	15	1	0	1	1	0	1	0
2021	8/3/2021	3	21	15	1	0	1	1	0	1	0
2021	8/4/2021	3	21	15	1	0	1	1	0	1	0
2021	8/5/2021	3	21	15	1	0	1	1	0	1	0
2021	8/6/2021	3	21	15	1	0	1	1	0	1	0
2021	8/7/2021	3	21	15	1	0	1	1	0	1	0
2021	8/8/2021	3	21	15	1	0	1	1	0	1	0
2021	8/9/2021	3	21	15	1	0	1	1	0	1	0
2021	8/10/2021	3	21	15	1	0	1	1	0	1	0
2021	8/11/2021	3	21	15	1	0	1	1	0	1	0
2021	8/12/2021	3	21	15	1	0	1	1	0	1	0
2021	8/13/2021	3	21	15	1	0	1	1	0	1	0
2021	8/14/2021	3	21	15	1	0	1	1	0	1	0
2021	8/15/2021	3	21	15	1	0	1	1	0	1	0
2021	8/16/2021	3	21	15	1	0	1	1	0	1	0
2021	8/17/2021	3	21	15	1	0	1	1	0	1	0
2021	8/18/2021	3	21	15	1	0	1	1	0	1	0
2021	8/19/2021	3	21	15	1	0	1	1	0	1	0
2021	8/20/2021	3	21	15	1	0	1	1	0	1	0
2021	8/21/2021	3	21	15	1	0	1	1	0	1	0
2021	8/22/2021	3	21	15	1	0	1	1	0	1	0
2021	8/23/2021	3	21	15	1	0	1	1	0	1	0
2021	8/24/2021	3	21	15	1	0	1	1	0	1	0
2021	8/25/2021	3	21	15	1	0	1	1	0	1	0
2021	8/26/2021	3	21	15	1	0	1	1	0	1	0
2021	8/27/2021	3	21	15	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2021	8/28/2021	3	21	15	1	0	1	1	0	1	0
2021	8/29/2021	3	21	15	1	0	1	1	0	1	0
2021	8/30/2021	3	21	15	1	0	1	1	0	1	0
2021	8/31/2021	3	21	15	1	0	1	1	0	1	0
2021	9/1/2021	3	21	15	1	0	1	1	0	1	0
2021	9/2/2021	3	21	15	1	0	1	1	0	1	0
2021	9/3/2021	3	21	15	1	0	1	1	0	1	0
2021	9/4/2021	3	21	15	1	0	1	1	0	1	0
2021	9/5/2021	3	21	15	1	0	1	1	0	1	0
2021	9/6/2021	3	21	15	1	0	1	1	0	1	0
2021	9/7/2021	3	21	15	1	0	1	1	0	1	0
2021	9/8/2021	3	21	15	1	0	1	1	0	1	0
2021	9/9/2021	3	21	15	1	0	1	1	0	1	0
2021	9/10/2021	3	21	15	1	0	1	1	0	1	0
2021	9/11/2021	3	21	15	1	0	1	1	0	1	0
2021	9/12/2021	3	21	15	1	0	1	1	0	1	0
2021	9/13/2021	3	21	15	1	0	1	1	0	1	0
2021	9/14/2021	3	21	15	1	0	1	1	0	1	0
2021	9/15/2021	3	21	15	1	0	1	1	0	1	0
2021	9/16/2021	3	21	15	1	0	1	1	0	1	0
2021	9/17/2021	3	21	15	1	0	1	1	0	1	0
2021	9/18/2021	3	21	15	1	0	1	1	0	1	0
2021	9/19/2021	3	21	15	1	0	1	1	0	1	0
2021	9/20/2021	3	21	15	1	0	1	1	0	1	0
2021	9/21/2021	3	21	15	1	0	1	1	0	1	0
2021	9/22/2021	3	21	15	1	0	1	1	0	1	0
2021	9/23/2021	3	21	15	1	0	1	1	0	1	0
2021	9/24/2021	3	21	15	1	0	1	1	0	1	0
2021	9/25/2021	3	21	15	1	0	1	1	0	1	0
2021	9/26/2021	3	21	15	1	0	1	1	0	1	0
2021	9/27/2021	3	21	15	1	0	1	1	0	1	0
2021	9/28/2021	3	21	15	1	0	1	1	0	1	0
2021	9/29/2021	3	21	15	1	0	1	1	0	1	0
2021	9/30/2021	3	21	15	1	0	1	1	0	1	0
2021	10/1/2021	0	0	0	0	0	0	0	0	0	0
2021	10/2/2021	0	0	0	0	0	0	0	0	0	0
2021	10/3/2021	0	0	0	0	0	0	0	0	0	0
2021	10/4/2021	0	0	0	0	0	0	0	0	0	0
2021	10/5/2021	0	0	0	0	0	0	0	0	0	0
2021	10/6/2021	0	0	0	0	0	0	0	0	0	0
2021	10/7/2021	0	0	0	0	0	0	0	0	0	0
2021	10/8/2021	0	0	0	0	0	0	0	0	0	0
2021	10/9/2021	0	0	0	0	0	0	0	0	0	0
2021	10/10/2021	0	0	0	0	0	0	0	0	0	0
2021	10/11/2021	0	0	0	0	0	0	0	0	0	0
2021	10/12/2021	0	0	0	0	0	0	0	0	0	0
2021	10/13/2021	0	0	0	0	0	0	0	0	0	0
2021	10/14/2021	0	0	0	0	0	0	0	0	0	0
2021	10/15/2021	0	0	0	0	0	0	0	0	0	0
2021	10/16/2021	0	0	0	0	0	0	0	0	0	0
2021	10/17/2021	0	0	0	0	0	0	0	0	0	0
2021	10/18/2021	0	0	0	0	0	0	0	0	0	0
2021	10/19/2021	0	0	0	0	0	0	0	0	0	0
2021	10/20/2021	0	0	0	0	0	0	0	0	0	0
2021	10/21/2021	0	0	0	0	0	0	0	0	0	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2021	10/22/2021	0	0	0	0	0	0	0	0	0	0
2021	10/23/2021	0	0	0	0	0	0	0	0	0	0
2021	10/24/2021	0	0	0	0	0	0	0	0	0	0
2021	10/25/2021	0	0	0	0	0	0	0	0	0	0
2021	10/26/2021	0	0	0	0	0	0	0	0	0	0
2021	10/27/2021	0	0	0	0	0	0	0	0	0	0
2021	10/28/2021	0	0	0	0	0	0	0	0	0	0
2021	10/29/2021	0	0	0	0	0	0	0	0	0	0
2021	10/30/2021	0	0	0	0	0	0	0	0	0	0
2021	10/31/2021	0	0	0	0	0	0	0	0	0	0
2021	11/1/2021	0	0	0	0	0	0	0	0	0	0
2021	11/2/2021	0	0	0	0	0	0	0	0	0	0
2021	11/3/2021	0	0	0	0	0	0	0	0	0	0
2021	11/4/2021	0	0	0	0	0	0	0	0	0	0
2021	11/5/2021	0	0	0	0	0	0	0	0	0	0
2021	11/6/2021	0	0	0	0	0	0	0	0	0	0
2021	11/7/2021	0	0	0	0	0	0	0	0	0	0
2021	11/8/2021	1	7	6	0	0	0	0	0	0	0
2021	11/9/2021	1	7	6	0	0	0	0	0	0	0
2021	11/10/2021	1	7	6	0	0	0	0	0	0	0
2021	11/11/2021	1	7	6	0	0	0	0	0	0	0
2021	11/12/2021	1	7	6	0	0	0	0	0	0	0
2021	11/13/2021	1	7	6	0	0	0	0	0	0	0
2021	11/14/2021	1	7	6	0	0	0	0	0	0	0
2021	11/15/2021	1	7	6	0	0	0	0	0	0	0
2021	11/16/2021	1	7	6	0	0	0	0	0	0	0
2021	11/17/2021	1	7	6	0	0	0	0	0	0	0
2021	11/18/2021	1	7	6	0	0	0	0	0	0	0
2021	11/19/2021	1	7	6	0	0	0	0	0	0	0
2021	11/20/2021	1	7	6	0	0	0	0	0	0	0
2021	11/21/2021	1	7	6	0	0	0	0	0	0	0
2021	11/22/2021	1	7	6	0	0	0	0	0	0	0
2021	11/23/2021	1	7	6	0	0	0	0	0	0	0
2021	11/24/2021	1	7	6	0	0	0	0	0	0	0
2021	11/25/2021	1	7	6	0	0	0	0	0	0	0
2021	11/26/2021	1	7	6	0	0	0	0	0	0	0
2021	11/27/2021	1	7	6	0	0	0	0	0	0	0
2021	11/28/2021	1	7	6	0	0	0	0	0	0	0
2021	11/29/2021	1	7	6	0	0	0	0	0	0	0
2021	11/30/2021	1	7	6	0	0	0	0	0	0	0
2021	12/1/2021	1	7	6	0	0	0	0	0	0	0
2021	12/2/2021	1	7	6	0	0	0	0	0	0	0
2021	12/3/2021	1	7	6	0	0	0	0	0	0	0
2021	12/4/2021	1	7	6	0	0	0	0	0	0	0
2021	12/5/2021	1	7	6	0	0	0	0	0	0	0
2021	12/6/2021	1	7	6	0	0	0	0	0	0	0
2021	12/7/2021	1	7	6	0	0	0	0	0	0	0
2021	12/8/2021	1	7	6	0	0	0	0	0	0	0
2021	12/9/2021	1	7	6	0	0	0	0	0	0	0
2021	12/10/2021	1	7	6	0	0	0	0	0	0	0
2021	12/11/2021	1	7	6	0	0	0	0	0	0	0
2021	12/12/2021	1	7	6	0	0	0	0	0	0	0
2021	12/13/2021	2	13	12	1	0	1	1	0	1	0
2021	12/14/2021	1	6	6	0	0	0	0	0	0	0
2021	12/15/2021	1	6	6	0	0	0	0	0	0	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2021	12/16/2021	1	6	6	0	0	0	0	0	0	0
2021	12/17/2021	1	6	6	0	0	0	0	0	0	0
2021	12/18/2021	1	6	6	0	0	0	0	0	0	0
2021	12/19/2021	1	6	6	0	0	0	0	0	0	0
2021	12/20/2021	1	6	6	0	0	0	0	0	0	0
2021	12/21/2021	1	6	6	0	0	0	0	0	0	0
2021	12/22/2021	1	6	6	0	0	0	0	0	0	0
2021	12/23/2021	1	6	6	0	0	0	0	0	0	0
2021	12/24/2021	1	6	6	0	0	0	0	0	0	0
2021	12/25/2021	1	6	6	0	0	0	0	0	0	0
2021	12/26/2021	1	6	6	0	0	0	0	0	0	0
2021	12/27/2021	1	6	6	0	0	0	0	0	0	0
2021	12/28/2021	1	6	6	0	0	0	0	0	0	0
2021	12/29/2021	1	6	6	0	0	0	0	0	0	0
2021	12/30/2021	1	6	6	0	0	0	0	0	0	0
2021	12/31/2021	1	6	6	0	0	0	0	0	0	0
2022	1/1/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/2/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/3/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/4/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/5/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/6/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/7/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/8/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/9/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/10/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/11/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/12/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/13/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/14/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/15/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/16/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/17/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/18/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/19/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/20/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/21/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/22/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/23/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/24/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/25/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/26/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/27/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/28/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/29/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/30/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	1/31/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/1/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/2/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/3/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/4/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/5/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/6/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/7/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/8/2022	1	6	6	0	0	0	0	0	0	0.0109

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2022	2/9/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/10/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/11/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/12/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/13/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/14/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/15/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/16/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/17/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/18/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/19/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/20/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/21/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/22/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/23/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	2/24/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	2/25/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	2/26/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	2/27/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	2/28/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	3/1/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/2/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/3/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/4/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/5/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/6/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/7/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/8/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/9/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/10/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/11/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/12/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/13/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/14/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/15/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/16/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/17/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/18/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/19/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/20/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/21/2022	1	6	6	0	0	0	0	0	0	0.0129
2022	3/22/2022	2	12	12	1	0	1	1	0	1	0.0238
2022	3/23/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	3/24/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	3/25/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	3/26/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	3/27/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	3/28/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	3/29/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	3/30/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	3/31/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/1/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/2/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/3/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/4/2022	1	6	6	0	0	0	0	0	0	0.0109

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2022	4/5/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/6/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/7/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/8/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/9/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/10/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/11/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/12/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/13/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/14/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/15/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/16/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/17/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/18/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/19/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/20/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/21/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/22/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/23/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/24/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/25/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/26/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/27/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/28/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/29/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	4/30/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/1/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/2/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/3/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/4/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/5/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/6/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/7/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/8/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/9/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/10/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/11/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/12/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/13/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/14/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/15/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/16/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/17/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/18/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/19/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/20/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/21/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/22/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/23/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/24/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/25/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/26/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/27/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/28/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/29/2022	1	6	6	0	0	0	0	0	0	0.0109

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2022	5/30/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	5/31/2022	1	6	6	0	0	0	0	0	0	0.0109
2022	6/1/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/2/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/3/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/4/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/5/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/6/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/7/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/8/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/9/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/10/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/11/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/12/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/13/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/14/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/15/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/16/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/17/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/18/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/19/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/20/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/21/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/22/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/23/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/24/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/25/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/26/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/27/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/28/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/29/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	6/30/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/1/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/2/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/3/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/4/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/5/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/6/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/7/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/8/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/9/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/10/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/11/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/12/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/13/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/14/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/15/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/16/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/17/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/18/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/19/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/20/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/21/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/22/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/23/2022	16	131	97	5	0	5	4	0	4	0.1709

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2022	7/24/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/25/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/26/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/27/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/28/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/29/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/30/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	7/31/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	8/1/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	8/2/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	8/3/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	8/4/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	8/5/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	8/6/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	8/7/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	8/8/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	8/9/2022	16	131	97	5	0	5	4	0	4	0.1709
2022	8/10/2022	2	13	9	1	0	1	1	0	1	0.0218
2022	8/11/2022	2	13	9	1	0	1	1	0	1	0.0218
2022	8/12/2022	2	13	9	1	0	1	1	0	1	0.0218
2022	8/13/2022	2	13	9	1	0	1	1	0	1	0.0218
2022	8/14/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	8/15/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	8/16/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	8/17/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	8/18/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	8/19/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	8/20/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	8/21/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	8/22/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	8/23/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	8/24/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	8/25/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	8/26/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	8/27/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	8/28/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	8/29/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	8/30/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	8/31/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/1/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/2/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/3/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/4/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/5/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/6/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/7/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/8/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/9/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/10/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/11/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/12/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/13/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/14/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/15/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/16/2022	1	12	8	1	0	1	1	0	1	0.0169

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2022	9/17/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/18/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/19/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/20/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/21/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/22/2022	1	12	8	1	0	1	1	0	1	0.0169
2022	9/23/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	9/24/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	9/25/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	9/26/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	9/27/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	9/28/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	9/29/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	9/30/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	10/1/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	10/2/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	10/3/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	10/4/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	10/5/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	10/6/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	10/7/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	10/8/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	10/9/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	10/10/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	10/11/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	10/12/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	10/13/2022	0	0	0	0	0	0	0	0	0	0.0000
2022	10/14/2022	2	14	13	1	0	1	1	0	1	0.0267
2022	10/15/2022	2	14	13	1	0	1	1	0	1	0.0267
2022	10/16/2022	2	14	13	1	0	1	1	0	1	0.0267
2022	10/17/2022	2	14	13	1	0	1	1	0	1	0.0267
2022	10/18/2022	2	14	13	1	0	1	1	0	1	0.0267
2022	10/19/2022	2	14	13	1	0	1	1	0	1	0.0267
2022	10/20/2022	2	14	13	1	0	1	1	0	1	0.0267
2022	10/21/2022	10	30	26	2	0	2	2	0	2	0.0503
2022	10/22/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	10/23/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	10/24/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	10/25/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	10/26/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	10/27/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	10/28/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	10/29/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	10/30/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	10/31/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/1/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/2/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/3/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/4/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/5/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/6/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/7/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/8/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/9/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/10/2022	8	16	14	1	0	1	1	0	1	0.0289

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2022	11/11/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/12/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/13/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/14/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/15/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/16/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/17/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/18/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/19/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/20/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/21/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/22/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/23/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/24/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/25/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/26/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/27/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/28/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/29/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	11/30/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/1/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/2/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/3/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/4/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/5/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/6/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/7/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/8/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/9/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/10/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/11/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/12/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/13/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/14/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/15/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/16/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/17/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/18/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/19/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/20/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/21/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/22/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/23/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/24/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/25/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/26/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/27/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/28/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/29/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/30/2022	8	16	14	1	0	1	1	0	1	0.0289
2022	12/31/2022	8	16	14	1	0	1	1	0	1	0.0289
2023	1/1/2023	8	15	13	1	0	1	1	0	1	0
2023	1/2/2023	8	15	13	1	0	1	1	0	1	0
2023	1/3/2023	8	15	13	1	0	1	1	0	1	0
2023	1/4/2023	8	15	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
2023	1/5/2023	8	15	13	1	0	1	1	0	1	0
2023	1/6/2023	8	15	13	1	0	1	1	0	1	0
2023	1/7/2023	8	15	13	1	0	1	1	0	1	0
2023	1/8/2023	8	15	13	1	0	1	1	0	1	0
2023	1/9/2023	8	15	13	1	0	1	1	0	1	0
2023	1/10/2023	8	15	13	1	0	1	1	0	1	0
2023	1/11/2023	8	15	13	1	0	1	1	0	1	0
2023	1/12/2023	8	15	13	1	0	1	1	0	1	0
2023	1/13/2023	8	15	13	1	0	1	1	0	1	0
2023	1/14/2023	8	15	13	1	0	1	1	0	1	0
2023	1/15/2023	8	15	13	1	0	1	1	0	1	0
2023	1/16/2023	8	15	13	1	0	1	1	0	1	0
2023	1/17/2023	8	15	13	1	0	1	1	0	1	0
2023	1/18/2023	8	15	13	1	0	1	1	0	1	0
2023	1/19/2023	8	15	13	1	0	1	1	0	1	0
2023	1/20/2023	8	15	13	1	0	1	1	0	1	0
2023	1/21/2023	8	15	13	1	0	1	1	0	1	0
2023	1/22/2023	8	15	13	1	0	1	1	0	1	0
2023	1/23/2023	8	15	13	1	0	1	1	0	1	0
2023	1/24/2023	8	15	13	1	0	1	1	0	1	0
2023	1/25/2023	8	15	13	1	0	1	1	0	1	0
2023	1/26/2023	8	15	13	1	0	1	1	0	1	0
2023	1/27/2023	8	15	13	1	0	1	1	0	1	0
2023	1/28/2023	8	15	13	1	0	1	1	0	1	0
2023	1/29/2023	8	15	13	1	0	1	1	0	1	0
2023	1/30/2023	8	15	13	1	0	1	1	0	1	0
2023	1/31/2023	8	15	13	1	0	1	1	0	1	0
2023	2/1/2023	8	15	13	1	0	1	1	0	1	0
2023	2/2/2023	8	15	13	1	0	1	1	0	1	0
2023	2/3/2023	8	15	13	1	0	1	1	0	1	0
2023	2/4/2023	8	15	13	1	0	1	1	0	1	0
2023	2/5/2023	8	15	13	1	0	1	1	0	1	0
2023	2/6/2023	8	15	13	1	0	1	1	0	1	0
2023	2/7/2023	8	15	13	1	0	1	1	0	1	0
2023	2/8/2023	8	15	13	1	0	1	1	0	1	0
2023	2/9/2023	8	15	13	1	0	1	1	0	1	0
2023	2/10/2023	8	15	13	1	0	1	1	0	1	0
2023	2/11/2023	8	15	13	1	0	1	1	0	1	0
2023	2/12/2023	8	15	13	1	0	1	1	0	1	0
2023	2/13/2023	8	15	13	1	0	1	1	0	1	0
2023	2/14/2023	8	15	13	1	0	1	1	0	1	0
2023	2/15/2023	8	15	13	1	0	1	1	0	1	0
2023	2/16/2023	8	15	13	1	0	1	1	0	1	0
2023	2/17/2023	8	15	13	1	0	1	1	0	1	0
2023	2/18/2023	8	15	13	1	0	1	1	0	1	0
2023	2/19/2023	8	15	13	1	0	1	1	0	1	0
2023	2/20/2023	8	15	13	1	0	1	1	0	1	0
2023	2/21/2023	8	15	13	1	0	1	1	0	1	0
2023	2/22/2023	8	15	13	1	0	1	1	0	1	0
2023	2/23/2023	8	15	13	1	0	1	1	0	1	0
2023	2/24/2023	8	15	13	1	0	1	1	0	1	0
2023	2/25/2023	8	15	13	1	0	1	1	0	1	0
2023	2/26/2023	8	15	13	1	0	1	1	0	1	0
2023	2/27/2023	8	15	13	1	0	1	1	0	1	0
2023	2/28/2023	8	15	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2023	3/1/2023	8	15	13	1	0	1	1	0	1	0
2023	3/2/2023	8	15	13	1	0	1	1	0	1	0
2023	3/3/2023	8	15	13	1	0	1	1	0	1	0
2023	3/4/2023	8	15	13	1	0	1	1	0	1	0
2023	3/5/2023	8	15	13	1	0	1	1	0	1	0
2023	3/6/2023	8	15	13	1	0	1	1	0	1	0
2023	3/7/2023	8	15	13	1	0	1	1	0	1	0
2023	3/8/2023	8	15	13	1	0	1	1	0	1	0
2023	3/9/2023	8	15	13	1	0	1	1	0	1	0
2023	3/10/2023	8	15	13	1	0	1	1	0	1	0
2023	3/11/2023	8	15	13	1	0	1	1	0	1	0
2023	3/12/2023	8	15	13	1	0	1	1	0	1	0
2023	3/13/2023	8	15	13	1	0	1	1	0	1	0
2023	3/14/2023	8	15	13	1	0	1	1	0	1	0
2023	3/15/2023	8	15	13	1	0	1	1	0	1	0
2023	3/16/2023	8	15	13	1	0	1	1	0	1	0
2023	3/17/2023	8	15	13	1	0	1	1	0	1	0
2023	3/18/2023	8	15	13	1	0	1	1	0	1	0
2023	3/19/2023	8	15	13	1	0	1	1	0	1	0
2023	3/20/2023	8	15	13	1	0	1	1	0	1	0
2023	3/21/2023	8	15	13	1	0	1	1	0	1	0
2023	3/22/2023	8	15	13	1	0	1	1	0	1	0
2023	3/23/2023	8	15	13	1	0	1	1	0	1	0
2023	3/24/2023	8	15	13	1	0	1	1	0	1	0
2023	3/25/2023	8	15	13	1	0	1	1	0	1	0
2023	3/26/2023	8	15	13	1	0	1	1	0	1	0
2023	3/27/2023	8	15	13	1	0	1	1	0	1	0
2023	3/28/2023	8	15	13	1	0	1	1	0	1	0
2023	3/29/2023	8	15	13	1	0	1	1	0	1	0
2023	3/30/2023	8	15	13	1	0	1	1	0	1	0
2023	3/31/2023	8	15	13	1	0	1	1	0	1	0
2023	4/1/2023	8	15	13	1	0	1	1	0	1	0
2023	4/2/2023	8	15	13	1	0	1	1	0	1	0
2023	4/3/2023	8	15	13	1	0	1	1	0	1	0
2023	4/4/2023	8	15	13	1	0	1	1	0	1	0
2023	4/5/2023	8	15	13	1	0	1	1	0	1	0
2023	4/6/2023	8	15	13	1	0	1	1	0	1	0
2023	4/7/2023	8	15	13	1	0	1	1	0	1	0
2023	4/8/2023	8	15	13	1	0	1	1	0	1	0
2023	4/9/2023	8	15	13	1	0	1	1	0	1	0
2023	4/10/2023	8	15	13	1	0	1	1	0	1	0
2023	4/11/2023	8	15	13	1	0	1	1	0	1	0
2023	4/12/2023	8	15	13	1	0	1	1	0	1	0
2023	4/13/2023	8	15	13	1	0	1	1	0	1	0
2023	4/14/2023	8	15	13	1	0	1	1	0	1	0
2023	4/15/2023	8	15	13	1	0	1	1	0	1	0
2023	4/16/2023	8	15	13	1	0	1	1	0	1	0
2023	4/17/2023	8	15	13	1	0	1	1	0	1	0
2023	4/18/2023	8	15	13	1	0	1	1	0	1	0
2023	4/19/2023	8	15	13	1	0	1	1	0	1	0
2023	4/20/2023	8	15	13	1	0	1	1	0	1	0
2023	4/21/2023	8	15	13	1	0	1	1	0	1	0
2023	4/22/2023	8	15	13	1	0	1	1	0	1	0
2023	4/23/2023	8	15	13	1	0	1	1	0	1	0
2023	4/24/2023	8	15	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2023	4/25/2023	8	15	13	1	0	1	1	0	1	0
2023	4/26/2023	8	15	13	1	0	1	1	0	1	0
2023	4/27/2023	8	15	13	1	0	1	1	0	1	0
2023	4/28/2023	8	15	13	1	0	1	1	0	1	0
2023	4/29/2023	8	15	13	1	0	1	1	0	1	0
2023	4/30/2023	8	15	13	1	0	1	1	0	1	0
2023	5/1/2023	8	15	13	1	0	1	1	0	1	0
2023	5/2/2023	8	15	13	1	0	1	1	0	1	0
2023	5/3/2023	8	15	13	1	0	1	1	0	1	0
2023	5/4/2023	8	15	13	1	0	1	1	0	1	0
2023	5/5/2023	8	15	13	1	0	1	1	0	1	0
2023	5/6/2023	8	15	13	1	0	1	1	0	1	0
2023	5/7/2023	8	15	13	1	0	1	1	0	1	0
2023	5/8/2023	8	15	13	1	0	1	1	0	1	0
2023	5/9/2023	8	15	13	1	0	1	1	0	1	0
2023	5/10/2023	8	15	13	1	0	1	1	0	1	0
2023	5/11/2023	8	15	13	1	0	1	1	0	1	0
2023	5/12/2023	8	15	13	1	0	1	1	0	1	0
2023	5/13/2023	8	15	13	1	0	1	1	0	1	0
2023	5/14/2023	8	15	13	1	0	1	1	0	1	0
2023	5/15/2023	8	15	13	1	0	1	1	0	1	0
2023	5/16/2023	8	15	13	1	0	1	1	0	1	0
2023	5/17/2023	8	15	13	1	0	1	1	0	1	0
2023	5/18/2023	8	15	13	1	0	1	1	0	1	0
2023	5/19/2023	8	15	13	1	0	1	1	0	1	0
2023	5/20/2023	8	15	13	1	0	1	1	0	1	0
2023	5/21/2023	8	15	13	1	0	1	1	0	1	0
2023	5/22/2023	8	15	13	1	0	1	1	0	1	0
2023	5/23/2023	8	15	13	1	0	1	1	0	1	0
2023	5/24/2023	8	15	13	1	0	1	1	0	1	0
2023	5/25/2023	8	15	13	1	0	1	1	0	1	0
2023	5/26/2023	8	15	13	1	0	1	1	0	1	0
2023	5/27/2023	8	15	13	1	0	1	1	0	1	0
2023	5/28/2023	8	15	13	1	0	1	1	0	1	0
2023	5/29/2023	8	15	13	1	0	1	1	0	1	0
2023	5/30/2023	8	15	13	1	0	1	1	0	1	0
2023	5/31/2023	8	15	13	1	0	1	1	0	1	0
2023	6/1/2023	8	15	13	1	0	1	1	0	1	0
2023	6/2/2023	8	15	13	1	0	1	1	0	1	0
2023	6/3/2023	8	15	13	1	0	1	1	0	1	0
2023	6/4/2023	8	15	13	1	0	1	1	0	1	0
2023	6/5/2023	8	15	13	1	0	1	1	0	1	0
2023	6/6/2023	8	15	13	1	0	1	1	0	1	0
2023	6/7/2023	8	15	13	1	0	1	1	0	1	0
2023	6/8/2023	8	15	13	1	0	1	1	0	1	0
2023	6/9/2023	8	15	13	1	0	1	1	0	1	0
2023	6/10/2023	8	15	13	1	0	1	1	0	1	0
2023	6/11/2023	8	15	13	1	0	1	1	0	1	0
2023	6/12/2023	8	15	13	1	0	1	1	0	1	0
2023	6/13/2023	8	15	13	1	0	1	1	0	1	0
2023	6/14/2023	8	15	13	1	0	1	1	0	1	0
2023	6/15/2023	8	15	13	1	0	1	1	0	1	0
2023	6/16/2023	8	15	13	1	0	1	1	0	1	0
2023	6/17/2023	8	15	13	1	0	1	1	0	1	0
2023	6/18/2023	8	15	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2023	6/19/2023	8	15	13	1	0	1	1	0	1	0
2023	6/20/2023	8	15	13	1	0	1	1	0	1	0
2023	6/21/2023	8	15	13	1	0	1	1	0	1	0
2023	6/22/2023	8	15	13	1	0	1	1	0	1	0
2023	6/23/2023	8	15	13	1	0	1	1	0	1	0
2023	6/24/2023	8	15	13	1	0	1	1	0	1	0
2023	6/25/2023	8	15	13	1	0	1	1	0	1	0
2023	6/26/2023	8	15	13	1	0	1	1	0	1	0
2023	6/27/2023	8	15	13	1	0	1	1	0	1	0
2023	6/28/2023	8	15	13	1	0	1	1	0	1	0
2023	6/29/2023	8	15	13	1	0	1	1	0	1	0
2023	6/30/2023	8	15	13	1	0	1	1	0	1	0
2023	7/1/2023	8	15	13	1	0	1	1	0	1	0
2023	7/2/2023	8	15	13	1	0	1	1	0	1	0
2023	7/3/2023	8	15	13	1	0	1	1	0	1	0
2023	7/4/2023	8	15	13	1	0	1	1	0	1	0
2023	7/5/2023	8	15	13	1	0	1	1	0	1	0
2023	7/6/2023	8	15	13	1	0	1	1	0	1	0
2023	7/7/2023	8	15	13	1	0	1	1	0	1	0
2023	7/8/2023	8	15	13	1	0	1	1	0	1	0
2023	7/9/2023	8	15	13	1	0	1	1	0	1	0
2023	7/10/2023	8	15	13	1	0	1	1	0	1	0
2023	7/11/2023	8	15	13	1	0	1	1	0	1	0
2023	7/12/2023	8	15	13	1	0	1	1	0	1	0
2023	7/13/2023	8	15	13	1	0	1	1	0	1	0
2023	7/14/2023	8	15	13	1	0	1	1	0	1	0
2023	7/15/2023	8	15	13	1	0	1	1	0	1	0
2023	7/16/2023	8	15	13	1	0	1	1	0	1	0
2023	7/17/2023	8	15	13	1	0	1	1	0	1	0
2023	7/18/2023	8	15	13	1	0	1	1	0	1	0
2023	7/19/2023	8	15	13	1	0	1	1	0	1	0
2023	7/20/2023	8	15	13	1	0	1	1	0	1	0
2023	7/21/2023	8	15	13	1	0	1	1	0	1	0
2023	7/22/2023	0	0	0	0	0	0	0	0	0	0
2023	7/23/2023	0	0	0	0	0	0	0	0	0	0
2023	7/24/2023	0	0	0	0	0	0	0	0	0	0
2023	7/25/2023	0	0	0	0	0	0	0	0	0	0
2023	7/26/2023	0	0	0	0	0	0	0	0	0	0
2023	7/27/2023	0	0	0	0	0	0	0	0	0	0
2023	7/28/2023	0	0	0	0	0	0	0	0	0	0
2023	7/29/2023	0	0	0	0	0	0	0	0	0	0
2023	7/30/2023	0	0	0	0	0	0	0	0	0	0
2023	7/31/2023	0	0	0	0	0	0	0	0	0	0
2023	8/1/2023	2	13	13	1	0	1	1	0	1	0
2023	8/2/2023	2	13	13	1	0	1	1	0	1	0
2023	8/3/2023	2	13	13	1	0	1	1	0	1	0
2023	8/4/2023	2	13	13	1	0	1	1	0	1	0
2023	8/5/2023	2	13	13	1	0	1	1	0	1	0
2023	8/6/2023	2	13	13	1	0	1	1	0	1	0
2023	8/7/2023	2	13	13	1	0	1	1	0	1	0
2023	8/8/2023	2	13	13	1	0	1	1	0	1	0
2023	8/9/2023	2	13	13	1	0	1	1	0	1	0
2023	8/10/2023	2	13	13	1	0	1	1	0	1	0
2023	8/11/2023	2	13	13	1	0	1	1	0	1	0
2023	8/12/2023	2	13	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
2023	8/13/2023	2	13	13	1	0	1	1	0	1	0
2023	8/14/2023	2	13	13	1	0	1	1	0	1	0
2023	8/15/2023	2	13	13	1	0	1	1	0	1	0
2023	8/16/2023	2	13	13	1	0	1	1	0	1	0
2023	8/17/2023	2	13	13	1	0	1	1	0	1	0
2023	8/18/2023	2	13	13	1	0	1	1	0	1	0
2023	8/19/2023	2	13	13	1	0	1	1	0	1	0
2023	8/20/2023	2	13	13	1	0	1	1	0	1	0
2023	8/21/2023	2	13	13	1	0	1	1	0	1	0
2023	8/22/2023	2	13	13	1	0	1	1	0	1	0
2023	8/23/2023	2	13	13	1	0	1	1	0	1	0
2023	8/24/2023	2	13	13	1	0	1	1	0	1	0
2023	8/25/2023	2	13	13	1	0	1	1	0	1	0
2023	8/26/2023	2	13	13	1	0	1	1	0	1	0
2023	8/27/2023	2	13	13	1	0	1	1	0	1	0
2023	8/28/2023	2	13	13	1	0	1	1	0	1	0
2023	8/29/2023	2	13	13	1	0	1	1	0	1	0
2023	8/30/2023	2	13	13	1	0	1	1	0	1	0
2023	8/31/2023	2	13	13	1	0	1	1	0	1	0
2023	9/1/2023	2	13	13	1	0	1	1	0	1	0
2023	9/2/2023	2	13	13	1	0	1	1	0	1	0
2023	9/3/2023	2	13	13	1	0	1	1	0	1	0
2023	9/4/2023	2	13	13	1	0	1	1	0	1	0
2023	9/5/2023	2	13	13	1	0	1	1	0	1	0
2023	9/6/2023	2	13	13	1	0	1	1	0	1	0
2023	9/7/2023	2	13	13	1	0	1	1	0	1	0
2023	9/8/2023	2	13	13	1	0	1	1	0	1	0
2023	9/9/2023	2	13	13	1	0	1	1	0	1	0
2023	9/10/2023	2	13	13	1	0	1	1	0	1	0
2023	9/11/2023	2	13	13	1	0	1	1	0	1	0
2023	9/12/2023	4	27	25	1	0	2	1	0	1	0
2023	9/13/2023	2	15	13	1	0	1	1	0	1	0
2023	9/14/2023	2	15	13	1	0	1	1	0	1	0
2023	9/15/2023	2	15	13	1	0	1	1	0	1	0
2023	9/16/2023	2	15	13	1	0	1	1	0	1	0
2023	9/17/2023	2	15	13	1	0	1	1	0	1	0
2023	9/18/2023	2	15	13	1	0	1	1	0	1	0
2023	9/19/2023	2	15	13	1	0	1	1	0	1	0
2023	9/20/2023	2	15	13	1	0	1	1	0	1	0
2023	9/21/2023	2	15	13	1	0	1	1	0	1	0
2023	9/22/2023	2	15	13	1	0	1	1	0	1	0
2023	9/23/2023	2	15	13	1	0	1	1	0	1	0
2023	9/24/2023	2	15	13	1	0	1	1	0	1	0
2023	9/25/2023	2	15	13	1	0	1	1	0	1	0
2023	9/26/2023	2	15	13	1	0	1	1	0	1	0
2023	9/27/2023	2	15	13	1	0	1	1	0	1	0
2023	9/28/2023	2	15	13	1	0	1	1	0	1	0
2023	9/29/2023	2	15	13	1	0	1	1	0	1	0
2023	9/30/2023	2	15	13	1	0	1	1	0	1	0
2023	10/1/2023	2	15	13	1	0	1	1	0	1	0
2023	10/2/2023	2	15	13	1	0	1	1	0	1	0
2023	10/3/2023	2	15	13	1	0	1	1	0	1	0
2023	10/4/2023	2	15	13	1	0	1	1	0	1	0
2023	10/5/2023	2	15	13	1	0	1	1	0	1	0
2023	10/6/2023	2	15	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2023	10/7/2023	2	15	13	1	0	1	1	0	1	0
2023	10/8/2023	2	15	13	1	0	1	1	0	1	0
2023	10/9/2023	2	15	13	1	0	1	1	0	1	0
2023	10/10/2023	2	15	13	1	0	1	1	0	1	0
2023	10/11/2023	2	15	13	1	0	1	1	0	1	0
2023	10/12/2023	2	15	13	1	0	1	1	0	1	0
2023	10/13/2023	2	15	13	1	0	1	1	0	1	0
2023	10/14/2023	2	15	13	1	0	1	1	0	1	0
2023	10/15/2023	2	15	13	1	0	1	1	0	1	0
2023	10/16/2023	2	15	13	1	0	1	1	0	1	0
2023	10/17/2023	2	15	13	1	0	1	1	0	1	0
2023	10/18/2023	2	15	13	1	0	1	1	0	1	0
2023	10/19/2023	2	15	13	1	0	1	1	0	1	0
2023	10/20/2023	2	15	13	1	0	1	1	0	1	0
2023	10/21/2023	2	15	13	1	0	1	1	0	1	0
2023	10/22/2023	2	15	13	1	0	1	1	0	1	0
2023	10/23/2023	2	15	13	1	0	1	1	0	1	0
2023	10/24/2023	2	15	13	1	0	1	1	0	1	0
2023	10/25/2023	2	15	13	1	0	1	1	0	1	0
2023	10/26/2023	2	15	13	1	0	1	1	0	1	0
2023	10/27/2023	2	15	13	1	0	1	1	0	1	0
2023	10/28/2023	2	15	13	1	0	1	1	0	1	0
2023	10/29/2023	2	15	13	1	0	1	1	0	1	0
2023	10/30/2023	2	15	13	1	0	1	1	0	1	0
2023	10/31/2023	2	15	13	1	0	1	1	0	1	0
2023	11/1/2023	2	15	13	1	0	1	1	0	1	0
2023	11/2/2023	2	15	13	1	0	1	1	0	1	0
2023	11/3/2023	2	15	13	1	0	1	1	0	1	0
2023	11/4/2023	2	15	13	1	0	1	1	0	1	0
2023	11/5/2023	2	15	13	1	0	1	1	0	1	0
2023	11/6/2023	2	15	13	1	0	1	1	0	1	0
2023	11/7/2023	2	15	13	1	0	1	1	0	1	0
2023	11/8/2023	2	15	13	1	0	1	1	0	1	0
2023	11/9/2023	2	15	13	1	0	1	1	0	1	0
2023	11/10/2023	2	15	13	1	0	1	1	0	1	0
2023	11/11/2023	2	15	13	1	0	1	1	0	1	0
2023	11/12/2023	2	15	13	1	0	1	1	0	1	0
2023	11/13/2023	2	15	13	1	0	1	1	0	1	0
2023	11/14/2023	2	15	13	1	0	1	1	0	1	0
2023	11/15/2023	2	15	13	1	0	1	1	0	1	0
2023	11/16/2023	2	15	13	1	0	1	1	0	1	0
2023	11/17/2023	2	15	13	1	0	1	1	0	1	0
2023	11/18/2023	2	15	13	1	0	1	1	0	1	0
2023	11/19/2023	2	15	13	1	0	1	1	0	1	0
2023	11/20/2023	2	15	13	1	0	1	1	0	1	0
2023	11/21/2023	2	15	13	1	0	1	1	0	1	0
2023	11/22/2023	2	15	13	1	0	1	1	0	1	0
2023	11/23/2023	2	15	13	1	0	1	1	0	1	0
2023	11/24/2023	2	15	13	1	0	1	1	0	1	0
2023	11/25/2023	2	15	13	1	0	1	1	0	1	0
2023	11/26/2023	2	15	13	1	0	1	1	0	1	0
2023	11/27/2023	2	15	13	1	0	1	1	0	1	0
2023	11/28/2023	2	15	13	1	0	1	1	0	1	0
2023	11/29/2023	2	15	13	1	0	1	1	0	1	0
2023	11/30/2023	2	15	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2023	12/1/2023	2	15	13	1	0	1	1	0	1	0
2023	12/2/2023	2	15	13	1	0	1	1	0	1	0
2023	12/3/2023	2	15	13	1	0	1	1	0	1	0
2023	12/4/2023	2	15	13	1	0	1	1	0	1	0
2023	12/5/2023	2	15	13	1	0	1	1	0	1	0
2023	12/6/2023	2	15	13	1	0	1	1	0	1	0
2023	12/7/2023	2	15	13	1	0	1	1	0	1	0
2023	12/8/2023	2	15	13	1	0	1	1	0	1	0
2023	12/9/2023	2	15	13	1	0	1	1	0	1	0
2023	12/10/2023	2	15	13	1	0	1	1	0	1	0
2023	12/11/2023	2	15	13	1	0	1	1	0	1	0
2023	12/12/2023	2	15	13	1	0	1	1	0	1	0
2023	12/13/2023	2	15	13	1	0	1	1	0	1	0
2023	12/14/2023	2	15	13	1	0	1	1	0	1	0
2023	12/15/2023	2	15	13	1	0	1	1	0	1	0
2023	12/16/2023	2	15	13	1	0	1	1	0	1	0
2023	12/17/2023	2	15	13	1	0	1	1	0	1	0
2023	12/18/2023	2	15	13	1	0	1	1	0	1	0
2023	12/19/2023	2	15	13	1	0	1	1	0	1	0
2023	12/20/2023	2	15	13	1	0	1	1	0	1	0
2023	12/21/2023	2	15	13	1	0	1	1	0	1	0
2023	12/22/2023	2	15	13	1	0	1	1	0	1	0
2023	12/23/2023	2	15	13	1	0	1	1	0	1	0
2023	12/24/2023	2	15	13	1	0	1	1	0	1	0
2023	12/25/2023	2	15	13	1	0	1	1	0	1	0
2023	12/26/2023	2	15	13	1	0	1	1	0	1	0
2023	12/27/2023	2	15	13	1	0	1	1	0	1	0
2023	12/28/2023	2	15	13	1	0	1	1	0	1	0
2023	12/29/2023	2	15	13	1	0	1	1	0	1	0
2023	12/30/2023	2	15	13	1	0	1	1	0	1	0
2023	12/31/2023	2	15	13	1	0	1	1	0	1	0
2024	1/1/2024	2	14	13	1	0	1	1	0	1	0
2024	1/2/2024	2	14	13	1	0	1	1	0	1	0
2024	1/3/2024	2	14	13	1	0	1	1	0	1	0
2024	1/4/2024	2	14	13	1	0	1	1	0	1	0
2024	1/5/2024	2	14	13	1	0	1	1	0	1	0
2024	1/6/2024	2	14	13	1	0	1	1	0	1	0
2024	1/7/2024	2	14	13	1	0	1	1	0	1	0
2024	1/8/2024	2	14	13	1	0	1	1	0	1	0
2024	1/9/2024	2	14	13	1	0	1	1	0	1	0
2024	1/10/2024	2	14	13	1	0	1	1	0	1	0
2024	1/11/2024	2	14	13	1	0	1	1	0	1	0
2024	1/12/2024	2	14	13	1	0	1	1	0	1	0
2024	1/13/2024	2	14	13	1	0	1	1	0	1	0
2024	1/14/2024	2	14	13	1	0	1	1	0	1	0
2024	1/15/2024	2	14	13	1	0	1	1	0	1	0
2024	1/16/2024	2	14	13	1	0	1	1	0	1	0
2024	1/17/2024	2	14	13	1	0	1	1	0	1	0
2024	1/18/2024	2	14	13	1	0	1	1	0	1	0
2024	1/19/2024	2	14	13	1	0	1	1	0	1	0
2024	1/20/2024	2	14	13	1	0	1	1	0	1	0
2024	1/21/2024	2	14	13	1	0	1	1	0	1	0
2024	1/22/2024	2	14	13	1	0	1	1	0	1	0
2024	1/23/2024	2	14	13	1	0	1	1	0	1	0
2024	1/24/2024	2	14	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2024	1/25/2024	2	14	13	1	0	1	1	0	1	0
2024	1/26/2024	2	14	13	1	0	1	1	0	1	0
2024	1/27/2024	2	14	13	1	0	1	1	0	1	0
2024	1/28/2024	2	14	13	1	0	1	1	0	1	0
2024	1/29/2024	2	14	13	1	0	1	1	0	1	0
2024	1/30/2024	2	14	13	1	0	1	1	0	1	0
2024	1/31/2024	2	14	13	1	0	1	1	0	1	0
2024	2/1/2024	2	14	13	1	0	1	1	0	1	0
2024	2/2/2024	2	14	13	1	0	1	1	0	1	0
2024	2/3/2024	2	14	13	1	0	1	1	0	1	0
2024	2/4/2024	2	14	13	1	0	1	1	0	1	0
2024	2/5/2024	2	14	13	1	0	1	1	0	1	0
2024	2/6/2024	2	14	13	1	0	1	1	0	1	0
2024	2/7/2024	2	14	13	1	0	1	1	0	1	0
2024	2/8/2024	2	14	13	1	0	1	1	0	1	0
2024	2/9/2024	2	14	13	1	0	1	1	0	1	0
2024	2/10/2024	2	14	13	1	0	1	1	0	1	0
2024	2/11/2024	2	14	13	1	0	1	1	0	1	0
2024	2/12/2024	2	14	13	1	0	1	1	0	1	0
2024	2/13/2024	2	14	13	1	0	1	1	0	1	0
2024	2/14/2024	2	14	13	1	0	1	1	0	1	0
2024	2/15/2024	2	14	13	1	0	1	1	0	1	0
2024	2/16/2024	2	14	13	1	0	1	1	0	1	0
2024	2/17/2024	2	14	13	1	0	1	1	0	1	0
2024	2/18/2024	2	14	13	1	0	1	1	0	1	0
2024	2/19/2024	2	14	13	1	0	1	1	0	1	0
2024	2/20/2024	2	14	13	1	0	1	1	0	1	0
2024	2/21/2024	2	14	13	1	0	1	1	0	1	0
2024	2/22/2024	2	14	13	1	0	1	1	0	1	0
2024	2/23/2024	2	14	13	1	0	1	1	0	1	0
2024	2/24/2024	2	14	13	1	0	1	1	0	1	0
2024	2/25/2024	2	14	13	1	0	1	1	0	1	0
2024	2/26/2024	2	14	13	1	0	1	1	0	1	0
2024	2/27/2024	2	14	13	1	0	1	1	0	1	0
2024	2/28/2024	2	14	13	1	0	1	1	0	1	0
2024	2/29/2024	2	14	13	1	0	1	1	0	1	0
2024	3/1/2024	3	21	19	1	0	1	1	0	1	0
2024	3/2/2024	3	21	19	1	0	1	1	0	1	0
2024	3/3/2024	3	21	19	1	0	1	1	0	1	0
2024	3/4/2024	3	21	19	1	0	1	1	0	1	0
2024	3/5/2024	3	21	19	1	0	1	1	0	1	0
2024	3/6/2024	3	21	19	1	0	1	1	0	1	0
2024	3/7/2024	3	21	19	1	0	1	1	0	1	0
2024	3/8/2024	3	21	19	1	0	1	1	0	1	0
2024	3/9/2024	3	21	19	1	0	1	1	0	1	0
2024	3/10/2024	3	21	19	1	0	1	1	0	1	0
2024	3/11/2024	3	21	19	1	0	1	1	0	1	0
2024	3/12/2024	3	21	19	1	0	1	1	0	1	0
2024	3/13/2024	3	21	19	1	0	1	1	0	1	0
2024	3/14/2024	3	21	19	1	0	1	1	0	1	0
2024	3/15/2024	3	21	19	1	0	1	1	0	1	0
2024	3/16/2024	3	21	19	1	0	1	1	0	1	0
2024	3/17/2024	3	21	19	1	0	1	1	0	1	0
2024	3/18/2024	3	21	19	1	0	1	1	0	1	0
2024	3/19/2024	3	21	19	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
2024	3/20/2024	3	21	19	1	0	1	1	0	1	0
2024	3/21/2024	3	21	19	1	0	1	1	0	1	0
2024	3/22/2024	3	21	19	1	0	1	1	0	1	0
2024	3/23/2024	3	21	19	1	0	1	1	0	1	0
2024	3/24/2024	3	21	19	1	0	1	1	0	1	0
2024	3/25/2024	3	21	19	1	0	1	1	0	1	0
2024	3/26/2024	3	21	19	1	0	1	1	0	1	0
2024	3/27/2024	3	21	19	1	0	1	1	0	1	0
2024	3/28/2024	3	21	19	1	0	1	1	0	1	0
2024	3/29/2024	3	21	19	1	0	1	1	0	1	0
2024	3/30/2024	3	21	19	1	0	1	1	0	1	0
2024	3/31/2024	3	21	19	1	0	1	1	0	1	0
2024	4/1/2024	3	21	19	1	0	1	1	0	1	0
2024	4/2/2024	2	14	13	1	0	1	1	0	1	0
2024	4/3/2024	2	14	13	1	0	1	1	0	1	0
2024	4/4/2024	2	14	13	1	0	1	1	0	1	0
2024	4/5/2024	2	14	13	1	0	1	1	0	1	0
2024	4/6/2024	2	14	13	1	0	1	1	0	1	0
2024	4/7/2024	2	14	13	1	0	1	1	0	1	0
2024	4/8/2024	2	14	13	1	0	1	1	0	1	0
2024	4/9/2024	2	14	13	1	0	1	1	0	1	0
2024	4/10/2024	2	14	13	1	0	1	1	0	1	0
2024	4/11/2024	2	14	13	1	0	1	1	0	1	0
2024	4/12/2024	2	14	13	1	0	1	1	0	1	0
2024	4/13/2024	2	14	13	1	0	1	1	0	1	0
2024	4/14/2024	2	14	13	1	0	1	1	0	1	0
2024	4/15/2024	2	14	13	1	0	1	1	0	1	0
2024	4/16/2024	2	14	13	1	0	1	1	0	1	0
2024	4/17/2024	2	14	13	1	0	1	1	0	1	0
2024	4/18/2024	2	14	13	1	0	1	1	0	1	0
2024	4/19/2024	2	14	13	1	0	1	1	0	1	0
2024	4/20/2024	2	14	13	1	0	1	1	0	1	0
2024	4/21/2024	2	14	13	1	0	1	1	0	1	0
2024	4/22/2024	2	14	13	1	0	1	1	0	1	0
2024	4/23/2024	2	14	13	1	0	1	1	0	1	0
2024	4/24/2024	2	14	13	1	0	1	1	0	1	0
2024	4/25/2024	2	14	13	1	0	1	1	0	1	0
2024	4/26/2024	2	14	13	1	0	1	1	0	1	0
2024	4/27/2024	2	14	13	1	0	1	1	0	1	0
2024	4/28/2024	2	14	13	1	0	1	1	0	1	0
2024	4/29/2024	2	14	13	1	0	1	1	0	1	0
2024	4/30/2024	2	14	13	1	0	1	1	0	1	0
2024	5/1/2024	2	14	13	1	0	1	1	0	1	0
2024	5/2/2024	2	14	13	1	0	1	1	0	1	0
2024	5/3/2024	2	14	13	1	0	1	1	0	1	0
2024	5/4/2024	2	14	13	1	0	1	1	0	1	0
2024	5/5/2024	2	14	13	1	0	1	1	0	1	0
2024	5/6/2024	2	14	13	1	0	1	1	0	1	0
2024	5/7/2024	2	14	13	1	0	1	1	0	1	0
2024	5/8/2024	2	14	13	1	0	1	1	0	1	0
2024	5/9/2024	2	14	13	1	0	1	1	0	1	0
2024	5/10/2024	2	14	13	1	0	1	1	0	1	0
2024	5/11/2024	2	14	13	1	0	1	1	0	1	0
2024	5/12/2024	2	14	13	1	0	1	1	0	1	0
2024	5/13/2024	2	14	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
2024	5/14/2024	2	14	13	1	0	1	1	0	1	0
2024	5/15/2024	0	0	0	0	0	0	0	0	0	0
2024	5/16/2024	0	0	0	0	0	0	0	0	0	0
2024	5/17/2024	0	0	0	0	0	0	0	0	0	0
2024	5/18/2024	0	0	0	0	0	0	0	0	0	0
2024	5/19/2024	0	0	0	0	0	0	0	0	0	0
2024	5/20/2024	0	0	0	0	0	0	0	0	0	0
2024	5/21/2024	0	0	0	0	0	0	0	0	0	0
2024	5/22/2024	0	0	0	0	0	0	0	0	0	0
2024	5/23/2024	0	0	0	0	0	0	0	0	0	0
2024	5/24/2024	0	0	0	0	0	0	0	0	0	0
2024	5/25/2024	0	0	0	0	0	0	0	0	0	0
2024	5/26/2024	0	0	0	0	0	0	0	0	0	0
2024	5/27/2024	0	0	0	0	0	0	0	0	0	0
2024	5/28/2024	0	0	0	0	0	0	0	0	0	0
2024	5/29/2024	0	0	0	0	0	0	0	0	0	0
2024	5/30/2024	0	0	0	0	0	0	0	0	0	0
2024	5/31/2024	0	0	0	0	0	0	0	0	0	0
2024	6/1/2024	2	12	12	1	0	1	1	0	1	0
2024	6/2/2024	2	12	12	1	0	1	1	0	1	0
2024	6/3/2024	2	12	12	1	0	1	1	0	1	0
2024	6/4/2024	2	12	12	1	0	1	1	0	1	0
2024	6/5/2024	2	12	12	1	0	1	1	0	1	0
2024	6/6/2024	2	12	12	1	0	1	1	0	1	0
2024	6/7/2024	2	12	12	1	0	1	1	0	1	0
2024	6/8/2024	2	12	12	1	0	1	1	0	1	0
2024	6/9/2024	2	12	12	1	0	1	1	0	1	0
2024	6/10/2024	2	12	12	1	0	1	1	0	1	0
2024	6/11/2024	2	12	12	1	0	1	1	0	1	0
2024	6/12/2024	2	12	12	1	0	1	1	0	1	0
2024	6/13/2024	2	12	12	1	0	1	1	0	1	0
2024	6/14/2024	2	12	12	1	0	1	1	0	1	0
2024	6/15/2024	2	12	12	1	0	1	1	0	1	0
2024	6/16/2024	2	12	12	1	0	1	1	0	1	0
2024	6/17/2024	2	12	12	1	0	1	1	0	1	0
2024	6/18/2024	2	12	12	1	0	1	1	0	1	0
2024	6/19/2024	2	12	12	1	0	1	1	0	1	0
2024	6/20/2024	2	12	12	1	0	1	1	0	1	0
2024	6/21/2024	2	12	12	1	0	1	1	0	1	0
2024	6/22/2024	7	26	25	1	0	2	1	0	1	0
2024	6/23/2024	6	14	13	1	0	1	1	0	1	0
2024	6/24/2024	6	14	13	1	0	1	1	0	1	0
2024	6/25/2024	6	14	13	1	0	1	1	0	1	0
2024	6/26/2024	6	14	13	1	0	1	1	0	1	0
2024	6/27/2024	6	14	13	1	0	1	1	0	1	0
2024	6/28/2024	6	14	13	1	0	1	1	0	1	0
2024	6/29/2024	6	14	13	1	0	1	1	0	1	0
2024	6/30/2024	6	14	13	1	0	1	1	0	1	0
2024	7/1/2024	6	14	13	1	0	1	1	0	1	0
2024	7/2/2024	6	14	13	1	0	1	1	0	1	0
2024	7/3/2024	6	14	13	1	0	1	1	0	1	0
2024	7/4/2024	6	14	13	1	0	1	1	0	1	0
2024	7/5/2024	6	14	13	1	0	1	1	0	1	0
2024	7/6/2024	6	14	13	1	0	1	1	0	1	0
2024	7/7/2024	6	14	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
2024	7/8/2024	6	14	13	1	0	1	1	0	1	0
2024	7/9/2024	6	14	13	1	0	1	1	0	1	0
2024	7/10/2024	6	14	13	1	0	1	1	0	1	0
2024	7/11/2024	6	14	13	1	0	1	1	0	1	0
2024	7/12/2024	6	14	13	1	0	1	1	0	1	0
2024	7/13/2024	6	14	13	1	0	1	1	0	1	0
2024	7/14/2024	6	14	13	1	0	1	1	0	1	0
2024	7/15/2024	6	14	13	1	0	1	1	0	1	0
2024	7/16/2024	6	14	13	1	0	1	1	0	1	0
2024	7/17/2024	6	14	13	1	0	1	1	0	1	0
2024	7/18/2024	6	14	13	1	0	1	1	0	1	0
2024	7/19/2024	6	14	13	1	0	1	1	0	1	0
2024	7/20/2024	6	14	13	1	0	1	1	0	1	0
2024	7/21/2024	6	14	13	1	0	1	1	0	1	0
2024	7/22/2024	6	14	13	1	0	1	1	0	1	0
2024	7/23/2024	6	14	13	1	0	1	1	0	1	0
2024	7/24/2024	6	14	13	1	0	1	1	0	1	0
2024	7/25/2024	6	14	13	1	0	1	1	0	1	0
2024	7/26/2024	6	14	13	1	0	1	1	0	1	0
2024	7/27/2024	6	14	13	1	0	1	1	0	1	0
2024	7/28/2024	6	14	13	1	0	1	1	0	1	0
2024	7/29/2024	6	14	13	1	0	1	1	0	1	0
2024	7/30/2024	6	14	13	1	0	1	1	0	1	0
2024	7/31/2024	6	14	13	1	0	1	1	0	1	0
2024	8/1/2024	6	14	13	1	0	1	1	0	1	0
2024	8/2/2024	6	14	13	1	0	1	1	0	1	0
2024	8/3/2024	6	14	13	1	0	1	1	0	1	0
2024	8/4/2024	6	14	13	1	0	1	1	0	1	0
2024	8/5/2024	6	14	13	1	0	1	1	0	1	0
2024	8/6/2024	6	14	13	1	0	1	1	0	1	0
2024	8/7/2024	6	14	13	1	0	1	1	0	1	0
2024	8/8/2024	6	14	13	1	0	1	1	0	1	0
2024	8/9/2024	6	14	13	1	0	1	1	0	1	0
2024	8/10/2024	6	14	13	1	0	1	1	0	1	0
2024	8/11/2024	6	14	13	1	0	1	1	0	1	0
2024	8/12/2024	6	14	13	1	0	1	1	0	1	0
2024	8/13/2024	6	14	13	1	0	1	1	0	1	0
2024	8/14/2024	6	14	13	1	0	1	1	0	1	0
2024	8/15/2024	6	14	13	1	0	1	1	0	1	0
2024	8/16/2024	6	14	13	1	0	1	1	0	1	0
2024	8/17/2024	6	14	13	1	0	1	1	0	1	0
2024	8/18/2024	6	14	13	1	0	1	1	0	1	0
2024	8/19/2024	6	14	13	1	0	1	1	0	1	0
2024	8/20/2024	6	14	13	1	0	1	1	0	1	0
2024	8/21/2024	6	14	13	1	0	1	1	0	1	0
2024	8/22/2024	6	14	13	1	0	1	1	0	1	0
2024	8/23/2024	6	14	13	1	0	1	1	0	1	0
2024	8/24/2024	6	14	13	1	0	1	1	0	1	0
2024	8/25/2024	6	14	13	1	0	1	1	0	1	0
2024	8/26/2024	6	14	13	1	0	1	1	0	1	0
2024	8/27/2024	6	14	13	1	0	1	1	0	1	0
2024	8/28/2024	6	14	13	1	0	1	1	0	1	0
2024	8/29/2024	6	14	13	1	0	1	1	0	1	0
2024	8/30/2024	6	14	13	1	0	1	1	0	1	0
2024	8/31/2024	6	14	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
2024	9/1/2024	6	14	13	1	0	1	1	0	1	0
2024	9/2/2024	6	14	13	1	0	1	1	0	1	0
2024	9/3/2024	6	14	13	1	0	1	1	0	1	0
2024	9/4/2024	6	14	13	1	0	1	1	0	1	0
2024	9/5/2024	6	14	13	1	0	1	1	0	1	0
2024	9/6/2024	6	14	13	1	0	1	1	0	1	0
2024	9/7/2024	6	14	13	1	0	1	1	0	1	0
2024	9/8/2024	6	14	13	1	0	1	1	0	1	0
2024	9/9/2024	6	14	13	1	0	1	1	0	1	0
2024	9/10/2024	6	14	13	1	0	1	1	0	1	0
2024	9/11/2024	6	14	13	1	0	1	1	0	1	0
2024	9/12/2024	6	14	13	1	0	1	1	0	1	0
2024	9/13/2024	6	14	13	1	0	1	1	0	1	0
2024	9/14/2024	6	14	13	1	0	1	1	0	1	0
2024	9/15/2024	6	14	13	1	0	1	1	0	1	0
2024	9/16/2024	6	14	13	1	0	1	1	0	1	0
2024	9/17/2024	6	14	13	1	0	1	1	0	1	0
2024	9/18/2024	6	14	13	1	0	1	1	0	1	0
2024	9/19/2024	6	14	13	1	0	1	1	0	1	0
2024	9/20/2024	6	14	13	1	0	1	1	0	1	0
2024	9/21/2024	6	14	13	1	0	1	1	0	1	0
2024	9/22/2024	6	14	13	1	0	1	1	0	1	0
2024	9/23/2024	6	14	13	1	0	1	1	0	1	0
2024	9/24/2024	6	14	13	1	0	1	1	0	1	0
2024	9/25/2024	6	14	13	1	0	1	1	0	1	0
2024	9/26/2024	6	14	13	1	0	1	1	0	1	0
2024	9/27/2024	6	14	13	1	0	1	1	0	1	0
2024	9/28/2024	6	14	13	1	0	1	1	0	1	0
2024	9/29/2024	6	14	13	1	0	1	1	0	1	0
2024	9/30/2024	6	14	13	1	0	1	1	0	1	0
2024	10/1/2024	6	14	13	1	0	1	1	0	1	0
2024	10/2/2024	6	14	13	1	0	1	1	0	1	0
2024	10/3/2024	6	14	13	1	0	1	1	0	1	0
2024	10/4/2024	6	14	13	1	0	1	1	0	1	0
2024	10/5/2024	6	14	13	1	0	1	1	0	1	0
2024	10/6/2024	6	14	13	1	0	1	1	0	1	0
2024	10/7/2024	6	14	13	1	0	1	1	0	1	0
2024	10/8/2024	6	14	13	1	0	1	1	0	1	0
2024	10/9/2024	6	14	13	1	0	1	1	0	1	0
2024	10/10/2024	6	14	13	1	0	1	1	0	1	0
2024	10/11/2024	6	14	13	1	0	1	1	0	1	0
2024	10/12/2024	6	14	13	1	0	1	1	0	1	0
2024	10/13/2024	6	14	13	1	0	1	1	0	1	0
2024	10/14/2024	6	14	13	1	0	1	1	0	1	0
2024	10/15/2024	6	14	13	1	0	1	1	0	1	0
2024	10/16/2024	6	14	13	1	0	1	1	0	1	0
2024	10/17/2024	6	14	13	1	0	1	1	0	1	0
2024	10/18/2024	6	14	13	1	0	1	1	0	1	0
2024	10/19/2024	6	14	13	1	0	1	1	0	1	0
2024	10/20/2024	6	14	13	1	0	1	1	0	1	0
2024	10/21/2024	6	14	13	1	0	1	1	0	1	0
2024	10/22/2024	6	14	13	1	0	1	1	0	1	0
2024	10/23/2024	6	14	13	1	0	1	1	0	1	0
2024	10/24/2024	6	14	13	1	0	1	1	0	1	0
2024	10/25/2024	6	14	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2024	10/26/2024	6	14	13	1	0	1	1	0	1	0
2024	10/27/2024	6	14	13	1	0	1	1	0	1	0
2024	10/28/2024	6	14	13	1	0	1	1	0	1	0
2024	10/29/2024	6	14	13	1	0	1	1	0	1	0
2024	10/30/2024	6	14	13	1	0	1	1	0	1	0
2024	10/31/2024	6	14	13	1	0	1	1	0	1	0
2024	11/1/2024	6	14	13	1	0	1	1	0	1	0
2024	11/2/2024	6	14	13	1	0	1	1	0	1	0
2024	11/3/2024	6	14	13	1	0	1	1	0	1	0
2024	11/4/2024	6	14	13	1	0	1	1	0	1	0
2024	11/5/2024	6	14	13	1	0	1	1	0	1	0
2024	11/6/2024	6	14	13	1	0	1	1	0	1	0
2024	11/7/2024	6	14	13	1	0	1	1	0	1	0
2024	11/8/2024	6	14	13	1	0	1	1	0	1	0
2024	11/9/2024	6	14	13	1	0	1	1	0	1	0
2024	11/10/2024	6	14	13	1	0	1	1	0	1	0
2024	11/11/2024	6	14	13	1	0	1	1	0	1	0
2024	11/12/2024	6	14	13	1	0	1	1	0	1	0
2024	11/13/2024	6	14	13	1	0	1	1	0	1	0
2024	11/14/2024	6	14	13	1	0	1	1	0	1	0
2024	11/15/2024	6	14	13	1	0	1	1	0	1	0
2024	11/16/2024	6	14	13	1	0	1	1	0	1	0
2024	11/17/2024	6	14	13	1	0	1	1	0	1	0
2024	11/18/2024	6	14	13	1	0	1	1	0	1	0
2024	11/19/2024	6	14	13	1	0	1	1	0	1	0
2024	11/20/2024	6	14	13	1	0	1	1	0	1	0
2024	11/21/2024	6	14	13	1	0	1	1	0	1	0
2024	11/22/2024	6	14	13	1	0	1	1	0	1	0
2024	11/23/2024	6	14	13	1	0	1	1	0	1	0
2024	11/24/2024	6	14	13	1	0	1	1	0	1	0
2024	11/25/2024	6	14	13	1	0	1	1	0	1	0
2024	11/26/2024	6	14	13	1	0	1	1	0	1	0
2024	11/27/2024	6	14	13	1	0	1	1	0	1	0
2024	11/28/2024	6	14	13	1	0	1	1	0	1	0
2024	11/29/2024	6	14	13	1	0	1	1	0	1	0
2024	11/30/2024	6	14	13	1	0	1	1	0	1	0
2024	12/1/2024	6	14	13	1	0	1	1	0	1	0
2024	12/2/2024	6	14	13	1	0	1	1	0	1	0
2024	12/3/2024	6	14	13	1	0	1	1	0	1	0
2024	12/4/2024	6	14	13	1	0	1	1	0	1	0
2024	12/5/2024	6	14	13	1	0	1	1	0	1	0
2024	12/6/2024	6	14	13	1	0	1	1	0	1	0
2024	12/7/2024	6	14	13	1	0	1	1	0	1	0
2024	12/8/2024	6	14	13	1	0	1	1	0	1	0
2024	12/9/2024	6	14	13	1	0	1	1	0	1	0
2024	12/10/2024	6	14	13	1	0	1	1	0	1	0
2024	12/11/2024	6	14	13	1	0	1	1	0	1	0
2024	12/12/2024	6	14	13	1	0	1	1	0	1	0
2024	12/13/2024	6	14	13	1	0	1	1	0	1	0
2024	12/14/2024	6	14	13	1	0	1	1	0	1	0
2024	12/15/2024	6	14	13	1	0	1	1	0	1	0
2024	12/16/2024	6	14	13	1	0	1	1	0	1	0
2024	12/17/2024	6	14	13	1	0	1	1	0	1	0
2024	12/18/2024	6	14	13	1	0	1	1	0	1	0
2024	12/19/2024	6	14	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2024	12/20/2024	6	14	13	1	0	1	1	0	1	0
2024	12/21/2024	6	14	13	1	0	1	1	0	1	0
2024	12/22/2024	6	14	13	1	0	1	1	0	1	0
2024	12/23/2024	6	14	13	1	0	1	1	0	1	0
2024	12/24/2024	6	14	13	1	0	1	1	0	1	0
2024	12/25/2024	6	14	13	1	0	1	1	0	1	0
2024	12/26/2024	6	14	13	1	0	1	1	0	1	0
2024	12/27/2024	6	14	13	1	0	1	1	0	1	0
2024	12/28/2024	6	14	13	1	0	1	1	0	1	0
2024	12/29/2024	6	14	13	1	0	1	1	0	1	0
2024	12/30/2024	6	14	13	1	0	1	1	0	1	0
2024	12/31/2024	6	14	13	1	0	1	1	0	1	0

All Trucks

Construction

Scenario

Summary of Total Emissions - Truck Scenario

	Tons per year										Metric tons per year			
Year	ROG	NOX	CO	PM10 E	PM10 D	PM 10 T	PM2.5 E	PM2.5 D	PM2.5 T	SO2	CO2	CH4	N2O	CO2e
2020	0.7	6.1	4.1	0.2	0.1	0.3	0.2	0.0	0.2	0.0	667	0	0	681
2021	0.2	1.8	1.3	0.1	0.0	0.1	0.1	0.0	0.1	0.0	220	0	0	224
2022	0.4	2.0	1.7	0.1	0.0	0.1	0.1	0.0	0.1	0.0	384	0	0	392
2023	0.7	1.8	1.7	0.1	0.0	0.1	0.1	0.0	0.1	0.0	304	0	0	309
2024	0.5	1.7	1.7	0.1	0.0	0.1	0.1	0.0	0.1	0.0	295	0	0	299
Max	0.7	6.1	4.1	0.2	0.1	0.3	0.2	0.0	0.2	0.0	667	0.1	0.0	681
Total	2.6	13.5	10.43	0.6	0.1	0.7	0.6	0.0	0.6	0.0	1,869	0	0	1,905
	2	*3*	*4*	*5*	*7*		*6*	*8*		*9*	*10*	*11*	*12*	*13*
									Amortized (14 years)		**133**	**0**	**0**	**136**

Summary of Total Fuel Consumption

Year	Gallons (diesel/gasoline)
2020	37,582
2021	17,968
2022	32,720
2023	30,186
2024	29,200
Total	147,655

Demolition- Unmitigated Truck Scenario

				2020																	6
				Pounds per day								Tons per year								Metric tons per year				Gal per
Code	Air Basin	Structures	tons/day	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1c	SDAB		0.0						0.0	0.0							0.00	0.00						
Phase2a	SDAB		38.4						0.9	0.1							0.01	0.00						
Phase3a	SDAB		71.2						1.7	0.3							0.02	0.00						
Phase6a	SDAB		9.6						0.2	0.0							0.00	0.00						
Phase8a	SDAB		0.0						0.0	0.0							0.00	0.00						
Phase9a	SDAB		0.0						0.0	0.0							0.00	0.00						
Phase10a	SDAB		6.7						0.2	0.0							0.00	0.00						
Phase12a	SDAB		9.4						0.2	0.0							0.00	0.00						
Phase13a	SDAB		0.3						0.0	0.0							0.00	0.00						
Phase14a	SDAB		0.0						0.0	0.0							0.00	0.00						
Phase15a	SDAB		0.0						0.0	0.0							0.00	0.00						

	Pounds per day								Tons per year								Metric tons per year				Gal per
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	1.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Demolition- Unmitigated Truck Scenario

				2021																		7
				Pounds per day								Tons per year								Metric tons per year				Gal per
Code	Air Basin	Structures	tons/day	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1c	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase2a	SDAB		38.4						0.9	0.1							0.0	0.0						
Phase3a	SDAB		71.2						1.7	0.3							0.0	0.0						
Phase6a	SDAB		9.6						0.2	0.0							0.0	0.0						
Phase8a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase9a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase10a	SDAB		6.7						0.2	0.0							0.0	0.0						
Phase12a	SDAB		9.4						0.2	0.0							0.0	0.0						
Phase13a	SDAB		0.3						0.0	0.0							0.0	0.0						
Phase14a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase15a	SDAB		0.0						0.0	0.0							0.0	0.0						

	Pounds per day								Tons per year								Metric tons per year				Gal per
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	1.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Demolition- Unmitigated Truck Scenario

				2022																	8
				Pounds per day							Tons per year								Metric tons per year				Gal per
Code	Air Basin	Structures	tons/day	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1c	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase2a	SDAB		38.4						0.9	0.1							0.0	0.0						
Phase3a	SDAB		71.2						1.7	0.3							0.0	0.0						
Phase6a	SDAB		9.6						0.2	0.0							0.0	0.0						
Phase8a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase9a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase10a	SDAB		6.7						0.2	0.0							0.0	0.0						
Phase12a	SDAB		9.4						0.2	0.0							0.0	0.0						
Phase13a	SDAB		0.3						0.0	0.0							0.0	0.0						
Phase14a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase15a	SDAB		0.0						0.0	0.0							0.0	0.0						

	Pounds per day								Tons per year								Metric tons per year				Gal per
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	1.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Demolition- Unmitigated Truck Scenario

				2023																		9
				Pounds per day								Tons per year								Metric tons per year				Gal per
Code	Air Basin	Structures	tons/day	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1c	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase2a	SDAB		38.4						0.9	0.1							0.0	0.0						
Phase3a	SDAB		71.2						1.7	0.3							0.0	0.0						
Phase6a	SDAB		9.6						0.2	0.0							0.0	0.0						
Phase8a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase9a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase10a	SDAB		6.7						0.2	0.0							0.0	0.0						
Phase12a	SDAB		9.4						0.2	0.0							0.0	0.0						
Phase13a	SDAB		0.3						0.0	0.0							0.0	0.0						
Phase14a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase15a	SDAB		0.0						0.0	0.0							0.0	0.0						

	Pounds per day								Tons per year								Metric tons per year				Gal per
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	1.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Demolition- Unmitigated Truck Scenario

				2024																	10
				Pounds per day							Tons per year								Metric tons per year				Gal per
Code	Air Basin	Structures	tons/day	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1c	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase2a	SDAB		38.4						0.9	0.1							0.0	0.0						
Phase3a	SDAB		71.2						1.7	0.3							0.0	0.0						
Phase6a	SDAB		9.6						0.2	0.0							0.0	0.0						
Phase8a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase9a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase10a	SDAB		6.7						0.2	0.0							0.0	0.0						
Phase12a	SDAB		9.4						0.2	0.0							0.0	0.0						
Phase13a	SDAB		0.3						0.0	0.0							0.0	0.0						
Phase14a	SDAB		0.0						0.0	0.0							0.0	0.0						
Phase15a	SDAB		0.0						0.0	0.0							0.0	0.0						

	Pounds per day								Tons per year								Metric tons per year				Gal per
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	1.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Demolition- Unmitigated Truck Scenario

	Tons per year								Metric tons per year			
Year	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e
2020	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2021	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0
2022	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0
2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0

Year	Gal/yr
2020	0
2021	0
2022	0
2023	0
2024	0

Earthmoving/Paving Calculations-Unmitigated Truck Scenario

							2020						2021						2022					
Code	Air Basin	Strip (acres/day)	Borrow/Excavate (cy/day)	Dozing hr/day	Dredge (cy/day)	Paving (sf/day)	Pounds per day			Tons per year			Pounds per day			Tons per year			Pounds per day			Tons per year		
							ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D
Phase1a	SDAB		0		2581		0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Phase4a	SDAB		0		217		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	SDAB		0		154		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	SDAB		57		0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	SDAB		10		0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	SDAB		433		0		0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Phase12a	SDAB		21		0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	SDAB		2		0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Phase	Pounds per day			Tons per year			Pounds per day			Tons per year			Pounds per day			Tons per year		
	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D	ROG	PM10 D	PM2.5 D
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Earthmoving/Paving Calculations-Unmitigated Truck Scenario

							2023						2024					
Code	**Air Basin**	**Strip (acres/day)**	**Borrow/Excavate (cy/day)**	**Dozing hr/day**	**Dredge (cy/day)**	**Paving (sf/day)**	**Pounds per day**			**Tons per year**			**Pounds per day**			**Tons per year**		
							ROG	**PM10 D**	**PM2.5 D**	**ROG**	**PM10 D**	**PM2.5 D**	**ROG**	**PM10 D**	**PM2.5 D**	**ROG**	**PM10 D**	**PM2.5 D**
Phase1a	SDAB		0		2581		0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Phase4a	SDAB		0		217		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	SDAB		0		154		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	SDAB		57		0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	SDAB		10		0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	SDAB		433		0		0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Phase12a	SDAB		21		0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	SDAB		2		0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	Pounds per day			**Tons per year**			**Pounds per day**			**Tons per year**		
Phase	**ROG**	**PM10 D**	**PM2.5 D**	**ROG**	**PM10 D**	**PM2.5 D**	**ROG**	**PM10 D**	**PM2.5 D**	**ROG**	**PM10 D**	**PM2.5 D**
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Earthmoving/Paving Calculations-Unmitigated Truck Scenario

	Tons per year								Metric tons per year			
Year	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e
2020	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2021	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2022	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Year	Gal/yr
2020	0
2021	0
2022	0
2023	0
2024	0

Labor Calculations

									2020																				6
									Pounds per day								Tons per year								Metric tons per year				Gal per
Code	Air Basin	Vehicles/ day	Single Trips/day	Miles/d ay	Vehicle	Vehicle Type	Fuel	Concat	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	SDAB	12	24	259	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	0.0	0.0	6.7	753
Phase2	SDAB	13	26	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	5.6	629
Phase3	SDAB	6	12	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	2.1	236
Phase4	SDAB	10	20	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	SDAB	5	10	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	SDAB	7	14	151	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	SDAB	10	20	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	1.6	181
Phase8	SDAB	6	12	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	SDAB	5	10	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	91
Phase10	SDAB	13	26	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	SDAB	16	32	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.8	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12	SDAB	16	32	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.8	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13	SDAB	10	20	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	SDAB	5	10	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	SDAB	3	6	65	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

	Pounds per day								Tons per year								Metric tons per year				Gal per
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.1	0.1	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	0.0	0.0	6.7	753
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	0.1	0.1	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	5.6	629
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	2.1	236
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	1.6	181
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	91
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	0.1	0.1	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	0.1	0.1	0.8	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12	0.1	0.1	0.8	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Labor Calculations

																									7
									2021																
									Pounds per day								Tons per year								Metric tons per year				Gal per
Code	Air Basin	Vehicles/ day	Single Trips/day	Miles/d ay	Vehicle	Vehicle Type	Fuel	Concat	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	SDAB	12	24	259	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	SDAB	13	26	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	SDAB	6	12	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	SDAB	10	20	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	SDAB	5	10	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	SDAB	7	14	151	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	405
Phase7	SDAB	10	20	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	SDAB	6	12	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.8	198
Phase9	SDAB	5	10	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	SDAB	13	26	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	SDAB	16	32	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12	SDAB	16	32	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13	SDAB	10	20	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	SDAB	5	10	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.5	286
Phase15	SDAB	3	6	65	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

	Pounds per day								Tons per year								Metric tons per year				Gal per
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.1	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase2	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase4	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase6	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	3.6	0.0	0.0	3.6	405
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase7	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase8	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	1.7	0.0	0.0	1.8	198
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase9	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase10	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase11	0.1	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase12	0.1	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase13	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase14	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	2.5	0.0	0.0	2.5	286
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase15	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0

Labor Calculations

Code	Air Basin	Vehicles/ day	Single Trips/day	Miles/day	Vehicle	Vehicle Type	Fuel	Concat	2022														8
									Pounds per day							Tons per year							Metric tons per year				Gal per
									ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	SDAB	12	24	259	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	SDAB	13	26	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	SDAB	6	12	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	SDAB	10	20	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	4.3	490
Phase5	SDAB	5	10	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	114
Phase6	SDAB	7	14	151	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	SDAB	10	20	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	SDAB	6	12	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	SDAB	5	10	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	SDAB	13	26	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	SDAB	16	32	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0	5.6	636
Phase12	SDAB	16	32	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13	SDAB	10	20	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	SDAB	5	10	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	SDAB	3	6	65	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	140

Phase	Pounds per day								Tons per year								Metric tons per year				Gal per
	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase4	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	4.3	489.61
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	113.53
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase10	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase11	0.1	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0	5.6	635.79
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase12	0.1	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase13	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase15	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	140.50
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00

Labor Calculations

																									2023				9
								Pounds per day								Tons per year								Metric tons per year				
Code	Air Basin	Vehicles/ day	Single Trips/day	Miles/day	Vehicle	Vehicle Type	Fuel	Concat	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	Gal per year
Phase1	SDAB	12	24	259	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	SDAB	13	26	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	SDAB	6	12	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	SDAB	10	20	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	SDAB	5	10	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	SDAB	7	14	151	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	SDAB	10	20	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	SDAB	6	12	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	SDAB	5	10	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	SDAB	13	26	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	SDAB	16	32	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	0.0	14.1	1591
Phase12	SDAB	16	32	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	0.0	0.0	10.6	1196
Phase13	SDAB	10	20	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	SDAB	5	10	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	SDAB	3	6	65	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

	Pounds per day								Tons per year								Metric tons per year				
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	Gal per year
Phase1	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase4	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase10	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase11	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	0.0	14.1	1591.44
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase12	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	0.0	0.0	10.6	1196.32
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase13	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase15	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00

Labor Calculations

Code	Air Basin	Vehicles/ day	Single Trips/day	Miles/day	Vehicle	Vehicle Type	Fuel	Concat	2024															10
									Pounds per day								Tons per year								Metric tons per year				Gal per
									ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	SDAB	12	24	259	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	SDAB	13	26	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	SDAB	6	12	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	SDAB	10	20	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	SDAB	5	10	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	SDAB	7	14	151	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	SDAB	10	20	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	SDAB	6	12	130	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	SDAB	5	10	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	SDAB	13	26	281	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	0.0	0.0	11.6	1309
Phase11	SDAB	16	32	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12	SDAB	16	32	346	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	0.0	0.0	9.1	1028
Phase13	SDAB	10	20	216	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	1.3	146
Phase14	SDAB	5	10	108	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	SDAB	3	6	65	Employee	LDA-LDT	Gas	SDABLDA-LDT	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Phase	Pounds per day								Tons per year								Metric tons per year				Gal per
	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase4	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase10	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	0.0	0.0	11.6	1308.96
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase11	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase12	0.1	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	0.0	0.0	9.1	1028.09
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase13	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	1.3	145.73
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase15	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00

Labor Calculations

	Tons per year								Metric tons per year			
Year	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e
2020	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	17	0.0	0.0	17
2021	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	0.0	0.0	8
2022	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	0.0	0.0	12
2023	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	24	0.0	0.0	25
2024	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	22	0.0	0.0	22

Year	Gal/yr
2020	1,890
2021	889
2022	1,379
2023	2,788
2024	2,483

Total ***9,429***

Offroad Calculations

										2020												6
										3	4	5	6	7	8					9	10	11		
Code	Equip	#/day	hrs/day	CMOD	HP Bin	HP	LF	Fuel	Concat	Pounds per day						Tons per year						Metric tons per year				Gal per
										ROG	NOX	CO	PM10	PM2.5	SO2	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e	year
Phase1b	Tractor/Loader/Backhoe	2	10	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.3	13.5	8.8	0.5	0.4	0.0	0.0	0.1	0.1	0.0	0.0	0.0	16.6	0.0	0.0	16.8	1622
Phase1c	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	8.5	0.0	0.0	8.7	835
Phase1c	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.9	179
Phase1c	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.1	296
Phase1c	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	252
Phase1c	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	1.6	152
Phase1c	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.1	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.6	152
Phase1d	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0	13.7	0.0	0.0	13.9	1343
Phase1d	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	3.0	289
Phase1d	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	4.9	0.0	0.0	4.9	477
Phase1d	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	4.1	0.0	0.0	4.2	405
Phase1d	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.5	245
Phase1d	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.1	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.5	244
Phase1e	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	1.9	183
Phase2a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	8.5	0.0	0.0	8.7	835
Phase2a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.9	179
Phase2a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.1	296
Phase2a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	252
Phase2a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	1.6	152
Phase2a	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.1	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.6	152
Phase2b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.2	0.1	0.0	0.0	0.0	15.2	0.0	0.0	15.4	1488
Phase2b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	6.5	0.0	0.0	6.6	639
Phase2b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	5.4	0.0	0.0	5.5	528
Phase2b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	4.6	0.0	0.0	4.7	449
Phase2b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	2.8	271
Phase2b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.1	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	2.8	270
Phase2c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.5	244
Phase3a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	7.0	0.0	0.0	7.2	690
Phase3a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.5	148
Phase3a	Pile Extracting & Driving Vibratory Hammer	1	8	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.3	3.5	2.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9	0.0	0.0	8.0	772
Phase3a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	1.3	122
Phase3a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1	104
Phase3b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0	12.2	0.0	0.0	12.4	1198
Phase3b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	5.3	0.0	0.0	5.3	515
Phase3b	Pile Driving Vibratory Hammer	1	5	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.2	2.2	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.6	0.0	0.0	8.7	838
Phase3b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	4.4	425
Phase3b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	0.0	3.7	361
Phase3c	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Pile Extracting & Driving Vibratory Hammer	1	3	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.3	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4a	Tractor/Loader/Backhoe	2	12	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.5	16.2	10.6	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5b	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.1	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Tractor/Loader/Backhoe	2	10	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.3	13.5	8.8	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.1	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	5.2	0.0	0.0	5.3	508
Phase7a	Tractor/Loader/Backhoe	2	8	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.0	10.8	7.1	0.4	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	15.5	0.0	0.0	15.7	1514
Phase7b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	4.1	399
Phase7b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.9	86
Phase7b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	1.5	142
Phase7b	Pile Driving Vibratory Hammer	1	6	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.2	2.7	1.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	3.5	335
Phase7b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	120
Phase7b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.8	73
Phase7b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.1	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.7	72

Offroad Calculations

										2020												6
									3	4	5	6	7	8							9	10	11		
Code	Equip	#/day	hrs/day	CMOD	HP Bin	HP	LF	Fuel	Concat	Pounds per day						Tons per year						Metric tons per year				Gal per year
										ROG	NOX	CO	PM10	PM2.5	SO2	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e	
Phase8a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.7	7.9	3.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.9	1.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1	109
Phase9a	Forklifts	1	4	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.0	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	31
Phase9a	Pile Extracting Vibratory Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.3	122
Phase9a	Other Construction Equipment	1	4	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	0.9	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	26
Phase9a	Other Material Handling Equipment	1	4	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	0.8	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	22
Phase9b	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.9	1.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0	3.6	345
Phase9b	Forklifts	1	4	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.0	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	99
Phase9b	Other Construction Equipment	1	4	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	0.9	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	82
Phase9b	Other Material Handling Equipment	1	4	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	0.8	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.7	69
Phase9c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	41
Phase10a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.9	1.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.9	2.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.9	1.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.9	2.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.9	1.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.9	2.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	3.1	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.8	3.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.6	2.4	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.9	1.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.4	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.3	2.7	1.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Offroad Calculations

										2021											7
										3	4	5	6	7	8						
Code	Equip	#/day	hrs/day	CMOD	HP Bin	HP	LF	Fuel	Concat	Pounds per day						Tons per year						Metric tons per year				Gal per year
										ROG	NOX	CO	PM10	PM2.5	SO2	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e	
Phase1b	Tractor/Loader/Backhoe	2	10	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.2	11.5	8.7	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1e	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Pile Extracting & Driving Vibratory Hammer	1	8	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.3	3.0	2.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Pile Driving Vibratory Hammer	1	5	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.2	1.9	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0	13.0	0.0	0.0	13.2	1270
Phase3c	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0	5.7	546
Phase3c	Pile Extracting & Driving Vibratory Hammer	1	3	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.1	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	5.5	534
Phase3c	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	4.6	0.0	0.0	4.7	451
Phase3c	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.0	0.0	4.0	383
Phase4a	Tractor/Loader/Backhoe	2	12	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.4	13.9	10.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5b	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.0	4.9	472
Phase6a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.1	101
Phase6a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.7	167
Phase6a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.5	142
Phase6a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.9	86
Phase6a	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.9	86
Phase6a	Tractor/Loader/Backhoe	2	10	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.2	11.5	8.7	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	2.8	271
Phase6b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.2	0.1	0.0	0.0	0.0	24.8	0.0	0.0	25.2	2432
Phase6b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0	5.4	522
Phase6b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	8.8	0.0	0.0	9.0	863
Phase6b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	7.5	0.0	0.0	7.6	734
Phase6b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	4.6	443
Phase6b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	4.6	442
Phase6c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.5	244
Phase7a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7a	Tractor/Loader/Backhoe	2	8	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.9	9.2	7.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Pile Driving Vibratory Hammer	1	6	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.2	2.3	1.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Offroad Calculations

										2021												7
										3	*4*	*5*	*6*	*7*	*8*							*9*	*10*	*11*	
Code	**Equip**	**#/day**	**hrs/day**	**CMOD**	**HP Bin**	**HP**	**LF**	**Fuel**	**Concat**	**Pounds per day**						**Tons per year**						**Metric tons per year**				**Gal per year**
										ROG	**NOX**	**CO**	**PM10**	**PM2.5**	**SO2**	**ROG**	**NOX**	**CO**	**PM10**	**PM2.5**	**SO2**	**CO2**	**CH4**	**N2O**	**CO2e**	
Phase8a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	4.1	399
Phase8a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.7	71
Phase8a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.6	60
Phase8b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.6	7.1	2.9	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0	13.0	0.0	0.0	13.2	1270
Phase8b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	2.3	225
Phase8b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	192
Phase9a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Forklifts	1	4	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	0.9	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Pile Extracting Vibratory Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Other Construction Equipment	1	4	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	0.9	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Other Material Handling Equipment	1	4	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Forklifts	1	4	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	0.9	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Other Construction Equipment	1	4	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	0.9	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Other Material Handling Equipment	1	4	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.3	2.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.3	2.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.3	2.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.8	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.6	2.7	2.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.5	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	2.1	203
Phase14a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.7	167
Phase14a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.5	142
Phase14a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2	0.0	0.0	7.3	705
Phase14b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	117
Phase14b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	97
Phase14b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.9	82
Phase14b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	4.2	407
Phase15a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	1.4	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	2.3	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Offroad Calculations

										2022											8
										3	4	5	6	7	8						
Code	Equip	#/day	hrs/day	CMOD	HP Bin	HP	LF	Fuel	Concat	Pounds per day						Tons per year						Metric tons per year				Gal per
										ROG	NOX	CO	PM10	PM2.5	SO2	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e	year
Phase1b	Tractor/Loader/Backhoe	2	10	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.0	9.3	8.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	6.1	2.8	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	6.1	2.8	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1e	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	6.1	2.8	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	6.1	2.8	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.5	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	6.1	2.8	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Pile Extracting & Driving Vibratory Hammer	1	8	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.2	2.3	2.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	6.1	2.8	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.5	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Pile Driving Vibratory Hammer	1	5	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.4	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	6.1	2.8	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.5	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Pile Extracting & Driving Vibratory Hammer	1	3	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	0.9	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4a	Tractor/Loader/Backhoe	2	12	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.2	11.2	10.0	0.4	0.4	0.0	0.0	0.4	0.3	0.0	0.0	0.0	114.5	0.0	0.0	116.3	11219
Phase5a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	6.1	2.8	0.3	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	11.9	0.0	0.0	12.0	1162
Phase5a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	2.1	207
Phase5a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.8	175
Phase5b	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.6	61
Phase6a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	6.1	2.8	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Tractor/Loader/Backhoe	2	10	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.0	9.3	8.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	6.1	2.8	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	6.1	2.8	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7a	Tractor/Loader/Backhoe	2	8	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.8	7.5	6.7	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	6.1	2.8	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Pile Driving Vibratory Hammer	1	6	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.2	1.7	1.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Offroad Calculations

										2022												8
										3	*4*	*5*	*6*	*7*	*8*							*9*	*10*	*11*		
Code	**Equip**	**#/day**	**hrs/day**	**CMOD**	**HP Bin**	**HP**	**LF**	**Fuel**	**Concat**	**Pounds per day**						**Tons per year**						**Metric tons per year**				**Gal per year**
										ROG	**NOX**	**CO**	**PM10**	**PM2.5**	**SO2**	**ROG**	**NOX**	**CO**	**PM10**	**PM2.5**	**SO2**	**CO2**	**CH4**	**N2O**	**CO2e**	
Phase8a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	6.1	2.8	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	6.1	2.8	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Forklifts	1	4	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Pile Extracting Vibratory Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Other Construction Equipment	1	4	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	0.9	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Other Material Handling Equipment	1	4	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Forklifts	1	4	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Other Construction Equipment	1	4	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	0.9	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Other Material Handling Equipment	1	4	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.5	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.4	4.6	2.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.5	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1	109
Phase11a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.5	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	94
Phase11a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	78
Phase11a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.7	66
Phase11a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.7	163
Phase11a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	40
Phase11b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.4	4.6	2.1	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	14.2	0.0	0.0	14.4	1389
Phase11b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.5	2.7	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	8.1	0.0	0.0	8.2	795
Phase11b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	6.7	0.0	0.0	6.8	659
Phase11b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	5.7	0.0	0.0	5.8	558
Phase11b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.1	0.0	0.0	14.3	1382
Phase11b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	3.5	337
Phase12a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.5	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.4	4.6	2.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.3	2.5	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.6	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.3	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	3.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.1	296
Phase14b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.5	245
Phase14b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	2.2	208
Phase14b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	0.0	0.0	10.7	1030
Phase15a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	1.3	125
Phase15a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1	103
Phase15a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.9	88
Phase15a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	4.5	434
Phase15b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	4.1	398
Phase15b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.3	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	3.4	329
Phase15b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.3	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	2.9	279
Phase15b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.9	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.1	0.0	0.0	14.3	1382

Offroad Calculations

										2023												9
										3	4	5	6	7	8						9	10	11	
Code	Equip	#/day	hrs/day	CMOD	HP Bin	HP	LF	Fuel	Concat	Pounds per day						Tons per year						Metric tons per year				Gal per
										ROG	NOX	CO	PM10	PM2.5	SO2	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e	year
Phase1b	Tractor/Loader/Backhoe	2	10	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.0	8.1	8.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.6	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.2	2.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.6	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.2	2.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1e	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.6	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.2	2.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.6	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.3	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.2	2.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.6	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Pile Extracting & Driving Vibratory Hammer	1	8	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.2	2.0	2.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.6	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.3	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Pile Driving Vibratory Hammer	1	5	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.2	2.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.6	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.3	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Pile Extracting & Driving Vibratory Hammer	1	3	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.2	2.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4a	Tractor/Loader/Backhoe	2	12	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.2	9.7	10.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.6	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5b	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.6	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.2	2.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Tractor/Loader/Backhoe	2	10	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.0	8.1	8.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.6	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.2	2.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.6	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7a	Tractor/Loader/Backhoe	2	8	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.8	6.5	6.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.6	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Pile Driving Vibratory Hammer	1	6	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.2	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.2	2.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Offroad Calculations

										2023												9
										3	*4*	*5*	*6*	*7*	*8*							*9*	*10*	*11*		
Code	**Equip**	**#/day**	**hrs/day**	**CMOD**	**HP Bin**	**HP**	**LF**	**Fuel**	**Concat**	**Pounds per day**						**Tons per year**						**Metric tons per year**				**Gal per year**
										ROG	**NOX**	**CO**	**PM10**	**PM2.5**	**SO2**	**ROG**	**NOX**	**CO**	**PM10**	**PM2.5**	**SO2**	**CO2**	**CH4**	**N2O**	**CO2e**	
Phase8a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.6	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.6	2.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	2.8	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Forklifts	1	4	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	0.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Pile Extracting Vibratory Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Other Construction Equipment	1	4	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Other Material Handling Equipment	1	4	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	0.7	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	2.8	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Forklifts	1	4	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	0.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Other Construction Equipment	1	4	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Other Material Handling Equipment	1	4	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	0.7	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	2.8	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.3	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.2	2.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.6	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.4	4.2	2.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.3	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.2	2.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.6	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	2.8	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.3	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.2	2.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.6	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.4	4.2	2.0	0.2	0.2	0.0	0.0	0.3	0.1	0.0	0.0	0.0	40.3	0.0	0.0	40.9	3948
Phase11b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.3	2.7	0.1	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.0	23.1	0.0	0.0	23.4	2261
Phase11b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.2	0.2	0.0	0.0	0.0	19.1	0.0	0.0	19.4	1874
Phase11b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.2	2.7	0.2	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.0	16.2	0.0	0.0	16.5	1588
Phase11b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.6	1.7	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	40.1	0.0	0.0	40.8	3931
Phase11b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	9.8	0.0	0.0	9.9	959
Phase12a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	2.8	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	0.0	0.0	5.8	563
Phase12a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.3	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	0.0	0.0	5.0	483
Phase12a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	4.2	401
Phase12a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.2	2.7	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0	3.5	339
Phase12a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.6	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.6	0.0	0.0	8.7	840
Phase12a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	2.1	205
Phase12b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.4	4.2	2.0	0.2	0.2	0.0	0.0	0.2	0.1	0.0	0.0	0.0	22.0	0.0	0.0	22.3	2151
Phase12b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.3	2.7	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	12.6	0.0	0.0	12.8	1232
Phase12b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	10.4	0.0	0.0	10.6	1021
Phase12b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.5	2.2	2.7	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	8.8	0.0	0.0	9.0	865
Phase12b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.6	1.7	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	21.9	0.0	0.0	22.2	2142
Phase12b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0	5.4	522
Phase13a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.3	2.8	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.6	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.6	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.6	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.3	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.6	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Offroad Calculations

										2024											10
										3	*4*	*5*	*6*	*7*	*8*					*9*	*10*	*11*		
Code	**Equip**	**#/day**	**hrs/day**	**CMOD**	**HP Bin**	**HP**	**LF**	**Fuel**	**Concat**	**Pounds per day**						**Tons per year**						**Metric tons per year**				**Gal per year**
										ROG	**NOX**	**CO**	**PM10**	**PM2.5**	**SO2**	**ROG**	**NOX**	**CO**	**PM10**	**PM2.5**	**SO2**	**CO2**	**CH4**	**N2O**	**CO2e**	
Phase1b	Tractor/Loader/Backhoe	2	10	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.0	7.6	8.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1e	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Pile Extracting & Driving Vibratory Hammer	1	8	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.2	1.9	2.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Pile Driving Vibratory Hammer	1	5	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.2	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Pile Extracting & Driving Vibratory Hammer	1	3	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	0.7	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4a	Tractor/Loader/Backhoe	2	12	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.2	9.1	10.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5b	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	Tractor/Loader/Backhoe	2	10	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	1.0	7.6	8.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7a	Tractor/Loader/Backhoe	2	8	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.8	6.0	6.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Pile Driving Vibratory Hammer	1	6	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.2	1.4	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	Generators	1	4	Generator Sets	50	40	0.7	Diesel	Generator Sets50	0.1	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Offroad Calculations

										2024												10
										3	*4*	*5*	*6*	*7*	*8*							*9*	*10*	*11*		
Code	**Equip**	**#/day**	**hrs/day**	**CMOD**	**HP Bin**	**HP**	**LF**	**Fuel**	**Concat**	**Pounds per day**						**Tons per year**						**Metric tons per year**				**Gal per year**
										ROG	**NOX**	**CO**	**PM10**	**PM2.5**	**SO2**	**ROG**	**NOX**	**CO**	**PM10**	**PM2.5**	**SO2**	**CO2**	**CH4**	**N2O**	**CO2e**	
Phase8a	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	Cranes	1	8	Cranes	250	340	0.3	Diesel	Cranes250	0.5	5.1	2.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.2	2.6	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Forklifts	1	4	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	0.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Pile Extracting Vibratory Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Other Construction Equipment	1	4	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	Other Material Handling Equipment	1	4	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.1	0.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.2	2.6	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Forklifts	1	4	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	0.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Other Construction Equipment	1	4	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	0.8	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	Other Material Handling Equipment	1	4	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.1	0.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9c	Pile Driving Hammer	1	4	Bore/Drill Rigs	250	221	0.5	Diesel	Bore/Drill Rigs250	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.2	2.6	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	2.8	272
Phase10a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	2.4	234
Phase10a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	194
Phase10a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.7	164
Phase10a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	4.2	407
Phase10a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	99
Phase10b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.4	3.8	1.9	0.2	0.1	0.0	0.0	0.3	0.1	0.0	0.0	0.0	38.1	0.0	0.0	38.7	3730
Phase10b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.0	21.8	0.0	0.0	22.2	2137
Phase10b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.2	0.2	0.0	0.0	0.0	18.1	0.0	0.0	18.4	1770
Phase10b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.0	15.3	0.0	0.0	15.6	1500
Phase10b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	38.0	0.0	0.0	38.6	3719
Phase10b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	9.2	0.0	0.0	9.3	906
Phase11a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.2	2.6	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.4	3.8	1.9	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.2	2.6	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	Cranes	1	6	Cranes	250	340	0.3	Diesel	Cranes250	0.4	3.8	1.9	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	27.0	0.0	0.0	27.4	2641
Phase12b	Forklifts	2	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.2	2.1	2.7	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	15.4	0.0	0.0	15.7	1513
Phase12b	Other Construction Equipment	2	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.5	2.5	2.8	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	12.8	0.0	0.0	13.0	1253
Phase12b	Other Material Handling Equipment	2	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.4	2.2	2.7	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	10.8	0.0	0.0	11.0	1062
Phase12b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	26.9	0.0	0.0	27.3	2633
Phase12b	Welders	2	4	Welders	25	33	0.5	Diesel	Welders25	0.2	1.2	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	6.5	0.0	0.0	6.6	641
Phase13a	Cranes	1	4	Cranes	250	340	0.3	Diesel	Cranes250	0.2	2.6	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	4.1	399
Phase13a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.8	172
Phase13a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.5	142
Phase13a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	120
Phase14a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Forklifts	1	6	Forklifts	120	140	0.2	Diesel	Forklifts120	0.1	1.0	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Other Construction Equipment	1	6	Other Construction Equipment	50	50	0.4	Diesel	Other Construction Equipment50	0.2	1.2	1.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Other Material Handling Equipment	1	6	Other Material Handling Equipment	50	45	0.4	Diesel	Other Material Handling Equipment50	0.2	1.1	1.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	Tractor/Loader/Backhoe	1	4	Tractors/Loaders/Backhoes	500	400	0.4	Diesel	Tractors/Loaders/Backhoes500	0.2	1.5	1.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Offroad Calculations

	2020																6	2021														7
	3	4	5	6	7	8							9	10	11			3	4	5	6	7	8						9	10	11		
	Pounds per day						Tons per year						Metric tons per year				Gal per	Pounds per day						Tons per year						Metric tons per year				Gal per
Phase	ROG	NOX	CO	PM10	PM2.5	SO2	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e	year	ROG	NOX	CO	PM10	PM2.5	SO2	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	1.3	13.5	8.8	0.5	0.4	0.0	0.0	0.1	0.1	0.0	0.0	0.0	16.6	0.0	0.0	16.8	1622.4	1.2	11.5	8.7	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	2.4	16.9	12.1	1.0	0.9	0.0	0.0	0.2	0.1	0.0	0.0	0.0	19.1	0.0	0.0	19.3	1866.2	2.2	15.7	11.7	0.9	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	2.4	16.9	12.1	1.0	0.9	0.0	0.0	0.3	0.2	0.0	0.0	0.0	30.7	0.0	0.0	31.1	3002.1	2.2	15.7	11.7	0.9	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.1	1.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	1.9	182.8	0.1	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	2.4	16.9	12.1	1.0	0.9	0.0	0.0	0.2	0.1	0.0	0.0	0.0	19.1	0.0	0.0	19.3	1866.2	2.2	15.7	11.7	0.9	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	2.6	18.4	13.5	1.1	1.0	0.0	0.1	0.4	0.3	0.0	0.0	0.0	37.2	0.0	0.0	37.8	3646.3	2.3	17.1	13.0	1.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.1	1.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.5	243.7	0.1	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	1.7	15.6	9.5	0.8	0.7	0.0	0.0	0.1	0.1	0.0	0.0	0.0	18.7	0.0	0.0	19.0	1836.1	1.6	14.0	9.2	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	2.4	18.4	13.1	1.0	1.0	0.0	0.0	0.3	0.2	0.0	0.0	0.0	34.1	0.0	0.0	34.6	3337.0	2.1	16.8	12.7	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	2.3	17.5	12.5	1.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	16.1	12.2	0.9	0.8	0.0	0.0	0.3	0.2	0.0	0.0	0.0	32.5	0.0	0.0	33.0	3184.8
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	1.5	16.2	10.6	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	13.9	10.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	1.3	10.5	6.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	9.6	5.8	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.1	1.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	3.7	30.4	20.9	1.4	1.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	27.3	20.4	1.3	1.2	0.1	0.0	0.1	0.1	0.0	0.0	0.0	13.5	0.0	0.0	13.7	1325.7
Phase6b	2.4	16.9	12.1	1.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	15.7	11.7	0.9	0.8	0.0	0.1	0.5	0.4	0.0	0.0	0.0	55.5	0.0	0.0	56.3	5435.7
Phase6c	0.1	1.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.5	244.3
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	1.7	18.7	10.2	0.7	0.6	0.0	0.0	0.1	0.1	0.0	0.0	0.0	20.6	0.0	0.0	21.0	2022.4	1.5	16.3	9.9	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	2.6	19.5	13.6	1.1	1.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	12.5	0.0	0.0	12.7	1227.6	2.4	18.0	13.2	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	1.3	10.5	6.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	9.6	5.8	0.5	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	5.4	0.0	0.0	5.5	530.3
Phase8b	1.3	10.5	6.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	9.6	5.8	0.5	0.4	0.0	0.0	0.2	0.1	0.0	0.0	0.0	17.2	0.0	0.0	17.5	1687.4
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	1.0	8.5	5.5	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	3.2	309.6	0.9	7.7	5.3	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.8	6.7	4.4	0.4	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	6.1	0.0	0.0	6.2	594.6	0.8	6.2	4.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.1	1.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	40.6	0.1	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	2.3	16.1	12.6	1.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	14.9	12.3	0.9	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	2.5	18.1	13.4	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	16.6	13.0	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	2.3	16.1	12.6	1.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	14.9	12.3	0.9	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	2.5	18.1	13.4	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	16.6	13.0	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	2.3	16.1	12.6	1.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	14.9	12.3	0.9	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	2.5	18.1	13.4	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	16.6	13.0	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	1.1	8.1	5.9	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	7.5	5.7	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	1.0	6.8	6.1	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	6.2	6.0	0.4	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0	12.4	0.0	0.0	12.6	1217.2
Phase14b	1.0	6.8	6.1	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	6.2	6.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2	0.0	0.0	7.3	702.2
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	1.0	6.8	6.1	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	6.2	6.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	1.0	6.8	6.1	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	6.2	6.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Offroad Calculations

	2022																8	2023														9
	3	4	5	6	7	8							9	10	11			3	4	5	6	7	8							9	10	11	
	Pounds per day						Tons per year						Metric tons per year				Gal per	Pounds per day						Tons per year						Metric tons per year				Gal per
Phase	ROG	NOX	CO	PM10	PM2.5	SO2	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e	year	ROG	NOX	CO	PM10	PM2.5	SO2	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	1.0	9.3	8.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	8.1	8.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	2.0	14.5	11.4	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	13.6	11.2	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	2.0	14.5	11.4	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	13.6	11.2	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.1	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	2.0	14.5	11.4	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	13.6	11.2	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	2.2	15.7	12.8	0.9	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	14.7	12.5	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.1	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	1.4	12.1	9.0	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	11.1	8.8	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	2.0	15.0	12.4	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	13.9	12.2	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	1.9	14.4	11.9	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	13.4	11.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	1.2	11.2	10.0	0.4	0.4	0.0	0.0	0.4	0.3	0.0	0.0	0.0	114.5	0.0	0.0	116.3	11218.7	1.2	9.7	10.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	1.1	8.6	5.6	0.4	0.4	0.0	0.0	0.1	0.1	0.0	0.0	0.0	15.8	0.0	0.0	16.0	1543.5	1.0	7.9	5.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.1	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.6	61.2	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	3.1	23.8	19.8	1.1	1.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	21.7	19.5	1.0	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	2.0	14.5	11.4	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	13.6	11.2	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.1	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	1.4	13.6	9.4	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	12.1	9.3	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	2.2	16.2	13.0	0.9	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	15.1	12.7	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	1.1	8.6	5.6	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	7.9	5.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	1.1	8.6	5.6	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	7.9	5.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.8	6.7	5.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	6.1	5.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.7	5.5	4.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	5.1	4.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.1	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	2.0	13.5	12.1	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	12.6	11.8	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	2.1	15.0	12.8	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	14.0	12.5	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	2.0	13.5	12.1	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0	5.7	547.9	1.8	12.6	11.8	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	2.1	15.0	12.8	0.8	0.8	0.0	0.1	0.4	0.3	0.0	0.0	0.0	52.3	0.0	0.0	53.1	5120.4	2.0	14.0	12.5	0.8	0.7	0.0	0.1	1.0	0.9	0.1	0.1	0.0	148.7	0.0	0.0	150.9	14560.2
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	2.0	13.5	12.1	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	12.6	11.8	0.7	0.7	0.0	0.0	0.2	0.2	0.0	0.0	0.0	28.9	0.0	0.0	29.3	2831.5
Phase12b	2.1	15.0	12.8	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	14.0	12.5	0.8	0.7	0.0	0.1	0.6	0.5	0.0	0.0	0.0	81.0	0.0	0.0	82.2	7932.8
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.9	6.8	5.6	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	6.3	5.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.9	5.6	5.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	5.1	5.8	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.9	5.6	5.9	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0	18.2	0.0	0.0	18.5	1779.5	0.8	5.1	5.8	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.9	5.6	5.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	0.0	0.0	7.8	749.3	0.8	5.1	5.8	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.9	5.6	5.9	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0	24.4	0.0	0.0	24.8	2388.3	0.8	5.1	5.8	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Offroad Calculations

	2024																10
	3	*4*	*5*	*6*	*7*	*8*							*9*	*10*	*11*		
	Pounds per day						Tons per year						Metric tons per year				Gal per
Phase	ROG	NOX	CO	PM10	PM2.5	SO2	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1b	1.0	7.6	8.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1c	1.8	12.9	11.0	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1d	1.8	12.9	11.0	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase1e	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2a	1.8	12.9	11.0	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2b	1.9	13.9	12.3	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2c	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3a	1.3	10.4	8.7	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3b	1.7	13.0	12.0	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3c	1.7	12.6	11.5	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4a	1.2	9.1	10.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5a	0.9	7.4	5.3	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5b	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6a	2.8	20.5	19.3	0.9	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6b	1.8	12.9	11.0	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6c	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7a	1.3	11.2	9.2	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7b	2.0	14.3	12.5	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8a	0.9	7.4	5.3	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8b	0.9	7.4	5.3	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9a	0.7	5.8	5.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9b	0.6	4.8	4.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9c	0.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10a	1.7	12.0	11.7	0.6	0.6	0.0	0.0	0.1	0.1	0.0	0.0	0.0	14.0	0.0	0.0	14.2	1371
Phase10b	1.9	13.2	12.4	0.7	0.6	0.0	0.1	0.9	0.8	0.0	0.0	0.0	140.5	0.0	0.0	142.6	13761
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11a	1.7	12.0	11.7	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11b	1.9	13.2	12.4	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12a	1.7	12.0	11.7	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12b	1.9	13.2	12.4	0.7	0.6	0.0	0.1	0.6	0.6	0.0	0.0	0.0	99.5	0.0	0.0	101.0	9743
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13a	0.8	5.9	5.4	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0	8.5	0.0	0.0	8.6	833
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14a	0.8	4.9	5.7	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14b	0.8	4.9	5.7	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15a	0.8	4.9	5.7	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15b	0.8	4.9	5.7	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

Offroad Calculations

	Tons per year						Metric tons per year			
Year	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e
2020	0	2	1	0	0	0	223	0	0	226
2021	0	1	1	0	0	0	146	0	0	149
2022	0	1	1	0	0	0	239	0	0	243
2023	0	2	2	0	0	0	259	0	0	263
2024	0	2	2	0	0	0	262	0	0	266

Year	Gal/yr
2020	21,798
2021	14,328
2022	23,409
2023	25,325
2024	25,709

Total ***110,568***

Onroad Calculations- Unmitigated Truck Scenario

											2020													6
											Pounds per day								Tons per year								Metric tons per year				Gal per
Code	Air Basin	Total Trucks	Single Trips/day Yearly	Miles/day Yearly	Vehicles/day Daily	Single Trips/day Daily	Miles/day Daily	Vehicle	Vehicle Type	Fuel	Concat	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	SDAB	1380	33	665	17	34	680	General Truck	T7	Diesel	SDABT7	0.8	11.9	2.3	0.2	0.2	0.3	0.1	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	106.8	0.0	0.0	111.8	10460
Phase2	SDAB	256	8	160	4	8	160	General Truck	T7	Diesel	SDABT7	0.2	2.8	0.5	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	19.8	0.0	0.0	20.7	1940
Phase3	SDAB	180	7	138	4	8	160	General Truck	T7	Diesel	SDABT7	0.2	2.8	0.5	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	13.9	0.0	0.0	14.6	1364
Phase4	SDAB	1000	29	580	15	30	600	General Truck	T7	Diesel	SDABT7	0.7	10.5	2.0	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	SDAB	24	2	30	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	SDAB	289	7	146	4	8	160	General Truck	T7	Diesel	SDABT7	0.2	2.8	0.5	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	SDAB	10	1	17	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	76
Phase8	SDAB	75	3	67	2	4	80	General Truck	T7	Diesel	SDABT7	0.1	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	SDAB	7	1	12	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.6	53
Phase10	SDAB	22	0	6	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	SDAB	258	3	51	2	4	80	General Truck	T7	Diesel	SDABT7	0.1	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12	SDAB	213	2	41	2	4	80	General Truck	T7	Diesel	SDABT7	0.1	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13	SDAB	25	2	45	2	4	80	General Truck	T7	Diesel	SDABT7	0.1	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

	Pounds per day								Tons per year								Metric tons per year				Gal per
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.8	11.9	2.3	0.2	0.2	0.3	0.1	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	106.8	0.0	0.0	111.8	10460.5
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.2	2.8	0.5	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	19.8	0.0	0.0	20.7	1940.5
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.2	2.8	0.5	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	13.9	0.0	0.0	14.6	1364.4
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.7	10.5	2.0	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.2	2.8	0.5	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	75.8
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.1	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.6	53.1
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.1	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.1	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.1	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Onroad Calculations- Unmitigated Truck Scenario

											2021													7
											Pounds per day								Tons per year								Metric tons per year				Gal per
Code	Air Basin	Total Trucks	Single Trips/day Yearly	Miles/day Yearly	Vehicles/day Daily	Single Trips/day Daily	Miles/day Daily	Vehicle	Vehicle Type	Fuel	Concat	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	SDAB	1380	33	665	17	34	680	General Truck	T7	Diesel	SDABT7	0.7	10.3	2.0	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	SDAB	256	8	160	4	8	160	General Truck	T7	Diesel	SDABT7	0.2	2.4	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	SDAB	180	7	138	4	8	160	General Truck	T7	Diesel	SDABT7	0.2	2.4	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	SDAB	1000	29	580	15	30	600	General Truck	T7	Diesel	SDABT7	0.6	9.1	1.8	0.2	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	SDAB	24	2	30	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	SDAB	289	7	146	4	8	160	General Truck	T7	Diesel	SDABT7	0.2	2.4	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	22.0	0.0	0.0	23.0	2155
Phase7	SDAB	10	1	17	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	SDAB	75	3	67	2	4	80	General Truck	T7	Diesel	SDABT7	0.1	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	0.0	0.0	6.0	559
Phase9	SDAB	7	1	12	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	SDAB	22	0	6	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	SDAB	258	3	51	2	4	80	General Truck	T7	Diesel	SDABT7	0.1	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12	SDAB	213	2	41	2	4	80	General Truck	T7	Diesel	SDABT7	0.1	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13	SDAB	25	2	45	2	4	80	General Truck	T7	Diesel	SDABT7	0.1	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	37
Phase15	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

	Pounds per day								Tons per year								Metric tons per year				Gal per
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.7	10.3	2.0	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.2	2.4	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.2	2.4	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.6	9.1	1.8	0.2	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.2	2.4	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	22.0	0.0	0.0	23.0	2154.8
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.1	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	0.0	0.0	6.0	559.2
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.1	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.1	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.1	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	37.3
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Onroad Calculations- Unmitigated Truck Scenario

											2022													8
											Pounds per day								Tons per year								Metric tons per year				Gal per
Code	Air Basin	Total Trucks	Single Trips/day Yearly	Miles/day Yearly	Vehicles/day Daily	Single Trips/day Daily	Miles/day Daily	Vehicle	Vehicle Type	Fuel	Concat	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	SDAB	1380	33	665	17	34	680	General Truck	T7	Diesel	SDABT7	0.3	7.7	1.4	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	SDAB	256	8	160	4	8	160	General Truck	T7	Diesel	SDABT7	0.1	1.8	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	SDAB	180	7	138	4	8	160	General Truck	T7	Diesel	SDABT7	0.1	1.8	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	SDAB	1000	29	580	15	30	600	General Truck	T7	Diesel	SDABT7	0.3	6.8	1.2	0.1	0.1	0.3	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	73.6	0.0	0.0	77.0	7204
Phase5	SDAB	24	2	30	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.8	173
Phase6	SDAB	289	7	146	4	8	160	General Truck	T7	Diesel	SDABT7	0.1	1.8	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	SDAB	10	1	17	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	SDAB	75	3	67	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	SDAB	7	1	12	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	SDAB	22	0	6	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	SDAB	258	3	51	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0	5.5	518
Phase12	SDAB	213	2	41	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase13	SDAB	25	2	45	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	36

	Pounds per day								Tons per year								Metric tons per year				Gal per
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.3	7.7	1.4	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.1	1.8	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.1	1.8	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.3	6.8	1.2	0.1	0.1	0.3	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	73.6	0.0	0.0	77.0	7204.5
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.8	172.9
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.1	1.8	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0	5.5	517.9
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	36.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Onroad Calculations- Unmitigated Truck Scenario

											2023													9
											Pounds per day								Tons per year								Metric tons per year				Gal per
Code	Air Basin	Total Trucks	Single Trips/day Yearly	Miles/day Yearly	Vehicles/day Daily	Single Trips/day Daily	Miles/day Daily	Vehicle	Vehicle Type	Fuel	Concat	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	SDAB	1380	33	665	17	34	680	General Truck	T7	Diesel	SDABT7	0.1	5.9	1.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	SDAB	256	8	160	4	8	160	General Truck	T7	Diesel	SDABT7	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	SDAB	180	7	138	4	8	160	General Truck	T7	Diesel	SDABT7	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	SDAB	1000	29	580	15	30	600	General Truck	T7	Diesel	SDABT7	0.1	5.2	0.9	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	SDAB	24	2	30	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	SDAB	289	7	146	4	8	160	General Truck	T7	Diesel	SDABT7	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	SDAB	10	1	17	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	SDAB	75	3	67	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	SDAB	7	1	12	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	SDAB	22	0	6	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase11	SDAB	258	3	51	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.2	0.0	0.0	13.8	1291
Phase12	SDAB	213	2	41	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	8.4	782
Phase13	SDAB	25	2	45	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase14	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

	Pounds per day								Tons per year								Metric tons per year				Gal per
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	year
Phase1	0.1	5.9	1.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.1	5.2	0.9	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.2	0.0	0.0	13.8	1291.3
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	8.4	781.9
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Onroad Calculations- Unmitigated Truck Scenario

											2024												10
Code	Air Basin	Total Trucks	Single Trips/day Yearly	Miles/day Yearly	Vehicles/day Daily	Single Trips/day Daily	Miles/day Daily	Vehicle	Vehicle Type	Fuel	Concat	Pounds per day								Tons per year								Metric tons per year				Gal per year
												ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	
Phase1	SDAB	1380	33	665	17	34	680	General Truck	T7	Diesel	SDABT7	0.1	5.9	1.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase2	SDAB	256	8	160	4	8	160	General Truck	T7	Diesel	SDABT7	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase3	SDAB	180	7	138	4	8	160	General Truck	T7	Diesel	SDABT7	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase4	SDAB	1000	29	580	15	30	600	General Truck	T7	Diesel	SDABT7	0.1	5.2	0.9	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase5	SDAB	24	2	30	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase6	SDAB	289	7	146	4	8	160	General Truck	T7	Diesel	SDABT7	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase7	SDAB	10	1	17	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase8	SDAB	75	3	67	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase9	SDAB	7	1	12	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase10	SDAB	22	0	6	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.6	151
Phase11	SDAB	258	3	51	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase12	SDAB	213	2	41	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0	7.3	687
Phase13	SDAB	25	2	45	2	4	80	General Truck	T7	Diesel	SDABT7	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.8	171
Phase14	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Phase15	SDAB	5	0	3	1	2	40	General Truck	T7	Diesel	SDABT7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0

	Pounds per day								Tons per year								Metric tons per year				Gal per year
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	
Phase1	0.1	5.9	1.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.1	5.2	0.9	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.6	150.6
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0	7.3	686.8
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.8	171.2
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Onroad Calculations- Unmitigated Truck Scenario

	Tons per year								Metric tons per year			
Year	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e
2020	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	142	0.0	0.0	149
2021	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	28	0.0	0.0	29
2022	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	81	0.0	0.0	85
2023	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	21	0.0	0.0	22
2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	0.0	0.0	11

Year	Gal/yr
2020	13,894
2021	2,751
2022	7,931
2023	2,073
2024	1,009

Total ***27,659***

Marine Calculations- Truck Scenario

	2020																			6	2021																	7
	Pounds per day								Tons per year								Metric tons per year					Pounds per day								Tons per year								Metric tons per year				
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	Gal per year	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	Gal per year
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Phase1a	20.1	160.2	117.2	5.7	5.6	0.0	0.0	0.2	0.38	3.0	2.2	0.1	0.1	0.0	0.0	0.0	249.1	0.0	0.0	252.6	24402.5	20.1	160.2	117.2	5.7	5.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	3.4	332.8	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	3.3	318.9	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	3.3	318.9	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	5.8	0.0	0.0	5.9	568.5	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	5.4	0.0	0.0	5.5	526.9	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	9.3	0.0	0.0	9.5	915.2	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	9.9	0.0	0.0	10.0	970.7
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	2.3	14.3	12.5	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	14.3	12.5	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.9	180.3
Phase6b	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	9.5	0.0	0.0	9.6	929.1
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	1.2	10.3	8.2	0.3	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	6.4	0.0	0.0	6.5	625.5	1.2	10.3	8.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	1.5	13.1	10.2	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	13.1	10.2	0.4	0.4	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	6.2	0.0	0.0	6.3	610.1
Phase8b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	9.9	0.0	0.0	10.0	970.7
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Marine Calculations- Truck Scenario

	2022																			8	2023															9
	Pounds per day								Tons per year								Metric tons per year					Pounds per day								Tons per year								Metric tons per year				
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	Gal per year	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	Gal per year
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Phase1a	20.1	160.2	117.2	5.7	5.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.1	160.2	117.2	5.7	5.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	2.3	14.3	12.5	0.4	0.4	0.0	0.0	0.0	0.1	0.5	0.4	0.0	0.0	0.0	0.0	0.0	46.9	0.0	0.0	47.6	4593.6	2.3	14.3	12.5	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	4.6	443.7	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	1.2	10.3	8.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	10.3	8.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	1.5	13.1	10.2	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	13.1	10.2	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Marine Calculations- Truck Scenario

	2024																				10
	Pounds per day								Tons per year								Metric tons per year				
Phase	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e	Gal per year
Phase1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Phase1a	20.1	160.2	117.2	5.7	5.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1c	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1d	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase1e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2b	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase2c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3a	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase3c	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase4a	2.3	14.3	12.5	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase5b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6a	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6b	0.4	3.3	2.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase6c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7a	1.2	10.3	8.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase7b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8a	1.5	13.1	10.2	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase8b	0.7	6.5	5.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase9c	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase10b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase11b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase12b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase13a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase14b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase15b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Marine Calculations- Truck Scenario

	Tons per year								Metric tons per year			
Year	ROG	NOX	CO	PM10	PM2.5	PM10 D	PM2.5 D	SO2	CO2	CH4	N2O	CO2e
2020	0.4	3.5	2.6	0.1	0.1	0.0	0.0	0.0	286.0	0.0	0.0	290.0
2021	0.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0	37.4	0.0	0.0	37.9
2022	0.1	0.5	0.5	0.0	0.0	0.0	0.0	0.0	51.4	0.0	0.0	52.2
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Year	Gal/yr
2020	28,009
2021	3,661
2022	5,037
2023	0
2024	0

Total ***36,707***

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2020	1/1/2020	0	0	0	0	0	0	0	0	0	0
2020	1/2/2020	0	0	0	0	0	0	0	0	0	0
2020	1/3/2020	0	0	0	0	0	0	0	0	0	0
2020	1/4/2020	0	0	0	0	0	0	0	0	0	0
2020	1/5/2020	0	0	0	0	0	0	0	0	0	0
2020	1/6/2020	0	0	0	0	0	0	0	0	0	0
2020	1/7/2020	0	0	0	0	0	0	0	0	0	0
2020	1/8/2020	0	0	0	0	0	0	0	0	0	0
2020	1/9/2020	0	0	0	0	0	0	0	0	0	0
2020	1/10/2020	0	0	0	0	0	0	0	0	0	0
2020	1/11/2020	0	0	0	0	0	0	0	0	0	0
2020	1/12/2020	0	0	0	0	0	0	0	0	0	0
2020	1/13/2020	0	0	0	0	0	0	0	0	0	0
2020	1/14/2020	0	0	0	0	0	0	0	0	0	0
2020	1/15/2020	0	0	0	0	0	0	0	0	0	0
2020	1/16/2020	0	0	0	0	0	0	0	0	0	0
2020	1/17/2020	0	0	0	0	0	0	0	0	0	0
2020	1/18/2020	0	0	0	0	0	0	0	0	0	0
2020	1/19/2020	0	0	0	0	0	0	0	0	0	0
2020	1/20/2020	0	0	0	0	0	0	0	0	0	0
2020	1/21/2020	0	0	0	0	0	0	0	0	0	0
2020	1/22/2020	0	0	0	0	0	0	0	0	0	0
2020	1/23/2020	0	0	0	0	0	0	0	0	0	0
2020	1/24/2020	0	0	0	0	0	0	0	0	0	0
2020	1/25/2020	0	0	0	0	0	0	0	0	0	0
2020	1/26/2020	0	0	0	0	0	0	0	0	0	0
2020	1/27/2020	0	0	0	0	0	0	0	0	0	0
2020	1/28/2020	0	0	0	0	0	0	0	0	0	0
2020	1/29/2020	0	0	0	0	0	0	0	0	0	0
2020	1/30/2020	0	0	0	0	0	0	0	0	0	0
2020	1/31/2020	0	0	0	0	0	0	0	0	0	0
2020	2/1/2020	0	0	0	0	0	0	0	0	0	0
2020	2/2/2020	0	0	0	0	0	0	0	0	0	0
2020	2/3/2020	0	0	0	0	0	0	0	0	0	0
2020	2/4/2020	0	0	0	0	0	0	0	0	0	0
2020	2/5/2020	0	0	0	0	0	0	0	0	0	0
2020	2/6/2020	0	0	0	0	0	0	0	0	0	0
2020	2/7/2020	0	0	0	0	0	0	0	0	0	0
2020	2/8/2020	0	0	0	0	0	0	0	0	0	0
2020	2/9/2020	0	0	0	0	0	0	0	0	0	0
2020	2/10/2020	0	0	0	0	0	0	0	0	0	0
2020	2/11/2020	0	0	0	0	0	0	0	0	0	0
2020	2/12/2020	0	0	0	0	0	0	0	0	0	0
2020	2/13/2020	0	0	0	0	0	0	0	0	0	0
2020	2/14/2020	0	0	0	0	0	0	0	0	0	0
2020	2/15/2020	0	0	0	0	0	0	0	0	0	0
2020	2/16/2020	0	0	0	0	0	0	0	0	0	0
2020	2/17/2020	0	0	0	0	0	0	0	0	0	0
2020	2/18/2020	0	0	0	0	0	0	0	0	0	0
2020	2/19/2020	0	0	0	0	0	0	0	0	0	0
2020	2/20/2020	0	0	0	0	0	0	0	0	0	0
2020	2/21/2020	0	0	0	0	0	0	0	0	0	0
2020	2/22/2020	0	0	0	0	0	0	0	0	0	0
2020	2/23/2020	0	0	0	0	0	0	0	0	0	0
2020	2/24/2020	0	0	0	0	0	0	0	0	0	0
2020	2/25/2020	0	0	0	0	0	0	0	0	0	0
2020	2/26/2020	0	0	0	0	0	0	0	0	0	0
2020	2/27/2020	0	0	0	0	0	0	0	0	0	0
2020	2/28/2020	0	0	0	0	0	0	0	0	0	0
2020	2/29/2020	0	0	0	0	0	0	0	0	0	0
2020	3/1/2020	0	0	0	0	0	0	0	0	0	0
2020	3/2/2020	0	0	0	0	0	0	0	0	0	0
2020	3/3/2020	0	0	0	0	0	0	0	0	0	0
2020	3/4/2020	0	0	0	0	0	0	0	0	0	0
2020	3/5/2020	0	0	0	0	0	0	0	0	0	0
2020	3/6/2020	0	0	0	0	0	0	0	0	0	0
2020	3/7/2020	0	0	0	0	0	0	0	0	0	0
2020	3/8/2020	0	0	0	0	0	0	0	0	0	0
2020	3/9/2020	0	0	0	0	0	0	0	0	0	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2020	3/10/2020	0	0	0	0	0	0	0	0	0	0
2020	3/11/2020	0	0	0	0	0	0	0	0	0	0
2020	3/12/2020	0	0	0	0	0	0	0	0	0	0
2020	3/13/2020	0	0	0	0	0	0	0	0	0	0
2020	3/14/2020	0	0	0	0	0	0	0	0	0	0
2020	3/15/2020	0	0	0	0	0	0	0	0	0	0
2020	3/16/2020	0	0	0	0	0	0	0	0	0	0
2020	3/17/2020	0	0	0	0	0	0	0	0	0	0
2020	3/18/2020	0	0	0	0	0	0	0	0	0	0
2020	3/19/2020	0	0	0	0	0	0	0	0	0	0
2020	3/20/2020	0	0	0	0	0	0	0	0	0	0
2020	3/21/2020	0	0	0	0	0	0	0	0	0	0
2020	3/22/2020	0	0	0	0	0	0	0	0	0	0
2020	3/23/2020	0	0	0	0	0	0	0	0	0	0
2020	3/24/2020	3	25	15	1	2	3	1	0	1	0
2020	3/25/2020	3	25	15	1	2	3	1	0	1	0
2020	3/26/2020	3	25	15	1	2	3	1	0	1	0
2020	3/27/2020	3	25	15	1	2	3	1	0	1	0
2020	3/28/2020	3	25	15	1	2	3	1	0	1	0
2020	3/29/2020	3	25	15	1	2	3	1	0	1	0
2020	3/30/2020	3	25	15	1	2	3	1	0	1	0
2020	3/31/2020	3	25	15	1	2	3	1	0	1	0
2020	4/1/2020	3	25	15	1	2	3	1	0	1	0
2020	4/2/2020	3	25	15	1	2	3	1	0	1	0
2020	4/3/2020	3	25	15	1	2	3	1	0	1	0
2020	4/4/2020	3	25	15	1	2	3	1	0	1	0
2020	4/5/2020	3	25	15	1	2	3	1	0	1	0
2020	4/6/2020	3	25	15	1	2	3	1	0	1	0
2020	4/7/2020	3	25	15	1	2	3	1	0	1	0
2020	4/8/2020	3	25	15	1	2	3	1	0	1	0
2020	4/9/2020	3	25	15	1	2	3	1	0	1	0
2020	4/10/2020	3	25	15	1	2	3	1	0	1	0
2020	4/11/2020	3	25	15	1	2	3	1	0	1	0
2020	4/12/2020	3	25	15	1	2	3	1	0	1	0
2020	4/13/2020	3	25	15	1	2	3	1	0	1	0
2020	4/14/2020	3	25	15	1	2	3	1	0	1	0
2020	4/15/2020	3	25	15	1	2	3	1	0	1	0
2020	4/16/2020	3	25	15	1	2	3	1	0	1	0
2020	4/17/2020	3	25	15	1	2	3	1	0	1	0
2020	4/18/2020	0	3	1	0	0	0	0	0	0	0
2020	4/19/2020	0	3	1	0	0	0	0	0	0	0
2020	4/20/2020	0	3	1	0	0	0	0	0	0	0
2020	4/21/2020	1	12	7	0	0	1	0	0	0	0
2020	4/22/2020	1	12	7	0	0	1	0	0	0	0
2020	4/23/2020	1	12	7	0	0	1	0	0	0	0
2020	4/24/2020	1	12	7	0	0	1	0	0	0	0
2020	4/25/2020	1	12	7	0	0	1	0	0	0	0
2020	4/26/2020	1	12	7	0	0	1	0	0	0	0
2020	4/27/2020	1	12	7	0	0	1	0	0	0	0
2020	4/28/2020	2	20	12	1	0	1	1	0	1	0
2020	4/29/2020	1	12	7	0	0	1	0	0	0	0
2020	4/30/2020	1	10	6	0	0	1	0	0	0	0
2020	5/1/2020	1	10	6	0	0	1	0	0	0	0
2020	5/2/2020	1	10	6	0	0	1	0	0	0	0
2020	5/3/2020	1	10	6	0	0	1	0	0	0	0
2020	5/4/2020	1	10	6	0	0	1	0	0	0	0
2020	5/5/2020	1	10	6	0	0	1	0	0	0	0
2020	5/6/2020	1	10	6	0	0	1	0	0	0	0
2020	5/7/2020	1	10	6	0	0	1	0	0	0	0
2020	5/8/2020	1	10	6	0	0	1	0	0	0	0
2020	5/9/2020	1	10	6	0	0	1	0	0	0	0
2020	5/10/2020	1	10	6	0	0	1	0	0	0	0
2020	5/11/2020	1	10	6	0	0	1	0	0	0	0
2020	5/12/2020	1	10	6	0	0	1	0	0	0	0
2020	5/13/2020	1	10	6	0	0	1	0	0	0	0
2020	5/14/2020	1	10	6	0	0	1	0	0	0	0
2020	5/15/2020	1	10	6	0	0	1	0	0	0	0
2020	5/16/2020	1	10	6	0	0	1	0	0	0	0
2020	5/17/2020	1	10	6	0	0	1	0	0	0	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2020	5/18/2020	1	10	6	0	0	1	0	0	0	0
2020	5/19/2020	1	10	6	0	0	1	0	0	0	0
2020	5/20/2020	1	10	6	0	0	1	0	0	0	0
2020	5/21/2020	1	10	6	0	0	1	0	0	0	0
2020	5/22/2020	1	10	6	0	0	1	0	0	0	0
2020	5/23/2020	0	3	1	0	0	0	0	0	0	0
2020	5/24/2020	0	3	1	0	0	0	0	0	0	0
2020	5/25/2020	0	3	1	0	0	0	0	0	0	0
2020	5/26/2020	0	3	1	0	0	0	0	0	0	0
2020	5/27/2020	0	3	1	0	0	0	0	0	0	0
2020	5/28/2020	0	3	1	0	0	0	0	0	0	0
2020	5/29/2020	0	3	1	0	0	0	0	0	0	0
2020	5/30/2020	0	3	1	0	0	0	0	0	0	0
2020	5/31/2020	0	3	1	0	0	0	0	0	0	0
2020	6/1/2020	3	26	17	1	1	2	1	0	1	0
2020	6/2/2020	3	26	17	1	1	2	1	0	1	0
2020	6/3/2020	3	26	17	1	1	2	1	0	1	0
2020	6/4/2020	3	26	17	1	1	2	1	0	1	0
2020	6/5/2020	3	26	17	1	1	2	1	0	1	0
2020	6/6/2020	3	26	17	1	1	2	1	0	1	0
2020	6/7/2020	3	26	17	1	1	2	1	0	1	0
2020	6/8/2020	3	26	17	1	1	2	1	0	1	0
2020	6/9/2020	3	26	17	1	1	2	1	0	1	0
2020	6/10/2020	3	26	17	1	1	2	1	0	1	0
2020	6/11/2020	3	26	17	1	1	2	1	0	1	0
2020	6/12/2020	3	26	17	1	1	2	1	0	1	0
2020	6/13/2020	3	26	17	1	1	2	1	0	1	0
2020	6/14/2020	3	26	17	1	1	2	1	0	1	0
2020	6/15/2020	3	26	17	1	1	2	1	0	1	0
2020	6/16/2020	3	26	17	1	1	2	1	0	1	0
2020	6/17/2020	3	26	17	1	1	2	1	0	1	0
2020	6/18/2020	3	26	17	1	1	2	1	0	1	0
2020	6/19/2020	3	26	17	1	1	2	1	0	1	0
2020	6/20/2020	3	26	17	1	1	2	1	0	1	0
2020	6/21/2020	3	26	17	1	1	2	1	0	1	0
2020	6/22/2020	7	58	34	2	2	4	2	0	3	0
2020	6/23/2020	7	58	34	2	2	4	2	0	3	0
2020	6/24/2020	7	58	34	2	2	4	2	0	3	0
2020	6/25/2020	7	58	34	2	2	4	2	0	3	0
2020	6/26/2020	7	58	34	2	2	4	2	0	3	0
2020	6/27/2020	7	58	34	2	2	4	2	0	3	0
2020	6/28/2020	7	58	34	2	2	4	2	0	3	0
2020	6/29/2020	7	58	34	2	2	4	2	0	3	0
2020	6/30/2020	7	58	34	2	2	4	2	0	3	0
2020	7/1/2020	7	58	34	2	2	4	2	0	3	0
2020	7/2/2020	4	38	19	1	1	2	1	0	1	0
2020	7/3/2020	4	38	19	1	1	2	1	0	1	0
2020	7/4/2020	4	38	19	1	1	2	1	0	1	0
2020	7/5/2020	4	38	19	1	1	2	1	0	1	0
2020	7/6/2020	24	198	137	7	1	8	7	0	7	0
2020	7/7/2020	24	198	137	7	1	8	7	0	7	0
2020	7/8/2020	24	198	137	7	1	8	7	0	7	0
2020	7/9/2020	24	198	137	7	1	8	7	0	7	0
2020	7/10/2020	24	198	137	7	1	8	7	0	7	0
2020	7/11/2020	24	198	137	7	1	8	7	0	7	0
2020	7/12/2020	24	198	137	7	1	8	7	0	7	0
2020	7/13/2020	24	198	137	7	1	8	7	0	7	0
2020	7/14/2020	24	198	137	7	1	8	7	0	7	0
2020	7/15/2020	24	198	137	7	1	8	7	0	7	0
2020	7/16/2020	24	198	137	7	1	8	7	0	7	0
2020	7/17/2020	24	198	137	7	1	8	7	0	7	0
2020	7/18/2020	24	198	137	7	1	8	7	0	7	0
2020	7/19/2020	24	198	137	7	1	8	7	0	7	0
2020	7/20/2020	24	198	137	7	1	8	7	0	7	0
2020	7/21/2020	24	198	137	7	1	8	7	0	7	0
2020	7/22/2020	24	198	137	7	1	8	7	0	7	0
2020	7/23/2020	23	198	136	7	1	7	6	0	7	0
2020	7/24/2020	23	198	136	7	1	7	6	0	7	0
2020	7/25/2020	23	198	136	7	1	7	6	0	7	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2020	7/26/2020	23	198	136	7	1	7	6	0	7	0
2020	7/27/2020	23	198	136	7	1	7	6	0	7	0
2020	7/28/2020	23	198	136	7	1	7	6	0	7	0
2020	7/29/2020	23	198	136	7	1	7	6	0	7	0
2020	7/30/2020	23	198	136	7	1	7	6	0	7	0
2020	7/31/2020	23	198	136	7	1	7	6	0	7	0
2020	8/1/2020	23	198	136	7	1	7	6	0	7	0
2020	8/2/2020	23	198	136	7	1	7	6	0	7	0
2020	8/3/2020	23	198	136	7	1	7	6	0	7	0
2020	8/4/2020	27	221	153	8	1	9	8	0	8	0
2020	8/5/2020	25	201	139	7	1	8	7	0	7	0
2020	8/6/2020	25	201	139	7	1	8	7	0	7	0
2020	8/7/2020	25	201	139	7	1	8	7	0	7	0
2020	8/8/2020	25	201	139	7	1	8	7	0	7	0
2020	8/9/2020	25	201	139	7	1	8	7	0	7	0
2020	8/10/2020	25	201	139	7	1	8	7	0	7	0
2020	8/11/2020	27	220	152	8	1	9	8	0	8	0
2020	8/12/2020	27	220	152	8	1	9	8	0	8	0
2020	8/13/2020	27	220	152	8	1	9	8	0	8	0
2020	8/14/2020	7	60	35	3	1	3	2	0	3	0
2020	8/15/2020	7	60	35	3	1	3	2	0	3	0
2020	8/16/2020	7	60	35	3	1	3	2	0	3	0
2020	8/17/2020	7	60	35	3	1	3	2	0	3	0
2020	8/18/2020	7	60	35	3	1	3	2	0	3	0
2020	8/19/2020	7	60	35	3	1	3	2	0	3	0
2020	8/20/2020	7	58	34	3	1	3	2	0	3	0
2020	8/21/2020	7	58	34	3	1	3	2	0	3	0
2020	8/22/2020	7	56	33	2	1	3	2	0	2	0
2020	8/23/2020	7	56	33	2	1	3	2	0	2	0
2020	8/24/2020	7	56	33	2	1	3	2	0	2	0
2020	8/25/2020	7	56	33	2	1	3	2	0	2	0
2020	8/26/2020	7	56	33	2	1	3	2	0	2	0
2020	8/27/2020	7	56	33	2	1	3	2	0	2	0
2020	8/28/2020	7	56	33	2	1	3	2	0	2	0
2020	8/29/2020	7	56	33	2	1	3	2	0	2	0
2020	8/30/2020	7	56	33	2	1	3	2	0	2	0
2020	8/31/2020	7	56	33	2	1	3	2	0	2	0
2020	9/1/2020	7	56	33	2	1	3	2	0	2	0
2020	9/2/2020	7	56	33	2	1	3	2	0	2	0
2020	9/3/2020	7	56	33	2	1	3	2	0	2	0
2020	9/4/2020	7	56	33	2	1	3	2	0	2	0
2020	9/5/2020	7	56	33	2	1	3	2	0	2	0
2020	9/6/2020	7	56	33	2	1	3	2	0	2	0
2020	9/7/2020	7	56	33	2	1	3	2	0	2	0
2020	9/8/2020	7	56	33	2	1	3	2	0	2	0
2020	9/9/2020	7	56	33	2	1	3	2	0	2	0
2020	9/10/2020	7	56	33	2	1	3	2	0	2	0
2020	9/11/2020	7	56	33	2	1	3	2	0	2	0
2020	9/12/2020	7	56	33	2	1	3	2	0	2	0
2020	9/13/2020	7	56	33	2	1	3	2	0	2	0
2020	9/14/2020	7	56	33	2	1	3	2	0	2	0
2020	9/15/2020	7	56	33	2	1	3	2	0	2	0
2020	9/16/2020	7	56	33	2	1	3	2	0	2	0
2020	9/17/2020	7	56	33	2	1	3	2	0	2	0
2020	9/18/2020	7	56	33	2	1	3	2	0	2	0
2020	9/19/2020	7	56	33	2	1	3	2	0	2	0
2020	9/20/2020	7	56	33	2	1	3	2	0	2	0
2020	9/21/2020	7	56	33	2	1	3	2	0	2	0
2020	9/22/2020	7	56	33	2	1	3	2	0	2	0
2020	9/23/2020	7	56	33	2	1	3	2	0	2	0
2020	9/24/2020	7	56	33	2	1	3	2	0	2	0
2020	9/25/2020	7	56	33	2	1	3	2	0	2	0
2020	9/26/2020	7	56	33	2	1	3	2	0	2	0
2020	9/27/2020	7	56	33	2	1	3	2	0	2	0
2020	9/28/2020	7	56	33	2	1	3	2	0	2	0
2020	9/29/2020	7	56	33	2	1	3	2	0	2	0
2020	9/30/2020	3	32	16	1	0	2	1	0	1	0
2020	10/1/2020	0	3	1	0	0	0	0	0	0	0
2020	10/2/2020	0	3	1	0	0	0	0	0	0	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2020	10/3/2020	0	3	1	0	0	0	0	0	0	0
2020	10/4/2020	0	3	1	0	0	0	0	0	0	0
2020	10/5/2020	3	22	14	1	0	1	1	0	1	0
2020	10/6/2020	3	22	14	1	0	1	1	0	1	0
2020	10/7/2020	3	22	14	1	0	1	1	0	1	0
2020	10/8/2020	3	22	14	1	0	1	1	0	1	0
2020	10/9/2020	3	22	14	1	0	1	1	0	1	0
2020	10/10/2020	3	22	14	1	0	1	1	0	1	0
2020	10/11/2020	3	22	14	1	0	1	1	0	1	0
2020	10/12/2020	3	22	14	1	0	1	1	0	1	0
2020	10/13/2020	3	22	14	1	0	1	1	0	1	0
2020	10/14/2020	3	22	14	1	0	1	1	0	1	0
2020	10/15/2020	3	22	14	1	0	1	1	0	1	0
2020	10/16/2020	3	22	14	1	0	1	1	0	1	0
2020	10/17/2020	3	22	14	1	0	1	1	0	1	0
2020	10/18/2020	3	22	14	1	0	1	1	0	1	0
2020	10/19/2020	6	52	33	2	0	2	2	0	2	0
2020	10/20/2020	3	33	20	1	0	1	1	0	1	0
2020	10/21/2020	3	33	20	1	0	1	1	0	1	0
2020	10/22/2020	3	33	20	1	0	1	1	0	1	0
2020	10/23/2020	3	33	20	1	0	1	1	0	1	0
2020	10/24/2020	3	33	20	1	0	1	1	0	1	0
2020	10/25/2020	3	33	20	1	0	1	1	0	1	0
2020	10/26/2020	3	33	20	1	0	1	1	0	1	0
2020	10/27/2020	3	33	20	1	0	1	1	0	1	0
2020	10/28/2020	3	33	20	1	0	1	1	0	1	0
2020	10/29/2020	3	33	20	1	0	1	1	0	1	0
2020	10/30/2020	3	33	20	1	0	1	1	0	1	0
2020	10/31/2020	3	33	20	1	0	1	1	0	1	0
2020	11/1/2020	3	33	20	1	0	1	1	0	1	0
2020	11/2/2020	3	33	20	1	0	1	1	0	1	0
2020	11/3/2020	3	33	20	1	0	1	1	0	1	0
2020	11/4/2020	3	33	20	1	0	1	1	0	1	0
2020	11/5/2020	3	33	20	1	0	1	1	0	1	0
2020	11/6/2020	3	28	19	1	0	1	1	0	1	0
2020	11/7/2020	3	28	19	1	0	1	1	0	1	0
2020	11/8/2020	3	28	19	1	0	1	1	0	1	0
2020	11/9/2020	3	28	19	1	0	1	1	0	1	0
2020	11/10/2020	3	28	19	1	0	1	1	0	1	0
2020	11/11/2020	3	28	19	1	0	1	1	0	1	0
2020	11/12/2020	3	28	19	1	0	1	1	0	1	0
2020	11/13/2020	3	28	19	1	0	1	1	0	1	0
2020	11/14/2020	3	28	19	1	0	1	1	0	1	0
2020	11/15/2020	3	28	19	1	0	1	1	0	1	0
2020	11/16/2020	3	28	19	1	0	1	1	0	1	0
2020	11/17/2020	3	28	19	1	0	1	1	0	1	0
2020	11/18/2020	3	28	19	1	0	1	1	0	1	0
2020	11/19/2020	3	28	19	1	0	1	1	0	1	0
2020	11/20/2020	3	28	19	1	0	1	1	0	1	0
2020	11/21/2020	3	28	19	1	0	1	1	0	1	0
2020	11/22/2020	3	28	19	1	0	1	1	0	1	0
2020	11/23/2020	3	28	19	1	0	1	1	0	1	0
2020	11/24/2020	3	28	19	1	0	1	1	0	1	0
2020	11/25/2020	3	28	19	1	0	1	1	0	1	0
2020	11/26/2020	3	28	19	1	0	1	1	0	1	0
2020	11/27/2020	3	28	19	1	0	1	1	0	1	0
2020	11/28/2020	3	28	19	1	0	1	1	0	1	0
2020	11/29/2020	3	28	19	1	0	1	1	0	1	0
2020	11/30/2020	3	28	19	1	0	1	1	0	1	0
2020	12/1/2020	3	28	19	1	0	1	1	0	1	0
2020	12/2/2020	3	28	19	1	0	1	1	0	1	0
2020	12/3/2020	3	28	19	1	0	1	1	0	1	0
2020	12/4/2020	3	28	19	1	0	1	1	0	1	0
2020	12/5/2020	3	28	19	1	0	1	1	0	1	0
2020	12/6/2020	3	28	19	1	0	1	1	0	1	0
2020	12/7/2020	3	28	19	1	0	1	1	0	1	0
2020	12/8/2020	3	28	19	1	0	1	1	0	1	0
2020	12/9/2020	3	28	19	1	0	1	1	0	1	0
2020	12/10/2020	3	28	19	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2020	12/11/2020	3	28	19	1	0	1	1	0	1	0
2020	12/12/2020	3	28	19	1	0	1	1	0	1	0
2020	12/13/2020	3	28	19	1	0	1	1	0	1	0
2020	12/14/2020	3	28	19	1	0	1	1	0	1	0
2020	12/15/2020	3	28	19	1	0	1	1	0	1	0
2020	12/16/2020	3	28	19	1	0	1	1	0	1	0
2020	12/17/2020	3	28	19	1	0	1	1	0	1	0
2020	12/18/2020	3	28	19	1	0	1	1	0	1	0
2020	12/19/2020	3	28	19	1	0	1	1	0	1	0
2020	12/20/2020	3	28	19	1	0	1	1	0	1	0
2020	12/21/2020	3	28	19	1	0	1	1	0	1	0
2020	12/22/2020	3	28	19	1	0	1	1	0	1	0
2020	12/23/2020	0	0	0	0	0	0	0	0	0	0
2020	12/24/2020	0	0	0	0	0	0	0	0	0	0
2020	12/25/2020	0	0	0	0	0	0	0	0	0	0
2020	12/26/2020	0	0	0	0	0	0	0	0	0	0
2020	12/27/2020	0	0	0	0	0	0	0	0	0	0
2020	12/28/2020	0	0	0	0	0	0	0	0	0	0
2020	12/29/2020	0	0	0	0	0	0	0	0	0	0
2020	12/30/2020	0	0	0	0	0	0	0	0	0	0
2020	12/31/2020	0	0	0	0	0	0	0	0	0	0
2021	1/1/2021	0	0	0	0	0	0	0	0	0	0
2021	1/2/2021	0	0	0	0	0	0	0	0	0	0
2021	1/3/2021	0	0	0	0	0	0	0	0	0	0
2021	1/4/2021	0	0	0	0	0	0	0	0	0	0
2021	1/5/2021	0	0	0	0	0	0	0	0	0	0
2021	1/6/2021	0	0	0	0	0	0	0	0	0	0
2021	1/7/2021	0	0	0	0	0	0	0	0	0	0
2021	1/8/2021	0	0	0	0	0	0	0	0	0	0
2021	1/9/2021	0	0	0	0	0	0	0	0	0	0
2021	1/10/2021	0	0	0	0	0	0	0	0	0	0
2021	1/11/2021	0	0	0	0	0	0	0	0	0	0
2021	1/12/2021	0	0	0	0	0	0	0	0	0	0
2021	1/13/2021	0	0	0	0	0	0	0	0	0	0
2021	1/14/2021	0	0	0	0	0	0	0	0	0	0
2021	1/15/2021	0	0	0	0	0	0	0	0	0	0
2021	1/16/2021	0	0	0	0	0	0	0	0	0	0
2021	1/17/2021	0	0	0	0	0	0	0	0	0	0
2021	1/18/2021	0	0	0	0	0	0	0	0	0	0
2021	1/19/2021	0	0	0	0	0	0	0	0	0	0
2021	1/20/2021	0	0	0	0	0	0	0	0	0	0
2021	1/21/2021	0	0	0	0	0	0	0	0	0	0
2021	1/22/2021	0	0	0	0	0	0	0	0	0	0
2021	1/23/2021	0	0	0	0	0	0	0	0	0	0
2021	1/24/2021	0	0	0	0	0	0	0	0	0	0
2021	1/25/2021	0	0	0	0	0	0	0	0	0	0
2021	1/26/2021	0	0	0	0	0	0	0	0	0	0
2021	1/27/2021	0	0	0	0	0	0	0	0	0	0
2021	1/28/2021	0	0	0	0	0	0	0	0	0	0
2021	1/29/2021	0	0	0	0	0	0	0	0	0	0
2021	1/30/2021	0	0	0	0	0	0	0	0	0	0
2021	1/31/2021	0	0	0	0	0	0	0	0	0	0
2021	2/1/2021	3	24	16	1	0	1	1	0	1	0
2021	2/2/2021	3	24	16	1	0	1	1	0	1	0
2021	2/3/2021	3	24	16	1	0	1	1	0	1	0
2021	2/4/2021	3	24	16	1	0	1	1	0	1	0
2021	2/5/2021	3	24	16	1	0	1	1	0	1	0
2021	2/6/2021	3	24	16	1	0	1	1	0	1	0
2021	2/7/2021	3	24	16	1	0	1	1	0	1	0
2021	2/8/2021	3	24	16	1	0	1	1	0	1	0
2021	2/9/2021	3	24	16	1	0	1	1	0	1	0
2021	2/10/2021	3	24	16	1	0	1	1	0	1	0
2021	2/11/2021	3	24	16	1	0	1	1	0	1	0
2021	2/12/2021	3	24	16	1	0	1	1	0	1	0
2021	2/13/2021	3	24	16	1	0	1	1	0	1	0
2021	2/14/2021	3	24	16	1	0	1	1	0	1	0
2021	2/15/2021	5	40	27	2	0	2	1	0	1	0
2021	2/16/2021	2	17	11	1	0	1	1	0	1	0
2021	2/17/2021	2	17	11	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2021	2/18/2021	2	17	11	1	0	1	1	0	1	0
2021	2/19/2021	2	17	11	1	0	1	1	0	1	0
2021	2/20/2021	2	17	11	1	0	1	1	0	1	0
2021	2/21/2021	2	17	11	1	0	1	1	0	1	0
2021	2/22/2021	2	17	11	1	0	1	1	0	1	0
2021	2/23/2021	2	17	11	1	0	1	1	0	1	0
2021	2/24/2021	2	17	11	1	0	1	1	0	1	0
2021	2/25/2021	2	17	11	1	0	1	1	0	1	0
2021	2/26/2021	2	17	11	1	0	1	1	0	1	0
2021	2/27/2021	2	17	11	1	0	1	1	0	1	0
2021	2/28/2021	2	17	11	1	0	1	1	0	1	0
2021	3/1/2021	2	17	11	1	0	1	1	0	1	0
2021	3/2/2021	2	17	11	1	0	1	1	0	1	0
2021	3/3/2021	2	17	11	1	0	1	1	0	1	0
2021	3/4/2021	2	17	11	1	0	1	1	0	1	0
2021	3/5/2021	2	17	11	1	0	1	1	0	1	0
2021	3/6/2021	2	17	11	1	0	1	1	0	1	0
2021	3/7/2021	2	17	11	1	0	1	1	0	1	0
2021	3/8/2021	2	17	11	1	0	1	1	0	1	0
2021	3/9/2021	2	17	11	1	0	1	1	0	1	0
2021	3/10/2021	2	17	11	1	0	1	1	0	1	0
2021	3/11/2021	2	17	11	1	0	1	1	0	1	0
2021	3/12/2021	2	17	11	1	0	1	1	0	1	0
2021	3/13/2021	2	17	11	1	0	1	1	0	1	0
2021	3/14/2021	2	17	11	1	0	1	1	0	1	0
2021	3/15/2021	2	17	11	1	0	1	1	0	1	0
2021	3/16/2021	2	17	11	1	0	1	1	0	1	0
2021	3/17/2021	2	17	11	1	0	1	1	0	1	0
2021	3/18/2021	2	17	11	1	0	1	1	0	1	0
2021	3/19/2021	2	17	11	1	0	1	1	0	1	0
2021	3/20/2021	2	17	11	1	0	1	1	0	1	0
2021	3/21/2021	2	17	11	1	0	1	1	0	1	0
2021	3/22/2021	2	17	11	1	0	1	1	0	1	0
2021	3/23/2021	2	17	11	1	0	1	1	0	1	0
2021	3/24/2021	2	17	11	1	0	1	1	0	1	0
2021	3/25/2021	2	17	11	1	0	1	1	0	1	0
2021	3/26/2021	2	17	11	1	0	1	1	0	1	0
2021	3/27/2021	2	17	11	1	0	1	1	0	1	0
2021	3/28/2021	2	17	11	1	0	1	1	0	1	0
2021	3/29/2021	2	17	11	1	0	1	1	0	1	0
2021	3/30/2021	2	17	11	1	0	1	1	0	1	0
2021	3/31/2021	2	17	11	1	0	1	1	0	1	0
2021	4/1/2021	2	17	11	1	0	1	1	0	1	0
2021	4/2/2021	2	17	11	1	0	1	1	0	1	0
2021	4/3/2021	0	0	0	0	0	0	0	0	0	0
2021	4/4/2021	0	0	0	0	0	0	0	0	0	0
2021	4/5/2021	3	23	17	1	0	1	1	0	1	0
2021	4/6/2021	3	23	17	1	0	1	1	0	1	0
2021	4/7/2021	3	23	17	1	0	1	1	0	1	0
2021	4/8/2021	3	23	17	1	0	1	1	0	1	0
2021	4/9/2021	3	23	17	1	0	1	1	0	1	0
2021	4/10/2021	3	23	17	1	0	1	1	0	1	0
2021	4/11/2021	3	23	17	1	0	1	1	0	1	0
2021	4/12/2021	3	23	17	1	0	1	1	0	1	0
2021	4/13/2021	3	23	17	1	0	1	1	0	1	0
2021	4/14/2021	3	23	17	1	0	1	1	0	1	0
2021	4/15/2021	3	23	17	1	0	1	1	0	1	0
2021	4/16/2021	3	23	17	1	0	1	1	0	1	0
2021	4/17/2021	3	23	17	1	0	1	1	0	1	0
2021	4/18/2021	3	23	17	1	0	1	1	0	1	0
2021	4/19/2021	3	23	17	1	0	1	1	0	1	0
2021	4/20/2021	3	23	17	1	0	1	1	0	1	0
2021	4/21/2021	3	23	17	1	0	1	1	0	1	0
2021	4/22/2021	3	23	17	1	0	1	1	0	1	0
2021	4/23/2021	3	23	17	1	0	1	1	0	1	0
2021	4/24/2021	3	23	17	1	0	1	1	0	1	0
2021	4/25/2021	3	23	17	1	0	1	1	0	1	0
2021	4/26/2021	3	23	17	1	0	1	1	0	1	0
2021	4/27/2021	3	23	17	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2021	4/28/2021	3	23	17	1	0	1	1	0	1	0
2021	4/29/2021	3	23	17	1	0	1	1	0	1	0
2021	4/30/2021	3	23	17	1	0	1	1	0	1	0
2021	5/1/2021	3	23	17	1	0	1	1	0	1	0
2021	5/2/2021	3	23	17	1	0	1	1	0	1	0
2021	5/3/2021	3	23	17	1	0	1	1	0	1	0
2021	5/4/2021	3	23	17	1	0	1	1	0	1	0
2021	5/5/2021	3	23	17	1	0	1	1	0	1	0
2021	5/6/2021	3	23	17	1	0	1	1	0	1	0
2021	5/7/2021	3	23	17	1	0	1	1	0	1	0
2021	5/8/2021	3	23	17	1	0	1	1	0	1	0
2021	5/9/2021	3	23	17	1	0	1	1	0	1	0
2021	5/10/2021	3	23	17	1	0	1	1	0	1	0
2021	5/11/2021	3	23	17	1	0	1	1	0	1	0
2021	5/12/2021	3	23	17	1	0	1	1	0	1	0
2021	5/13/2021	3	23	17	1	0	1	1	0	1	0
2021	5/14/2021	3	23	17	1	0	1	1	0	1	0
2021	5/15/2021	3	23	17	1	0	1	1	0	1	0
2021	5/16/2021	3	23	17	1	0	1	1	0	1	0
2021	5/17/2021	3	23	17	1	0	1	1	0	1	0
2021	5/18/2021	3	23	17	1	0	1	1	0	1	0
2021	5/19/2021	3	23	17	1	0	1	1	0	1	0
2021	5/20/2021	3	23	17	1	0	1	1	0	1	0
2021	5/21/2021	3	23	17	1	0	1	1	0	1	0
2021	5/22/2021	0	0	0	0	0	0	0	0	0	0
2021	5/23/2021	0	0	0	0	0	0	0	0	0	0
2021	5/24/2021	0	0	0	0	0	0	0	0	0	0
2021	5/25/2021	0	0	0	0	0	0	0	0	0	0
2021	5/26/2021	0	0	0	0	0	0	0	0	0	0
2021	5/27/2021	0	0	0	0	0	0	0	0	0	0
2021	5/28/2021	0	0	0	0	0	0	0	0	0	0
2021	5/29/2021	0	0	0	0	0	0	0	0	0	0
2021	5/30/2021	0	0	0	0	0	0	0	0	0	0
2021	5/31/2021	0	0	0	0	0	0	0	0	0	0
2021	6/1/2021	0	0	0	0	0	0	0	0	0	0
2021	6/2/2021	0	0	0	0	0	0	0	0	0	0
2021	6/3/2021	0	0	0	0	0	0	0	0	0	0
2021	6/4/2021	0	0	0	0	0	0	0	0	0	0
2021	6/5/2021	0	0	0	0	0	0	0	0	0	0
2021	6/6/2021	0	0	0	0	0	0	0	0	0	0
2021	6/7/2021	0	0	0	0	0	0	0	0	0	0
2021	6/8/2021	0	0	0	0	0	0	0	0	0	0
2021	6/9/2021	0	0	0	0	0	0	0	0	0	0
2021	6/10/2021	0	0	0	0	0	0	0	0	0	0
2021	6/11/2021	0	0	0	0	0	0	0	0	0	0
2021	6/12/2021	0	0	0	0	0	0	0	0	0	0
2021	6/13/2021	0	0	0	0	0	0	0	0	0	0
2021	6/14/2021	4	33	24	1	0	2	1	0	1	0
2021	6/15/2021	4	33	24	1	0	2	1	0	1	0
2021	6/16/2021	4	33	24	1	0	2	1	0	1	0
2021	6/17/2021	4	33	24	1	0	2	1	0	1	0
2021	6/18/2021	4	33	24	1	0	2	1	0	1	0
2021	6/19/2021	4	33	24	1	0	2	1	0	1	0
2021	6/20/2021	4	33	24	1	0	2	1	0	1	0
2021	6/21/2021	4	33	24	1	0	2	1	0	1	0
2021	6/22/2021	4	33	24	1	0	2	1	0	1	0
2021	6/23/2021	4	33	24	1	0	2	1	0	1	0
2021	6/24/2021	4	33	24	1	0	2	1	0	1	0
2021	6/25/2021	4	33	24	1	0	2	1	0	1	0
2021	6/26/2021	4	33	24	1	0	2	1	0	1	0
2021	6/27/2021	4	33	24	1	0	2	1	0	1	0
2021	6/28/2021	4	35	25	1	0	2	1	0	1	0
2021	6/29/2021	4	35	25	1	0	2	1	0	1	0
2021	6/30/2021	7	53	39	2	0	3	2	0	2	0
2021	7/1/2021	3	23	16	1	0	1	1	0	1	0
2021	7/2/2021	3	23	16	1	0	1	1	0	1	0
2021	7/3/2021	3	23	16	1	0	1	1	0	1	0
2021	7/4/2021	3	23	16	1	0	1	1	0	1	0
2021	7/5/2021	3	23	16	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2021	7/6/2021	3	23	16	1	0	1	1	0	1	0
2021	7/7/2021	3	23	16	1	0	1	1	0	1	0
2021	7/8/2021	3	23	16	1	0	1	1	0	1	0
2021	7/9/2021	3	23	16	1	0	1	1	0	1	0
2021	7/10/2021	3	23	16	1	0	1	1	0	1	0
2021	7/11/2021	3	23	16	1	0	1	1	0	1	0
2021	7/12/2021	3	23	16	1	0	1	1	0	1	0
2021	7/13/2021	3	23	16	1	0	1	1	0	1	0
2021	7/14/2021	3	21	15	1	0	1	1	0	1	0
2021	7/15/2021	3	21	15	1	0	1	1	0	1	0
2021	7/16/2021	3	21	15	1	0	1	1	0	1	0
2021	7/17/2021	3	21	15	1	0	1	1	0	1	0
2021	7/18/2021	3	21	15	1	0	1	1	0	1	0
2021	7/19/2021	3	21	15	1	0	1	1	0	1	0
2021	7/20/2021	3	21	15	1	0	1	1	0	1	0
2021	7/21/2021	3	21	15	1	0	1	1	0	1	0
2021	7/22/2021	3	21	15	1	0	1	1	0	1	0
2021	7/23/2021	3	21	15	1	0	1	1	0	1	0
2021	7/24/2021	3	21	15	1	0	1	1	0	1	0
2021	7/25/2021	3	21	15	1	0	1	1	0	1	0
2021	7/26/2021	3	21	15	1	0	1	1	0	1	0
2021	7/27/2021	3	21	15	1	0	1	1	0	1	0
2021	7/28/2021	3	21	15	1	0	1	1	0	1	0
2021	7/29/2021	3	21	15	1	0	1	1	0	1	0
2021	7/30/2021	3	21	15	1	0	1	1	0	1	0
2021	7/31/2021	3	21	15	1	0	1	1	0	1	0
2021	8/1/2021	3	21	15	1	0	1	1	0	1	0
2021	8/2/2021	3	21	15	1	0	1	1	0	1	0
2021	8/3/2021	3	21	15	1	0	1	1	0	1	0
2021	8/4/2021	3	21	15	1	0	1	1	0	1	0
2021	8/5/2021	3	21	15	1	0	1	1	0	1	0
2021	8/6/2021	3	21	15	1	0	1	1	0	1	0
2021	8/7/2021	3	21	15	1	0	1	1	0	1	0
2021	8/8/2021	3	21	15	1	0	1	1	0	1	0
2021	8/9/2021	3	21	15	1	0	1	1	0	1	0
2021	8/10/2021	3	21	15	1	0	1	1	0	1	0
2021	8/11/2021	3	21	15	1	0	1	1	0	1	0
2021	8/12/2021	3	21	15	1	0	1	1	0	1	0
2021	8/13/2021	3	21	15	1	0	1	1	0	1	0
2021	8/14/2021	3	21	15	1	0	1	1	0	1	0
2021	8/15/2021	3	21	15	1	0	1	1	0	1	0
2021	8/16/2021	3	21	15	1	0	1	1	0	1	0
2021	8/17/2021	3	21	15	1	0	1	1	0	1	0
2021	8/18/2021	3	21	15	1	0	1	1	0	1	0
2021	8/19/2021	3	21	15	1	0	1	1	0	1	0
2021	8/20/2021	3	21	15	1	0	1	1	0	1	0
2021	8/21/2021	3	21	15	1	0	1	1	0	1	0
2021	8/22/2021	3	21	15	1	0	1	1	0	1	0
2021	8/23/2021	3	21	15	1	0	1	1	0	1	0
2021	8/24/2021	3	21	15	1	0	1	1	0	1	0
2021	8/25/2021	3	21	15	1	0	1	1	0	1	0
2021	8/26/2021	3	21	15	1	0	1	1	0	1	0
2021	8/27/2021	3	21	15	1	0	1	1	0	1	0
2021	8/28/2021	3	21	15	1	0	1	1	0	1	0
2021	8/29/2021	3	21	15	1	0	1	1	0	1	0
2021	8/30/2021	3	21	15	1	0	1	1	0	1	0
2021	8/31/2021	3	21	15	1	0	1	1	0	1	0
2021	9/1/2021	3	21	15	1	0	1	1	0	1	0
2021	9/2/2021	3	21	15	1	0	1	1	0	1	0
2021	9/3/2021	3	21	15	1	0	1	1	0	1	0
2021	9/4/2021	3	21	15	1	0	1	1	0	1	0
2021	9/5/2021	3	21	15	1	0	1	1	0	1	0
2021	9/6/2021	3	21	15	1	0	1	1	0	1	0
2021	9/7/2021	3	21	15	1	0	1	1	0	1	0
2021	9/8/2021	3	21	15	1	0	1	1	0	1	0
2021	9/9/2021	3	21	15	1	0	1	1	0	1	0
2021	9/10/2021	3	21	15	1	0	1	1	0	1	0
2021	9/11/2021	3	21	15	1	0	1	1	0	1	0
2021	9/12/2021	3	21	15	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2021	9/13/2021	3	21	15	1	0	1	1	0	1	0
2021	9/14/2021	3	21	15	1	0	1	1	0	1	0
2021	9/15/2021	3	21	15	1	0	1	1	0	1	0
2021	9/16/2021	3	21	15	1	0	1	1	0	1	0
2021	9/17/2021	3	21	15	1	0	1	1	0	1	0
2021	9/18/2021	3	21	15	1	0	1	1	0	1	0
2021	9/19/2021	3	21	15	1	0	1	1	0	1	0
2021	9/20/2021	3	21	15	1	0	1	1	0	1	0
2021	9/21/2021	3	21	15	1	0	1	1	0	1	0
2021	9/22/2021	3	21	15	1	0	1	1	0	1	0
2021	9/23/2021	3	21	15	1	0	1	1	0	1	0
2021	9/24/2021	3	21	15	1	0	1	1	0	1	0
2021	9/25/2021	3	21	15	1	0	1	1	0	1	0
2021	9/26/2021	3	21	15	1	0	1	1	0	1	0
2021	9/27/2021	3	21	15	1	0	1	1	0	1	0
2021	9/28/2021	3	21	15	1	0	1	1	0	1	0
2021	9/29/2021	3	21	15	1	0	1	1	0	1	0
2021	9/30/2021	3	21	15	1	0	1	1	0	1	0
2021	10/1/2021	0	0	0	0	0	0	0	0	0	0
2021	10/2/2021	0	0	0	0	0	0	0	0	0	0
2021	10/3/2021	0	0	0	0	0	0	0	0	0	0
2021	10/4/2021	0	0	0	0	0	0	0	0	0	0
2021	10/5/2021	0	0	0	0	0	0	0	0	0	0
2021	10/6/2021	0	0	0	0	0	0	0	0	0	0
2021	10/7/2021	0	0	0	0	0	0	0	0	0	0
2021	10/8/2021	0	0	0	0	0	0	0	0	0	0
2021	10/9/2021	0	0	0	0	0	0	0	0	0	0
2021	10/10/2021	0	0	0	0	0	0	0	0	0	0
2021	10/11/2021	0	0	0	0	0	0	0	0	0	0
2021	10/12/2021	0	0	0	0	0	0	0	0	0	0
2021	10/13/2021	0	0	0	0	0	0	0	0	0	0
2021	10/14/2021	0	0	0	0	0	0	0	0	0	0
2021	10/15/2021	0	0	0	0	0	0	0	0	0	0
2021	10/16/2021	0	0	0	0	0	0	0	0	0	0
2021	10/17/2021	0	0	0	0	0	0	0	0	0	0
2021	10/18/2021	0	0	0	0	0	0	0	0	0	0
2021	10/19/2021	0	0	0	0	0	0	0	0	0	0
2021	10/20/2021	0	0	0	0	0	0	0	0	0	0
2021	10/21/2021	0	0	0	0	0	0	0	0	0	0
2021	10/22/2021	0	0	0	0	0	0	0	0	0	0
2021	10/23/2021	0	0	0	0	0	0	0	0	0	0
2021	10/24/2021	0	0	0	0	0	0	0	0	0	0
2021	10/25/2021	0	0	0	0	0	0	0	0	0	0
2021	10/26/2021	0	0	0	0	0	0	0	0	0	0
2021	10/27/2021	0	0	0	0	0	0	0	0	0	0
2021	10/28/2021	0	0	0	0	0	0	0	0	0	0
2021	10/29/2021	0	0	0	0	0	0	0	0	0	0
2021	10/30/2021	0	0	0	0	0	0	0	0	0	0
2021	10/31/2021	0	0	0	0	0	0	0	0	0	0
2021	11/1/2021	0	0	0	0	0	0	0	0	0	0
2021	11/2/2021	0	0	0	0	0	0	0	0	0	0
2021	11/3/2021	0	0	0	0	0	0	0	0	0	0
2021	11/4/2021	0	0	0	0	0	0	0	0	0	0
2021	11/5/2021	0	0	0	0	0	0	0	0	0	0
2021	11/6/2021	0	0	0	0	0	0	0	0	0	0
2021	11/7/2021	0	0	0	0	0	0	0	0	0	0
2021	11/8/2021	1	7	6	0	0	0	0	0	0	0
2021	11/9/2021	1	7	6	0	0	0	0	0	0	0
2021	11/10/2021	1	7	6	0	0	0	0	0	0	0
2021	11/11/2021	1	7	6	0	0	0	0	0	0	0
2021	11/12/2021	1	7	6	0	0	0	0	0	0	0
2021	11/13/2021	1	7	6	0	0	0	0	0	0	0
2021	11/14/2021	1	7	6	0	0	0	0	0	0	0
2021	11/15/2021	1	7	6	0	0	0	0	0	0	0
2021	11/16/2021	1	7	6	0	0	0	0	0	0	0
2021	11/17/2021	1	7	6	0	0	0	0	0	0	0
2021	11/18/2021	1	7	6	0	0	0	0	0	0	0
2021	11/19/2021	1	7	6	0	0	0	0	0	0	0
2021	11/20/2021	1	7	6	0	0	0	0	0	0	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2021	11/21/2021	1	7	6	0	0	0	0	0	0	0
2021	11/22/2021	1	7	6	0	0	0	0	0	0	0
2021	11/23/2021	1	7	6	0	0	0	0	0	0	0
2021	11/24/2021	1	7	6	0	0	0	0	0	0	0
2021	11/25/2021	1	7	6	0	0	0	0	0	0	0
2021	11/26/2021	1	7	6	0	0	0	0	0	0	0
2021	11/27/2021	1	7	6	0	0	0	0	0	0	0
2021	11/28/2021	1	7	6	0	0	0	0	0	0	0
2021	11/29/2021	1	7	6	0	0	0	0	0	0	0
2021	11/30/2021	1	7	6	0	0	0	0	0	0	0
2021	12/1/2021	1	7	6	0	0	0	0	0	0	0
2021	12/2/2021	1	7	6	0	0	0	0	0	0	0
2021	12/3/2021	1	7	6	0	0	0	0	0	0	0
2021	12/4/2021	1	7	6	0	0	0	0	0	0	0
2021	12/5/2021	1	7	6	0	0	0	0	0	0	0
2021	12/6/2021	1	7	6	0	0	0	0	0	0	0
2021	12/7/2021	1	7	6	0	0	0	0	0	0	0
2021	12/8/2021	1	7	6	0	0	0	0	0	0	0
2021	12/9/2021	1	7	6	0	0	0	0	0	0	0
2021	12/10/2021	1	7	6	0	0	0	0	0	0	0
2021	12/11/2021	1	7	6	0	0	0	0	0	0	0
2021	12/12/2021	1	7	6	0	0	0	0	0	0	0
2021	12/13/2021	2	13	12	1	0	1	1	0	1	0
2021	12/14/2021	1	6	6	0	0	0	0	0	0	0
2021	12/15/2021	1	6	6	0	0	0	0	0	0	0
2021	12/16/2021	1	6	6	0	0	0	0	0	0	0
2021	12/17/2021	1	6	6	0	0	0	0	0	0	0
2021	12/18/2021	1	6	6	0	0	0	0	0	0	0
2021	12/19/2021	1	6	6	0	0	0	0	0	0	0
2021	12/20/2021	1	6	6	0	0	0	0	0	0	0
2021	12/21/2021	1	6	6	0	0	0	0	0	0	0
2021	12/22/2021	1	6	6	0	0	0	0	0	0	0
2021	12/23/2021	1	6	6	0	0	0	0	0	0	0
2021	12/24/2021	1	6	6	0	0	0	0	0	0	0
2021	12/25/2021	1	6	6	0	0	0	0	0	0	0
2021	12/26/2021	1	6	6	0	0	0	0	0	0	0
2021	12/27/2021	1	6	6	0	0	0	0	0	0	0
2021	12/28/2021	1	6	6	0	0	0	0	0	0	0
2021	12/29/2021	1	6	6	0	0	0	0	0	0	0
2021	12/30/2021	1	6	6	0	0	0	0	0	0	0
2021	12/31/2021	1	6	6	0	0	0	0	0	0	0
2022	1/1/2022	1	6	6	0	0	0	0	0	0	0
2022	1/2/2022	1	6	6	0	0	0	0	0	0	0
2022	1/3/2022	1	6	6	0	0	0	0	0	0	0
2022	1/4/2022	1	6	6	0	0	0	0	0	0	0
2022	1/5/2022	1	6	6	0	0	0	0	0	0	0
2022	1/6/2022	1	6	6	0	0	0	0	0	0	0
2022	1/7/2022	1	6	6	0	0	0	0	0	0	0
2022	1/8/2022	1	6	6	0	0	0	0	0	0	0
2022	1/9/2022	1	6	6	0	0	0	0	0	0	0
2022	1/10/2022	1	6	6	0	0	0	0	0	0	0
2022	1/11/2022	1	6	6	0	0	0	0	0	0	0
2022	1/12/2022	1	6	6	0	0	0	0	0	0	0
2022	1/13/2022	1	6	6	0	0	0	0	0	0	0
2022	1/14/2022	1	6	6	0	0	0	0	0	0	0
2022	1/15/2022	1	6	6	0	0	0	0	0	0	0
2022	1/16/2022	1	6	6	0	0	0	0	0	0	0
2022	1/17/2022	1	6	6	0	0	0	0	0	0	0
2022	1/18/2022	1	6	6	0	0	0	0	0	0	0
2022	1/19/2022	1	6	6	0	0	0	0	0	0	0
2022	1/20/2022	1	6	6	0	0	0	0	0	0	0
2022	1/21/2022	1	6	6	0	0	0	0	0	0	0
2022	1/22/2022	1	6	6	0	0	0	0	0	0	0
2022	1/23/2022	1	6	6	0	0	0	0	0	0	0
2022	1/24/2022	1	6	6	0	0	0	0	0	0	0
2022	1/25/2022	1	6	6	0	0	0	0	0	0	0
2022	1/26/2022	1	6	6	0	0	0	0	0	0	0
2022	1/27/2022	1	6	6	0	0	0	0	0	0	0
2022	1/28/2022	1	6	6	0	0	0	0	0	0	0

Calculates Max Daily Emissions for the Entire Project

		MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)										
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX	
2022	1/29/2022	1	6	6	0	0	0	0	0	0	0	
2022	1/30/2022	1	6	6	0	0	0	0	0	0	0	
2022	1/31/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/1/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/2/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/3/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/4/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/5/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/6/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/7/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/8/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/9/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/10/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/11/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/12/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/13/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/14/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/15/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/16/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/17/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/18/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/19/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/20/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/21/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/22/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/23/2022	1	6	6	0	0	0	0	0	0	0	
2022	2/24/2022	0	0	0	0	0	0	0	0	0	0	
2022	2/25/2022	0	0	0	0	0	0	0	0	0	0	
2022	2/26/2022	0	0	0	0	0	0	0	0	0	0	
2022	2/27/2022	0	0	0	0	0	0	0	0	0	0	
2022	2/28/2022	0	0	0	0	0	0	0	0	0	0	
2022	3/1/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/2/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/3/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/4/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/5/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/6/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/7/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/8/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/9/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/10/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/11/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/12/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/13/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/14/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/15/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/16/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/17/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/18/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/19/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/20/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/21/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/22/2022	2	12	12	1	0	1	1	0	1	0	
2022	3/23/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/24/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/25/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/26/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/27/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/28/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/29/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/30/2022	1	6	6	0	0	0	0	0	0	0	
2022	3/31/2022	1	6	6	0	0	0	0	0	0	0	
2022	4/1/2022	1	6	6	0	0	0	0	0	0	0	
2022	4/2/2022	1	6	6	0	0	0	0	0	0	0	
2022	4/3/2022	1	6	6	0	0	0	0	0	0	0	
2022	4/4/2022	1	6	6	0	0	0	0	0	0	0	
2022	4/5/2022	1	6	6	0	0	0	0	0	0	0	
2022	4/6/2022	1	6	6	0	0	0	0	0	0	0	
2022	4/7/2022	1	6	6	0	0	0	0	0	0	0	

Calculates Max Daily Emissions for the Entire Project

		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
2022	4/8/2022	1	6	6	0	0	0	0	0	0	0
2022	4/9/2022	1	6	6	0	0	0	0	0	0	0
2022	4/10/2022	1	6	6	0	0	0	0	0	0	0
2022	4/11/2022	1	6	6	0	0	0	0	0	0	0
2022	4/12/2022	1	6	6	0	0	0	0	0	0	0
2022	4/13/2022	1	6	6	0	0	0	0	0	0	0
2022	4/14/2022	1	6	6	0	0	0	0	0	0	0
2022	4/15/2022	1	6	6	0	0	0	0	0	0	0
2022	4/16/2022	1	6	6	0	0	0	0	0	0	0
2022	4/17/2022	1	6	6	0	0	0	0	0	0	0
2022	4/18/2022	1	6	6	0	0	0	0	0	0	0
2022	4/19/2022	1	6	6	0	0	0	0	0	0	0
2022	4/20/2022	1	6	6	0	0	0	0	0	0	0
2022	4/21/2022	1	6	6	0	0	0	0	0	0	0
2022	4/22/2022	1	6	6	0	0	0	0	0	0	0
2022	4/23/2022	1	6	6	0	0	0	0	0	0	0
2022	4/24/2022	1	6	6	0	0	0	0	0	0	0
2022	4/25/2022	1	6	6	0	0	0	0	0	0	0
2022	4/26/2022	1	6	6	0	0	0	0	0	0	0
2022	4/27/2022	1	6	6	0	0	0	0	0	0	0
2022	4/28/2022	1	6	6	0	0	0	0	0	0	0
2022	4/29/2022	1	6	6	0	0	0	0	0	0	0
2022	4/30/2022	1	6	6	0	0	0	0	0	0	0
2022	5/1/2022	1	6	6	0	0	0	0	0	0	0
2022	5/2/2022	1	6	6	0	0	0	0	0	0	0
2022	5/3/2022	1	6	6	0	0	0	0	0	0	0
2022	5/4/2022	1	6	6	0	0	0	0	0	0	0
2022	5/5/2022	1	6	6	0	0	0	0	0	0	0
2022	5/6/2022	1	6	6	0	0	0	0	0	0	0
2022	5/7/2022	1	6	6	0	0	0	0	0	0	0
2022	5/8/2022	1	6	6	0	0	0	0	0	0	0
2022	5/9/2022	1	6	6	0	0	0	0	0	0	0
2022	5/10/2022	1	6	6	0	0	0	0	0	0	0
2022	5/11/2022	1	6	6	0	0	0	0	0	0	0
2022	5/12/2022	1	6	6	0	0	0	0	0	0	0
2022	5/13/2022	1	6	6	0	0	0	0	0	0	0
2022	5/14/2022	1	6	6	0	0	0	0	0	0	0
2022	5/15/2022	1	6	6	0	0	0	0	0	0	0
2022	5/16/2022	1	6	6	0	0	0	0	0	0	0
2022	5/17/2022	1	6	6	0	0	0	0	0	0	0
2022	5/18/2022	1	6	6	0	0	0	0	0	0	0
2022	5/19/2022	1	6	6	0	0	0	0	0	0	0
2022	5/20/2022	1	6	6	0	0	0	0	0	0	0
2022	5/21/2022	1	6	6	0	0	0	0	0	0	0
2022	5/22/2022	1	6	6	0	0	0	0	0	0	0
2022	5/23/2022	1	6	6	0	0	0	0	0	0	0
2022	5/24/2022	1	6	6	0	0	0	0	0	0	0
2022	5/25/2022	1	6	6	0	0	0	0	0	0	0
2022	5/26/2022	1	6	6	0	0	0	0	0	0	0
2022	5/27/2022	1	6	6	0	0	0	0	0	0	0
2022	5/28/2022	1	6	6	0	0	0	0	0	0	0
2022	5/29/2022	1	6	6	0	0	0	0	0	0	0
2022	5/30/2022	1	6	6	0	0	0	0	0	0	0
2022	5/31/2022	1	6	6	0	0	0	0	0	0	0
2022	6/1/2022	4	32	24	1	0	1	1	0	1	0
2022	6/2/2022	4	32	24	1	0	1	1	0	1	0
2022	6/3/2022	4	32	24	1	0	1	1	0	1	0
2022	6/4/2022	4	32	24	1	0	1	1	0	1	0
2022	6/5/2022	4	32	24	1	0	1	1	0	1	0
2022	6/6/2022	4	32	24	1	0	1	1	0	1	0
2022	6/7/2022	4	32	24	1	0	1	1	0	1	0
2022	6/8/2022	4	32	24	1	0	1	1	0	1	0
2022	6/9/2022	4	32	24	1	0	1	1	0	1	0
2022	6/10/2022	4	32	24	1	0	1	1	0	1	0
2022	6/11/2022	4	32	24	1	0	1	1	0	1	0
2022	6/12/2022	4	32	24	1	0	1	1	0	1	0
2022	6/13/2022	4	32	24	1	0	1	1	0	1	0
2022	6/14/2022	4	32	24	1	0	1	1	0	1	0
2022	6/15/2022	4	32	24	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2022	6/16/2022	4	32	24	1	0	1	1	0	1	0
2022	6/17/2022	4	32	24	1	0	1	1	0	1	0
2022	6/18/2022	4	32	24	1	0	1	1	0	1	0
2022	6/19/2022	4	32	24	1	0	1	1	0	1	0
2022	6/20/2022	4	32	24	1	0	1	1	0	1	0
2022	6/21/2022	4	32	24	1	0	1	1	0	1	0
2022	6/22/2022	4	32	24	1	0	1	1	0	1	0
2022	6/23/2022	4	32	24	1	0	1	1	0	1	0
2022	6/24/2022	4	32	24	1	0	1	1	0	1	0
2022	6/25/2022	4	32	24	1	0	1	1	0	1	0
2022	6/26/2022	4	32	24	1	0	1	1	0	1	0
2022	6/27/2022	4	32	24	1	0	1	1	0	1	0
2022	6/28/2022	4	32	24	1	0	1	1	0	1	0
2022	6/29/2022	4	32	24	1	0	1	1	0	1	0
2022	6/30/2022	4	32	24	1	0	1	1	0	1	0
2022	7/1/2022	4	32	24	1	0	1	1	0	1	0
2022	7/2/2022	4	32	24	1	0	1	1	0	1	0
2022	7/3/2022	4	32	24	1	0	1	1	0	1	0
2022	7/4/2022	4	32	24	1	0	1	1	0	1	0
2022	7/5/2022	4	32	24	1	0	1	1	0	1	0
2022	7/6/2022	4	32	24	1	0	1	1	0	1	0
2022	7/7/2022	4	32	24	1	0	1	1	0	1	0
2022	7/8/2022	4	32	24	1	0	1	1	0	1	0
2022	7/9/2022	4	32	24	1	0	1	1	0	1	0
2022	7/10/2022	4	32	24	1	0	1	1	0	1	0
2022	7/11/2022	4	32	24	1	0	1	1	0	1	0
2022	7/12/2022	4	32	24	1	0	1	1	0	1	0
2022	7/13/2022	4	32	24	1	0	1	1	0	1	0
2022	7/14/2022	4	32	24	1	0	1	1	0	1	0
2022	7/15/2022	4	32	24	1	0	1	1	0	1	0
2022	7/16/2022	4	32	24	1	0	1	1	0	1	0
2022	7/17/2022	4	32	24	1	0	1	1	0	1	0
2022	7/18/2022	4	32	24	1	0	1	1	0	1	0
2022	7/19/2022	4	32	24	1	0	1	1	0	1	0
2022	7/20/2022	4	32	24	1	0	1	1	0	1	0
2022	7/21/2022	4	32	24	1	0	1	1	0	1	0
2022	7/22/2022	4	32	24	1	0	1	1	0	1	0
2022	7/23/2022	4	32	24	1	0	1	1	0	1	0
2022	7/24/2022	4	32	24	1	0	1	1	0	1	0
2022	7/25/2022	4	32	24	1	0	1	1	0	1	0
2022	7/26/2022	4	32	24	1	0	1	1	0	1	0
2022	7/27/2022	4	32	24	1	0	1	1	0	1	0
2022	7/28/2022	4	32	24	1	0	1	1	0	1	0
2022	7/29/2022	4	32	24	1	0	1	1	0	1	0
2022	7/30/2022	4	32	24	1	0	1	1	0	1	0
2022	7/31/2022	4	32	24	1	0	1	1	0	1	0
2022	8/1/2022	4	32	24	1	0	1	1	0	1	0
2022	8/2/2022	4	32	24	1	0	1	1	0	1	0
2022	8/3/2022	4	32	24	1	0	1	1	0	1	0
2022	8/4/2022	4	32	24	1	0	1	1	0	1	0
2022	8/5/2022	4	32	24	1	0	1	1	0	1	0
2022	8/6/2022	4	32	24	1	0	1	1	0	1	0
2022	8/7/2022	4	32	24	1	0	1	1	0	1	0
2022	8/8/2022	4	32	24	1	0	1	1	0	1	0
2022	8/9/2022	4	32	24	1	0	1	1	0	1	0
2022	8/10/2022	2	13	9	1	0	1	1	0	1	0
2022	8/11/2022	2	13	9	1	0	1	1	0	1	0
2022	8/12/2022	2	13	9	1	0	1	1	0	1	0
2022	8/13/2022	2	13	9	1	0	1	1	0	1	0
2022	8/14/2022	1	12	8	1	0	1	1	0	1	0
2022	8/15/2022	1	12	8	1	0	1	1	0	1	0
2022	8/16/2022	1	12	8	1	0	1	1	0	1	0
2022	8/17/2022	1	12	8	1	0	1	1	0	1	0
2022	8/18/2022	1	12	8	1	0	1	1	0	1	0
2022	8/19/2022	1	12	8	1	0	1	1	0	1	0
2022	8/20/2022	1	12	8	1	0	1	1	0	1	0
2022	8/21/2022	1	12	8	1	0	1	1	0	1	0
2022	8/22/2022	1	12	8	1	0	1	1	0	1	0
2022	8/23/2022	1	12	8	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2022	8/24/2022	1	12	8	1	0	1	1	0	1	0
2022	8/25/2022	1	12	8	1	0	1	1	0	1	0
2022	8/26/2022	1	12	8	1	0	1	1	0	1	0
2022	8/27/2022	1	12	8	1	0	1	1	0	1	0
2022	8/28/2022	1	12	8	1	0	1	1	0	1	0
2022	8/29/2022	1	12	8	1	0	1	1	0	1	0
2022	8/30/2022	1	12	8	1	0	1	1	0	1	0
2022	8/31/2022	1	12	8	1	0	1	1	0	1	0
2022	9/1/2022	1	12	8	1	0	1	1	0	1	0
2022	9/2/2022	1	12	8	1	0	1	1	0	1	0
2022	9/3/2022	1	12	8	1	0	1	1	0	1	0
2022	9/4/2022	1	12	8	1	0	1	1	0	1	0
2022	9/5/2022	1	12	8	1	0	1	1	0	1	0
2022	9/6/2022	1	12	8	1	0	1	1	0	1	0
2022	9/7/2022	1	12	8	1	0	1	1	0	1	0
2022	9/8/2022	1	12	8	1	0	1	1	0	1	0
2022	9/9/2022	1	12	8	1	0	1	1	0	1	0
2022	9/10/2022	1	12	8	1	0	1	1	0	1	0
2022	9/11/2022	1	12	8	1	0	1	1	0	1	0
2022	9/12/2022	1	12	8	1	0	1	1	0	1	0
2022	9/13/2022	1	12	8	1	0	1	1	0	1	0
2022	9/14/2022	1	12	8	1	0	1	1	0	1	0
2022	9/15/2022	1	12	8	1	0	1	1	0	1	0
2022	9/16/2022	1	12	8	1	0	1	1	0	1	0
2022	9/17/2022	1	12	8	1	0	1	1	0	1	0
2022	9/18/2022	1	12	8	1	0	1	1	0	1	0
2022	9/19/2022	1	12	8	1	0	1	1	0	1	0
2022	9/20/2022	1	12	8	1	0	1	1	0	1	0
2022	9/21/2022	1	12	8	1	0	1	1	0	1	0
2022	9/22/2022	1	12	8	1	0	1	1	0	1	0
2022	9/23/2022	0	0	0	0	0	0	0	0	0	0
2022	9/24/2022	0	0	0	0	0	0	0	0	0	0
2022	9/25/2022	0	0	0	0	0	0	0	0	0	0
2022	9/26/2022	0	0	0	0	0	0	0	0	0	0
2022	9/27/2022	0	0	0	0	0	0	0	0	0	0
2022	9/28/2022	0	0	0	0	0	0	0	0	0	0
2022	9/29/2022	0	0	0	0	0	0	0	0	0	0
2022	9/30/2022	0	0	0	0	0	0	0	0	0	0
2022	10/1/2022	0	0	0	0	0	0	0	0	0	0
2022	10/2/2022	0	0	0	0	0	0	0	0	0	0
2022	10/3/2022	0	0	0	0	0	0	0	0	0	0
2022	10/4/2022	0	0	0	0	0	0	0	0	0	0
2022	10/5/2022	0	0	0	0	0	0	0	0	0	0
2022	10/6/2022	0	0	0	0	0	0	0	0	0	0
2022	10/7/2022	0	0	0	0	0	0	0	0	0	0
2022	10/8/2022	0	0	0	0	0	0	0	0	0	0
2022	10/9/2022	0	0	0	0	0	0	0	0	0	0
2022	10/10/2022	0	0	0	0	0	0	0	0	0	0
2022	10/11/2022	0	0	0	0	0	0	0	0	0	0
2022	10/12/2022	0	0	0	0	0	0	0	0	0	0
2022	10/13/2022	0	0	0	0	0	0	0	0	0	0
2022	10/14/2022	2	14	13	1	0	1	1	0	1	0
2022	10/15/2022	2	14	13	1	0	1	1	0	1	0
2022	10/16/2022	2	14	13	1	0	1	1	0	1	0
2022	10/17/2022	2	14	13	1	0	1	1	0	1	0
2022	10/18/2022	2	14	13	1	0	1	1	0	1	0
2022	10/19/2022	2	14	13	1	0	1	1	0	1	0
2022	10/20/2022	2	14	13	1	0	1	1	0	1	0
2022	10/21/2022	10	30	26	2	0	2	2	0	2	0
2022	10/22/2022	8	16	14	1	0	1	1	0	1	0
2022	10/23/2022	8	16	14	1	0	1	1	0	1	0
2022	10/24/2022	8	16	14	1	0	1	1	0	1	0
2022	10/25/2022	8	16	14	1	0	1	1	0	1	0
2022	10/26/2022	8	16	14	1	0	1	1	0	1	0
2022	10/27/2022	8	16	14	1	0	1	1	0	1	0
2022	10/28/2022	8	16	14	1	0	1	1	0	1	0
2022	10/29/2022	8	16	14	1	0	1	1	0	1	0
2022	10/30/2022	8	16	14	1	0	1	1	0	1	0
2022	10/31/2022	8	16	14	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2022	11/1/2022	8	16	14	1	0	1	1	0	1	0
2022	11/2/2022	8	16	14	1	0	1	1	0	1	0
2022	11/3/2022	8	16	14	1	0	1	1	0	1	0
2022	11/4/2022	8	16	14	1	0	1	1	0	1	0
2022	11/5/2022	8	16	14	1	0	1	1	0	1	0
2022	11/6/2022	8	16	14	1	0	1	1	0	1	0
2022	11/7/2022	8	16	14	1	0	1	1	0	1	0
2022	11/8/2022	8	16	14	1	0	1	1	0	1	0
2022	11/9/2022	8	16	14	1	0	1	1	0	1	0
2022	11/10/2022	8	16	14	1	0	1	1	0	1	0
2022	11/11/2022	8	16	14	1	0	1	1	0	1	0
2022	11/12/2022	8	16	14	1	0	1	1	0	1	0
2022	11/13/2022	8	16	14	1	0	1	1	0	1	0
2022	11/14/2022	8	16	14	1	0	1	1	0	1	0
2022	11/15/2022	8	16	14	1	0	1	1	0	1	0
2022	11/16/2022	8	16	14	1	0	1	1	0	1	0
2022	11/17/2022	8	16	14	1	0	1	1	0	1	0
2022	11/18/2022	8	16	14	1	0	1	1	0	1	0
2022	11/19/2022	8	16	14	1	0	1	1	0	1	0
2022	11/20/2022	8	16	14	1	0	1	1	0	1	0
2022	11/21/2022	8	16	14	1	0	1	1	0	1	0
2022	11/22/2022	8	16	14	1	0	1	1	0	1	0
2022	11/23/2022	8	16	14	1	0	1	1	0	1	0
2022	11/24/2022	8	16	14	1	0	1	1	0	1	0
2022	11/25/2022	8	16	14	1	0	1	1	0	1	0
2022	11/26/2022	8	16	14	1	0	1	1	0	1	0
2022	11/27/2022	8	16	14	1	0	1	1	0	1	0
2022	11/28/2022	8	16	14	1	0	1	1	0	1	0
2022	11/29/2022	8	16	14	1	0	1	1	0	1	0
2022	11/30/2022	8	16	14	1	0	1	1	0	1	0
2022	12/1/2022	8	16	14	1	0	1	1	0	1	0
2022	12/2/2022	8	16	14	1	0	1	1	0	1	0
2022	12/3/2022	8	16	14	1	0	1	1	0	1	0
2022	12/4/2022	8	16	14	1	0	1	1	0	1	0
2022	12/5/2022	8	16	14	1	0	1	1	0	1	0
2022	12/6/2022	8	16	14	1	0	1	1	0	1	0
2022	12/7/2022	8	16	14	1	0	1	1	0	1	0
2022	12/8/2022	8	16	14	1	0	1	1	0	1	0
2022	12/9/2022	8	16	14	1	0	1	1	0	1	0
2022	12/10/2022	8	16	14	1	0	1	1	0	1	0
2022	12/11/2022	8	16	14	1	0	1	1	0	1	0
2022	12/12/2022	8	16	14	1	0	1	1	0	1	0
2022	12/13/2022	8	16	14	1	0	1	1	0	1	0
2022	12/14/2022	8	16	14	1	0	1	1	0	1	0
2022	12/15/2022	8	16	14	1	0	1	1	0	1	0
2022	12/16/2022	8	16	14	1	0	1	1	0	1	0
2022	12/17/2022	8	16	14	1	0	1	1	0	1	0
2022	12/18/2022	8	16	14	1	0	1	1	0	1	0
2022	12/19/2022	8	16	14	1	0	1	1	0	1	0
2022	12/20/2022	8	16	14	1	0	1	1	0	1	0
2022	12/21/2022	8	16	14	1	0	1	1	0	1	0
2022	12/22/2022	8	16	14	1	0	1	1	0	1	0
2022	12/23/2022	8	16	14	1	0	1	1	0	1	0
2022	12/24/2022	8	16	14	1	0	1	1	0	1	0
2022	12/25/2022	8	16	14	1	0	1	1	0	1	0
2022	12/26/2022	8	16	14	1	0	1	1	0	1	0
2022	12/27/2022	8	16	14	1	0	1	1	0	1	0
2022	12/28/2022	8	16	14	1	0	1	1	0	1	0
2022	12/29/2022	8	16	14	1	0	1	1	0	1	0
2022	12/30/2022	8	16	14	1	0	1	1	0	1	0
2022	12/31/2022	8	16	14	1	0	1	1	0	1	0
2023	1/1/2023	8	15	13	1	0	1	1	0	1	0
2023	1/2/2023	8	15	13	1	0	1	1	0	1	0
2023	1/3/2023	8	15	13	1	0	1	1	0	1	0
2023	1/4/2023	8	15	13	1	0	1	1	0	1	0
2023	1/5/2023	8	15	13	1	0	1	1	0	1	0
2023	1/6/2023	8	15	13	1	0	1	1	0	1	0
2023	1/7/2023	8	15	13	1	0	1	1	0	1	0
2023	1/8/2023	8	15	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
2023	1/9/2023	8	15	13	1	0	1	1	0	1	0
2023	1/10/2023	8	15	13	1	0	1	1	0	1	0
2023	1/11/2023	8	15	13	1	0	1	1	0	1	0
2023	1/12/2023	8	15	13	1	0	1	1	0	1	0
2023	1/13/2023	8	15	13	1	0	1	1	0	1	0
2023	1/14/2023	8	15	13	1	0	1	1	0	1	0
2023	1/15/2023	8	15	13	1	0	1	1	0	1	0
2023	1/16/2023	8	15	13	1	0	1	1	0	1	0
2023	1/17/2023	8	15	13	1	0	1	1	0	1	0
2023	1/18/2023	8	15	13	1	0	1	1	0	1	0
2023	1/19/2023	8	15	13	1	0	1	1	0	1	0
2023	1/20/2023	8	15	13	1	0	1	1	0	1	0
2023	1/21/2023	8	15	13	1	0	1	1	0	1	0
2023	1/22/2023	8	15	13	1	0	1	1	0	1	0
2023	1/23/2023	8	15	13	1	0	1	1	0	1	0
2023	1/24/2023	8	15	13	1	0	1	1	0	1	0
2023	1/25/2023	8	15	13	1	0	1	1	0	1	0
2023	1/26/2023	8	15	13	1	0	1	1	0	1	0
2023	1/27/2023	8	15	13	1	0	1	1	0	1	0
2023	1/28/2023	8	15	13	1	0	1	1	0	1	0
2023	1/29/2023	8	15	13	1	0	1	1	0	1	0
2023	1/30/2023	8	15	13	1	0	1	1	0	1	0
2023	1/31/2023	8	15	13	1	0	1	1	0	1	0
2023	2/1/2023	8	15	13	1	0	1	1	0	1	0
2023	2/2/2023	8	15	13	1	0	1	1	0	1	0
2023	2/3/2023	8	15	13	1	0	1	1	0	1	0
2023	2/4/2023	8	15	13	1	0	1	1	0	1	0
2023	2/5/2023	8	15	13	1	0	1	1	0	1	0
2023	2/6/2023	8	15	13	1	0	1	1	0	1	0
2023	2/7/2023	8	15	13	1	0	1	1	0	1	0
2023	2/8/2023	8	15	13	1	0	1	1	0	1	0
2023	2/9/2023	8	15	13	1	0	1	1	0	1	0
2023	2/10/2023	8	15	13	1	0	1	1	0	1	0
2023	2/11/2023	8	15	13	1	0	1	1	0	1	0
2023	2/12/2023	8	15	13	1	0	1	1	0	1	0
2023	2/13/2023	8	15	13	1	0	1	1	0	1	0
2023	2/14/2023	8	15	13	1	0	1	1	0	1	0
2023	2/15/2023	8	15	13	1	0	1	1	0	1	0
2023	2/16/2023	8	15	13	1	0	1	1	0	1	0
2023	2/17/2023	8	15	13	1	0	1	1	0	1	0
2023	2/18/2023	8	15	13	1	0	1	1	0	1	0
2023	2/19/2023	8	15	13	1	0	1	1	0	1	0
2023	2/20/2023	8	15	13	1	0	1	1	0	1	0
2023	2/21/2023	8	15	13	1	0	1	1	0	1	0
2023	2/22/2023	8	15	13	1	0	1	1	0	1	0
2023	2/23/2023	8	15	13	1	0	1	1	0	1	0
2023	2/24/2023	8	15	13	1	0	1	1	0	1	0
2023	2/25/2023	8	15	13	1	0	1	1	0	1	0
2023	2/26/2023	8	15	13	1	0	1	1	0	1	0
2023	2/27/2023	8	15	13	1	0	1	1	0	1	0
2023	2/28/2023	8	15	13	1	0	1	1	0	1	0
2023	3/1/2023	8	15	13	1	0	1	1	0	1	0
2023	3/2/2023	8	15	13	1	0	1	1	0	1	0
2023	3/3/2023	8	15	13	1	0	1	1	0	1	0
2023	3/4/2023	8	15	13	1	0	1	1	0	1	0
2023	3/5/2023	8	15	13	1	0	1	1	0	1	0
2023	3/6/2023	8	15	13	1	0	1	1	0	1	0
2023	3/7/2023	8	15	13	1	0	1	1	0	1	0
2023	3/8/2023	8	15	13	1	0	1	1	0	1	0
2023	3/9/2023	8	15	13	1	0	1	1	0	1	0
2023	3/10/2023	8	15	13	1	0	1	1	0	1	0
2023	3/11/2023	8	15	13	1	0	1	1	0	1	0
2023	3/12/2023	8	15	13	1	0	1	1	0	1	0
2023	3/13/2023	8	15	13	1	0	1	1	0	1	0
2023	3/14/2023	8	15	13	1	0	1	1	0	1	0
2023	3/15/2023	8	15	13	1	0	1	1	0	1	0
2023	3/16/2023	8	15	13	1	0	1	1	0	1	0
2023	3/17/2023	8	15	13	1	0	1	1	0	1	0
2023	3/18/2023	8	15	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2023	3/19/2023	8	15	13	1	0	1	1	0	1	0
2023	3/20/2023	8	15	13	1	0	1	1	0	1	0
2023	3/21/2023	8	15	13	1	0	1	1	0	1	0
2023	3/22/2023	8	15	13	1	0	1	1	0	1	0
2023	3/23/2023	8	15	13	1	0	1	1	0	1	0
2023	3/24/2023	8	15	13	1	0	1	1	0	1	0
2023	3/25/2023	8	15	13	1	0	1	1	0	1	0
2023	3/26/2023	8	15	13	1	0	1	1	0	1	0
2023	3/27/2023	8	15	13	1	0	1	1	0	1	0
2023	3/28/2023	8	15	13	1	0	1	1	0	1	0
2023	3/29/2023	8	15	13	1	0	1	1	0	1	0
2023	3/30/2023	8	15	13	1	0	1	1	0	1	0
2023	3/31/2023	8	15	13	1	0	1	1	0	1	0
2023	4/1/2023	8	15	13	1	0	1	1	0	1	0
2023	4/2/2023	8	15	13	1	0	1	1	0	1	0
2023	4/3/2023	8	15	13	1	0	1	1	0	1	0
2023	4/4/2023	8	15	13	1	0	1	1	0	1	0
2023	4/5/2023	8	15	13	1	0	1	1	0	1	0
2023	4/6/2023	8	15	13	1	0	1	1	0	1	0
2023	4/7/2023	8	15	13	1	0	1	1	0	1	0
2023	4/8/2023	8	15	13	1	0	1	1	0	1	0
2023	4/9/2023	8	15	13	1	0	1	1	0	1	0
2023	4/10/2023	8	15	13	1	0	1	1	0	1	0
2023	4/11/2023	8	15	13	1	0	1	1	0	1	0
2023	4/12/2023	8	15	13	1	0	1	1	0	1	0
2023	4/13/2023	8	15	13	1	0	1	1	0	1	0
2023	4/14/2023	8	15	13	1	0	1	1	0	1	0
2023	4/15/2023	8	15	13	1	0	1	1	0	1	0
2023	4/16/2023	8	15	13	1	0	1	1	0	1	0
2023	4/17/2023	8	15	13	1	0	1	1	0	1	0
2023	4/18/2023	8	15	13	1	0	1	1	0	1	0
2023	4/19/2023	8	15	13	1	0	1	1	0	1	0
2023	4/20/2023	8	15	13	1	0	1	1	0	1	0
2023	4/21/2023	8	15	13	1	0	1	1	0	1	0
2023	4/22/2023	8	15	13	1	0	1	1	0	1	0
2023	4/23/2023	8	15	13	1	0	1	1	0	1	0
2023	4/24/2023	8	15	13	1	0	1	1	0	1	0
2023	4/25/2023	8	15	13	1	0	1	1	0	1	0
2023	4/26/2023	8	15	13	1	0	1	1	0	1	0
2023	4/27/2023	8	15	13	1	0	1	1	0	1	0
2023	4/28/2023	8	15	13	1	0	1	1	0	1	0
2023	4/29/2023	8	15	13	1	0	1	1	0	1	0
2023	4/30/2023	8	15	13	1	0	1	1	0	1	0
2023	5/1/2023	8	15	13	1	0	1	1	0	1	0
2023	5/2/2023	8	15	13	1	0	1	1	0	1	0
2023	5/3/2023	8	15	13	1	0	1	1	0	1	0
2023	5/4/2023	8	15	13	1	0	1	1	0	1	0
2023	5/5/2023	8	15	13	1	0	1	1	0	1	0
2023	5/6/2023	8	15	13	1	0	1	1	0	1	0
2023	5/7/2023	8	15	13	1	0	1	1	0	1	0
2023	5/8/2023	8	15	13	1	0	1	1	0	1	0
2023	5/9/2023	8	15	13	1	0	1	1	0	1	0
2023	5/10/2023	8	15	13	1	0	1	1	0	1	0
2023	5/11/2023	8	15	13	1	0	1	1	0	1	0
2023	5/12/2023	8	15	13	1	0	1	1	0	1	0
2023	5/13/2023	8	15	13	1	0	1	1	0	1	0
2023	5/14/2023	8	15	13	1	0	1	1	0	1	0
2023	5/15/2023	8	15	13	1	0	1	1	0	1	0
2023	5/16/2023	8	15	13	1	0	1	1	0	1	0
2023	5/17/2023	8	15	13	1	0	1	1	0	1	0
2023	5/18/2023	8	15	13	1	0	1	1	0	1	0
2023	5/19/2023	8	15	13	1	0	1	1	0	1	0
2023	5/20/2023	8	15	13	1	0	1	1	0	1	0
2023	5/21/2023	8	15	13	1	0	1	1	0	1	0
2023	5/22/2023	8	15	13	1	0	1	1	0	1	0
2023	5/23/2023	8	15	13	1	0	1	1	0	1	0
2023	5/24/2023	8	15	13	1	0	1	1	0	1	0
2023	5/25/2023	8	15	13	1	0	1	1	0	1	0
2023	5/26/2023	8	15	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2023	5/27/2023	8	15	13	1	0	1	1	0	1	0
2023	5/28/2023	8	15	13	1	0	1	1	0	1	0
2023	5/29/2023	8	15	13	1	0	1	1	0	1	0
2023	5/30/2023	8	15	13	1	0	1	1	0	1	0
2023	5/31/2023	8	15	13	1	0	1	1	0	1	0
2023	6/1/2023	8	15	13	1	0	1	1	0	1	0
2023	6/2/2023	8	15	13	1	0	1	1	0	1	0
2023	6/3/2023	8	15	13	1	0	1	1	0	1	0
2023	6/4/2023	8	15	13	1	0	1	1	0	1	0
2023	6/5/2023	8	15	13	1	0	1	1	0	1	0
2023	6/6/2023	8	15	13	1	0	1	1	0	1	0
2023	6/7/2023	8	15	13	1	0	1	1	0	1	0
2023	6/8/2023	8	15	13	1	0	1	1	0	1	0
2023	6/9/2023	8	15	13	1	0	1	1	0	1	0
2023	6/10/2023	8	15	13	1	0	1	1	0	1	0
2023	6/11/2023	8	15	13	1	0	1	1	0	1	0
2023	6/12/2023	8	15	13	1	0	1	1	0	1	0
2023	6/13/2023	8	15	13	1	0	1	1	0	1	0
2023	6/14/2023	8	15	13	1	0	1	1	0	1	0
2023	6/15/2023	8	15	13	1	0	1	1	0	1	0
2023	6/16/2023	8	15	13	1	0	1	1	0	1	0
2023	6/17/2023	8	15	13	1	0	1	1	0	1	0
2023	6/18/2023	8	15	13	1	0	1	1	0	1	0
2023	6/19/2023	8	15	13	1	0	1	1	0	1	0
2023	6/20/2023	8	15	13	1	0	1	1	0	1	0
2023	6/21/2023	8	15	13	1	0	1	1	0	1	0
2023	6/22/2023	8	15	13	1	0	1	1	0	1	0
2023	6/23/2023	8	15	13	1	0	1	1	0	1	0
2023	6/24/2023	8	15	13	1	0	1	1	0	1	0
2023	6/25/2023	8	15	13	1	0	1	1	0	1	0
2023	6/26/2023	8	15	13	1	0	1	1	0	1	0
2023	6/27/2023	8	15	13	1	0	1	1	0	1	0
2023	6/28/2023	8	15	13	1	0	1	1	0	1	0
2023	6/29/2023	8	15	13	1	0	1	1	0	1	0
2023	6/30/2023	8	15	13	1	0	1	1	0	1	0
2023	7/1/2023	8	15	13	1	0	1	1	0	1	0
2023	7/2/2023	8	15	13	1	0	1	1	0	1	0
2023	7/3/2023	8	15	13	1	0	1	1	0	1	0
2023	7/4/2023	8	15	13	1	0	1	1	0	1	0
2023	7/5/2023	8	15	13	1	0	1	1	0	1	0
2023	7/6/2023	8	15	13	1	0	1	1	0	1	0
2023	7/7/2023	8	15	13	1	0	1	1	0	1	0
2023	7/8/2023	8	15	13	1	0	1	1	0	1	0
2023	7/9/2023	8	15	13	1	0	1	1	0	1	0
2023	7/10/2023	8	15	13	1	0	1	1	0	1	0
2023	7/11/2023	8	15	13	1	0	1	1	0	1	0
2023	7/12/2023	8	15	13	1	0	1	1	0	1	0
2023	7/13/2023	8	15	13	1	0	1	1	0	1	0
2023	7/14/2023	8	15	13	1	0	1	1	0	1	0
2023	7/15/2023	8	15	13	1	0	1	1	0	1	0
2023	7/16/2023	8	15	13	1	0	1	1	0	1	0
2023	7/17/2023	8	15	13	1	0	1	1	0	1	0
2023	7/18/2023	8	15	13	1	0	1	1	0	1	0
2023	7/19/2023	8	15	13	1	0	1	1	0	1	0
2023	7/20/2023	8	15	13	1	0	1	1	0	1	0
2023	7/21/2023	8	15	13	1	0	1	1	0	1	0
2023	7/22/2023	0	0	0	0	0	0	0	0	0	0
2023	7/23/2023	0	0	0	0	0	0	0	0	0	0
2023	7/24/2023	0	0	0	0	0	0	0	0	0	0
2023	7/25/2023	0	0	0	0	0	0	0	0	0	0
2023	7/26/2023	0	0	0	0	0	0	0	0	0	0
2023	7/27/2023	0	0	0	0	0	0	0	0	0	0
2023	7/28/2023	0	0	0	0	0	0	0	0	0	0
2023	7/29/2023	0	0	0	0	0	0	0	0	0	0
2023	7/30/2023	0	0	0	0	0	0	0	0	0	0
2023	7/31/2023	0	0	0	0	0	0	0	0	0	0
2023	8/1/2023	2	13	13	1	0	1	1	0	1	0
2023	8/2/2023	2	13	13	1	0	1	1	0	1	0
2023	8/3/2023	2	13	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2023	8/4/2023	2	13	13	1	0	1	1	0	1	0
2023	8/5/2023	2	13	13	1	0	1	1	0	1	0
2023	8/6/2023	2	13	13	1	0	1	1	0	1	0
2023	8/7/2023	2	13	13	1	0	1	1	0	1	0
2023	8/8/2023	2	13	13	1	0	1	1	0	1	0
2023	8/9/2023	2	13	13	1	0	1	1	0	1	0
2023	8/10/2023	2	13	13	1	0	1	1	0	1	0
2023	8/11/2023	2	13	13	1	0	1	1	0	1	0
2023	8/12/2023	2	13	13	1	0	1	1	0	1	0
2023	8/13/2023	2	13	13	1	0	1	1	0	1	0
2023	8/14/2023	2	13	13	1	0	1	1	0	1	0
2023	8/15/2023	2	13	13	1	0	1	1	0	1	0
2023	8/16/2023	2	13	13	1	0	1	1	0	1	0
2023	8/17/2023	2	13	13	1	0	1	1	0	1	0
2023	8/18/2023	2	13	13	1	0	1	1	0	1	0
2023	8/19/2023	2	13	13	1	0	1	1	0	1	0
2023	8/20/2023	2	13	13	1	0	1	1	0	1	0
2023	8/21/2023	2	13	13	1	0	1	1	0	1	0
2023	8/22/2023	2	13	13	1	0	1	1	0	1	0
2023	8/23/2023	2	13	13	1	0	1	1	0	1	0
2023	8/24/2023	2	13	13	1	0	1	1	0	1	0
2023	8/25/2023	2	13	13	1	0	1	1	0	1	0
2023	8/26/2023	2	13	13	1	0	1	1	0	1	0
2023	8/27/2023	2	13	13	1	0	1	1	0	1	0
2023	8/28/2023	2	13	13	1	0	1	1	0	1	0
2023	8/29/2023	2	13	13	1	0	1	1	0	1	0
2023	8/30/2023	2	13	13	1	0	1	1	0	1	0
2023	8/31/2023	2	13	13	1	0	1	1	0	1	0
2023	9/1/2023	2	13	13	1	0	1	1	0	1	0
2023	9/2/2023	2	13	13	1	0	1	1	0	1	0
2023	9/3/2023	2	13	13	1	0	1	1	0	1	0
2023	9/4/2023	2	13	13	1	0	1	1	0	1	0
2023	9/5/2023	2	13	13	1	0	1	1	0	1	0
2023	9/6/2023	2	13	13	1	0	1	1	0	1	0
2023	9/7/2023	2	13	13	1	0	1	1	0	1	0
2023	9/8/2023	2	13	13	1	0	1	1	0	1	0
2023	9/9/2023	2	13	13	1	0	1	1	0	1	0
2023	9/10/2023	2	13	13	1	0	1	1	0	1	0
2023	9/11/2023	2	13	13	1	0	1	1	0	1	0
2023	9/12/2023	4	27	25	1	0	2	1	0	1	0
2023	9/13/2023	2	15	13	1	0	1	1	0	1	0
2023	9/14/2023	2	15	13	1	0	1	1	0	1	0
2023	9/15/2023	2	15	13	1	0	1	1	0	1	0
2023	9/16/2023	2	15	13	1	0	1	1	0	1	0
2023	9/17/2023	2	15	13	1	0	1	1	0	1	0
2023	9/18/2023	2	15	13	1	0	1	1	0	1	0
2023	9/19/2023	2	15	13	1	0	1	1	0	1	0
2023	9/20/2023	2	15	13	1	0	1	1	0	1	0
2023	9/21/2023	2	15	13	1	0	1	1	0	1	0
2023	9/22/2023	2	15	13	1	0	1	1	0	1	0
2023	9/23/2023	2	15	13	1	0	1	1	0	1	0
2023	9/24/2023	2	15	13	1	0	1	1	0	1	0
2023	9/25/2023	2	15	13	1	0	1	1	0	1	0
2023	9/26/2023	2	15	13	1	0	1	1	0	1	0
2023	9/27/2023	2	15	13	1	0	1	1	0	1	0
2023	9/28/2023	2	15	13	1	0	1	1	0	1	0
2023	9/29/2023	2	15	13	1	0	1	1	0	1	0
2023	9/30/2023	2	15	13	1	0	1	1	0	1	0
2023	10/1/2023	2	15	13	1	0	1	1	0	1	0
2023	10/2/2023	2	15	13	1	0	1	1	0	1	0
2023	10/3/2023	2	15	13	1	0	1	1	0	1	0
2023	10/4/2023	2	15	13	1	0	1	1	0	1	0
2023	10/5/2023	2	15	13	1	0	1	1	0	1	0
2023	10/6/2023	2	15	13	1	0	1	1	0	1	0
2023	10/7/2023	2	15	13	1	0	1	1	0	1	0
2023	10/8/2023	2	15	13	1	0	1	1	0	1	0
2023	10/9/2023	2	15	13	1	0	1	1	0	1	0
2023	10/10/2023	2	15	13	1	0	1	1	0	1	0
2023	10/11/2023	2	15	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2023	10/12/2023	2	15	13	1	0	1	1	0	1	0
2023	10/13/2023	2	15	13	1	0	1	1	0	1	0
2023	10/14/2023	2	15	13	1	0	1	1	0	1	0
2023	10/15/2023	2	15	13	1	0	1	1	0	1	0
2023	10/16/2023	2	15	13	1	0	1	1	0	1	0
2023	10/17/2023	2	15	13	1	0	1	1	0	1	0
2023	10/18/2023	2	15	13	1	0	1	1	0	1	0
2023	10/19/2023	2	15	13	1	0	1	1	0	1	0
2023	10/20/2023	2	15	13	1	0	1	1	0	1	0
2023	10/21/2023	2	15	13	1	0	1	1	0	1	0
2023	10/22/2023	2	15	13	1	0	1	1	0	1	0
2023	10/23/2023	2	15	13	1	0	1	1	0	1	0
2023	10/24/2023	2	15	13	1	0	1	1	0	1	0
2023	10/25/2023	2	15	13	1	0	1	1	0	1	0
2023	10/26/2023	2	15	13	1	0	1	1	0	1	0
2023	10/27/2023	2	15	13	1	0	1	1	0	1	0
2023	10/28/2023	2	15	13	1	0	1	1	0	1	0
2023	10/29/2023	2	15	13	1	0	1	1	0	1	0
2023	10/30/2023	2	15	13	1	0	1	1	0	1	0
2023	10/31/2023	2	15	13	1	0	1	1	0	1	0
2023	11/1/2023	2	15	13	1	0	1	1	0	1	0
2023	11/2/2023	2	15	13	1	0	1	1	0	1	0
2023	11/3/2023	2	15	13	1	0	1	1	0	1	0
2023	11/4/2023	2	15	13	1	0	1	1	0	1	0
2023	11/5/2023	2	15	13	1	0	1	1	0	1	0
2023	11/6/2023	2	15	13	1	0	1	1	0	1	0
2023	11/7/2023	2	15	13	1	0	1	1	0	1	0
2023	11/8/2023	2	15	13	1	0	1	1	0	1	0
2023	11/9/2023	2	15	13	1	0	1	1	0	1	0
2023	11/10/2023	2	15	13	1	0	1	1	0	1	0
2023	11/11/2023	2	15	13	1	0	1	1	0	1	0
2023	11/12/2023	2	15	13	1	0	1	1	0	1	0
2023	11/13/2023	2	15	13	1	0	1	1	0	1	0
2023	11/14/2023	2	15	13	1	0	1	1	0	1	0
2023	11/15/2023	2	15	13	1	0	1	1	0	1	0
2023	11/16/2023	2	15	13	1	0	1	1	0	1	0
2023	11/17/2023	2	15	13	1	0	1	1	0	1	0
2023	11/18/2023	2	15	13	1	0	1	1	0	1	0
2023	11/19/2023	2	15	13	1	0	1	1	0	1	0
2023	11/20/2023	2	15	13	1	0	1	1	0	1	0
2023	11/21/2023	2	15	13	1	0	1	1	0	1	0
2023	11/22/2023	2	15	13	1	0	1	1	0	1	0
2023	11/23/2023	2	15	13	1	0	1	1	0	1	0
2023	11/24/2023	2	15	13	1	0	1	1	0	1	0
2023	11/25/2023	2	15	13	1	0	1	1	0	1	0
2023	11/26/2023	2	15	13	1	0	1	1	0	1	0
2023	11/27/2023	2	15	13	1	0	1	1	0	1	0
2023	11/28/2023	2	15	13	1	0	1	1	0	1	0
2023	11/29/2023	2	15	13	1	0	1	1	0	1	0
2023	11/30/2023	2	15	13	1	0	1	1	0	1	0
2023	12/1/2023	2	15	13	1	0	1	1	0	1	0
2023	12/2/2023	2	15	13	1	0	1	1	0	1	0
2023	12/3/2023	2	15	13	1	0	1	1	0	1	0
2023	12/4/2023	2	15	13	1	0	1	1	0	1	0
2023	12/5/2023	2	15	13	1	0	1	1	0	1	0
2023	12/6/2023	2	15	13	1	0	1	1	0	1	0
2023	12/7/2023	2	15	13	1	0	1	1	0	1	0
2023	12/8/2023	2	15	13	1	0	1	1	0	1	0
2023	12/9/2023	2	15	13	1	0	1	1	0	1	0
2023	12/10/2023	2	15	13	1	0	1	1	0	1	0
2023	12/11/2023	2	15	13	1	0	1	1	0	1	0
2023	12/12/2023	2	15	13	1	0	1	1	0	1	0
2023	12/13/2023	2	15	13	1	0	1	1	0	1	0
2023	12/14/2023	2	15	13	1	0	1	1	0	1	0
2023	12/15/2023	2	15	13	1	0	1	1	0	1	0
2023	12/16/2023	2	15	13	1	0	1	1	0	1	0
2023	12/17/2023	2	15	13	1	0	1	1	0	1	0
2023	12/18/2023	2	15	13	1	0	1	1	0	1	0
2023	12/19/2023	2	15	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2023	12/20/2023	2	15	13	1	0	1	1	0	1	0
2023	12/21/2023	2	15	13	1	0	1	1	0	1	0
2023	12/22/2023	2	15	13	1	0	1	1	0	1	0
2023	12/23/2023	2	15	13	1	0	1	1	0	1	0
2023	12/24/2023	2	15	13	1	0	1	1	0	1	0
2023	12/25/2023	2	15	13	1	0	1	1	0	1	0
2023	12/26/2023	2	15	13	1	0	1	1	0	1	0
2023	12/27/2023	2	15	13	1	0	1	1	0	1	0
2023	12/28/2023	2	15	13	1	0	1	1	0	1	0
2023	12/29/2023	2	15	13	1	0	1	1	0	1	0
2023	12/30/2023	2	15	13	1	0	1	1	0	1	0
2023	12/31/2023	2	15	13	1	0	1	1	0	1	0
2024	1/1/2024	2	14	13	1	0	1	1	0	1	0
2024	1/2/2024	2	14	13	1	0	1	1	0	1	0
2024	1/3/2024	2	14	13	1	0	1	1	0	1	0
2024	1/4/2024	2	14	13	1	0	1	1	0	1	0
2024	1/5/2024	2	14	13	1	0	1	1	0	1	0
2024	1/6/2024	2	14	13	1	0	1	1	0	1	0
2024	1/7/2024	2	14	13	1	0	1	1	0	1	0
2024	1/8/2024	2	14	13	1	0	1	1	0	1	0
2024	1/9/2024	2	14	13	1	0	1	1	0	1	0
2024	1/10/2024	2	14	13	1	0	1	1	0	1	0
2024	1/11/2024	2	14	13	1	0	1	1	0	1	0
2024	1/12/2024	2	14	13	1	0	1	1	0	1	0
2024	1/13/2024	2	14	13	1	0	1	1	0	1	0
2024	1/14/2024	2	14	13	1	0	1	1	0	1	0
2024	1/15/2024	2	14	13	1	0	1	1	0	1	0
2024	1/16/2024	2	14	13	1	0	1	1	0	1	0
2024	1/17/2024	2	14	13	1	0	1	1	0	1	0
2024	1/18/2024	2	14	13	1	0	1	1	0	1	0
2024	1/19/2024	2	14	13	1	0	1	1	0	1	0
2024	1/20/2024	2	14	13	1	0	1	1	0	1	0
2024	1/21/2024	2	14	13	1	0	1	1	0	1	0
2024	1/22/2024	2	14	13	1	0	1	1	0	1	0
2024	1/23/2024	2	14	13	1	0	1	1	0	1	0
2024	1/24/2024	2	14	13	1	0	1	1	0	1	0
2024	1/25/2024	2	14	13	1	0	1	1	0	1	0
2024	1/26/2024	2	14	13	1	0	1	1	0	1	0
2024	1/27/2024	2	14	13	1	0	1	1	0	1	0
2024	1/28/2024	2	14	13	1	0	1	1	0	1	0
2024	1/29/2024	2	14	13	1	0	1	1	0	1	0
2024	1/30/2024	2	14	13	1	0	1	1	0	1	0
2024	1/31/2024	2	14	13	1	0	1	1	0	1	0
2024	2/1/2024	2	14	13	1	0	1	1	0	1	0
2024	2/2/2024	2	14	13	1	0	1	1	0	1	0
2024	2/3/2024	2	14	13	1	0	1	1	0	1	0
2024	2/4/2024	2	14	13	1	0	1	1	0	1	0
2024	2/5/2024	2	14	13	1	0	1	1	0	1	0
2024	2/6/2024	2	14	13	1	0	1	1	0	1	0
2024	2/7/2024	2	14	13	1	0	1	1	0	1	0
2024	2/8/2024	2	14	13	1	0	1	1	0	1	0
2024	2/9/2024	2	14	13	1	0	1	1	0	1	0
2024	2/10/2024	2	14	13	1	0	1	1	0	1	0
2024	2/11/2024	2	14	13	1	0	1	1	0	1	0
2024	2/12/2024	2	14	13	1	0	1	1	0	1	0
2024	2/13/2024	2	14	13	1	0	1	1	0	1	0
2024	2/14/2024	2	14	13	1	0	1	1	0	1	0
2024	2/15/2024	2	14	13	1	0	1	1	0	1	0
2024	2/16/2024	2	14	13	1	0	1	1	0	1	0
2024	2/17/2024	2	14	13	1	0	1	1	0	1	0
2024	2/18/2024	2	14	13	1	0	1	1	0	1	0
2024	2/19/2024	2	14	13	1	0	1	1	0	1	0
2024	2/20/2024	2	14	13	1	0	1	1	0	1	0
2024	2/21/2024	2	14	13	1	0	1	1	0	1	0
2024	2/22/2024	2	14	13	1	0	1	1	0	1	0
2024	2/23/2024	2	14	13	1	0	1	1	0	1	0
2024	2/24/2024	2	14	13	1	0	1	1	0	1	0
2024	2/25/2024	2	14	13	1	0	1	1	0	1	0
2024	2/26/2024	2	14	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
2024	2/27/2024	2	14	13	1	0	1	1	0	1	0
2024	2/28/2024	2	14	13	1	0	1	1	0	1	0
2024	2/29/2024	2	14	13	1	0	1	1	0	1	0
2024	3/1/2024	3	21	19	1	0	1	1	0	1	0
2024	3/2/2024	3	21	19	1	0	1	1	0	1	0
2024	3/3/2024	3	21	19	1	0	1	1	0	1	0
2024	3/4/2024	3	21	19	1	0	1	1	0	1	0
2024	3/5/2024	3	21	19	1	0	1	1	0	1	0
2024	3/6/2024	3	21	19	1	0	1	1	0	1	0
2024	3/7/2024	3	21	19	1	0	1	1	0	1	0
2024	3/8/2024	3	21	19	1	0	1	1	0	1	0
2024	3/9/2024	3	21	19	1	0	1	1	0	1	0
2024	3/10/2024	3	21	19	1	0	1	1	0	1	0
2024	3/11/2024	3	21	19	1	0	1	1	0	1	0
2024	3/12/2024	3	21	19	1	0	1	1	0	1	0
2024	3/13/2024	3	21	19	1	0	1	1	0	1	0
2024	3/14/2024	3	21	19	1	0	1	1	0	1	0
2024	3/15/2024	3	21	19	1	0	1	1	0	1	0
2024	3/16/2024	3	21	19	1	0	1	1	0	1	0
2024	3/17/2024	3	21	19	1	0	1	1	0	1	0
2024	3/18/2024	3	21	19	1	0	1	1	0	1	0
2024	3/19/2024	3	21	19	1	0	1	1	0	1	0
2024	3/20/2024	3	21	19	1	0	1	1	0	1	0
2024	3/21/2024	3	21	19	1	0	1	1	0	1	0
2024	3/22/2024	3	21	19	1	0	1	1	0	1	0
2024	3/23/2024	3	21	19	1	0	1	1	0	1	0
2024	3/24/2024	3	21	19	1	0	1	1	0	1	0
2024	3/25/2024	3	21	19	1	0	1	1	0	1	0
2024	3/26/2024	3	21	19	1	0	1	1	0	1	0
2024	3/27/2024	3	21	19	1	0	1	1	0	1	0
2024	3/28/2024	3	21	19	1	0	1	1	0	1	0
2024	3/29/2024	3	21	19	1	0	1	1	0	1	0
2024	3/30/2024	3	21	19	1	0	1	1	0	1	0
2024	3/31/2024	3	21	19	1	0	1	1	0	1	0
2024	4/1/2024	3	21	19	1	0	1	1	0	1	0
2024	4/2/2024	2	14	13	1	0	1	1	0	1	0
2024	4/3/2024	2	14	13	1	0	1	1	0	1	0
2024	4/4/2024	2	14	13	1	0	1	1	0	1	0
2024	4/5/2024	2	14	13	1	0	1	1	0	1	0
2024	4/6/2024	2	14	13	1	0	1	1	0	1	0
2024	4/7/2024	2	14	13	1	0	1	1	0	1	0
2024	4/8/2024	2	14	13	1	0	1	1	0	1	0
2024	4/9/2024	2	14	13	1	0	1	1	0	1	0
2024	4/10/2024	2	14	13	1	0	1	1	0	1	0
2024	4/11/2024	2	14	13	1	0	1	1	0	1	0
2024	4/12/2024	2	14	13	1	0	1	1	0	1	0
2024	4/13/2024	2	14	13	1	0	1	1	0	1	0
2024	4/14/2024	2	14	13	1	0	1	1	0	1	0
2024	4/15/2024	2	14	13	1	0	1	1	0	1	0
2024	4/16/2024	2	14	13	1	0	1	1	0	1	0
2024	4/17/2024	2	14	13	1	0	1	1	0	1	0
2024	4/18/2024	2	14	13	1	0	1	1	0	1	0
2024	4/19/2024	2	14	13	1	0	1	1	0	1	0
2024	4/20/2024	2	14	13	1	0	1	1	0	1	0
2024	4/21/2024	2	14	13	1	0	1	1	0	1	0
2024	4/22/2024	2	14	13	1	0	1	1	0	1	0
2024	4/23/2024	2	14	13	1	0	1	1	0	1	0
2024	4/24/2024	2	14	13	1	0	1	1	0	1	0
2024	4/25/2024	2	14	13	1	0	1	1	0	1	0
2024	4/26/2024	2	14	13	1	0	1	1	0	1	0
2024	4/27/2024	2	14	13	1	0	1	1	0	1	0
2024	4/28/2024	2	14	13	1	0	1	1	0	1	0
2024	4/29/2024	2	14	13	1	0	1	1	0	1	0
2024	4/30/2024	2	14	13	1	0	1	1	0	1	0
2024	5/1/2024	2	14	13	1	0	1	1	0	1	0
2024	5/2/2024	2	14	13	1	0	1	1	0	1	0
2024	5/3/2024	2	14	13	1	0	1	1	0	1	0
2024	5/4/2024	2	14	13	1	0	1	1	0	1	0
2024	5/5/2024	2	14	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2024	5/6/2024	2	14	13	1	0	1	1	0	1	0
2024	5/7/2024	2	14	13	1	0	1	1	0	1	0
2024	5/8/2024	2	14	13	1	0	1	1	0	1	0
2024	5/9/2024	2	14	13	1	0	1	1	0	1	0
2024	5/10/2024	2	14	13	1	0	1	1	0	1	0
2024	5/11/2024	2	14	13	1	0	1	1	0	1	0
2024	5/12/2024	2	14	13	1	0	1	1	0	1	0
2024	5/13/2024	2	14	13	1	0	1	1	0	1	0
2024	5/14/2024	2	14	13	1	0	1	1	0	1	0
2024	5/15/2024	0	0	0	0	0	0	0	0	0	0
2024	5/16/2024	0	0	0	0	0	0	0	0	0	0
2024	5/17/2024	0	0	0	0	0	0	0	0	0	0
2024	5/18/2024	0	0	0	0	0	0	0	0	0	0
2024	5/19/2024	0	0	0	0	0	0	0	0	0	0
2024	5/20/2024	0	0	0	0	0	0	0	0	0	0
2024	5/21/2024	0	0	0	0	0	0	0	0	0	0
2024	5/22/2024	0	0	0	0	0	0	0	0	0	0
2024	5/23/2024	0	0	0	0	0	0	0	0	0	0
2024	5/24/2024	0	0	0	0	0	0	0	0	0	0
2024	5/25/2024	0	0	0	0	0	0	0	0	0	0
2024	5/26/2024	0	0	0	0	0	0	0	0	0	0
2024	5/27/2024	0	0	0	0	0	0	0	0	0	0
2024	5/28/2024	0	0	0	0	0	0	0	0	0	0
2024	5/29/2024	0	0	0	0	0	0	0	0	0	0
2024	5/30/2024	0	0	0	0	0	0	0	0	0	0
2024	5/31/2024	0	0	0	0	0	0	0	0	0	0
2024	6/1/2024	2	12	12	1	0	1	1	0	1	0
2024	6/2/2024	2	12	12	1	0	1	1	0	1	0
2024	6/3/2024	2	12	12	1	0	1	1	0	1	0
2024	6/4/2024	2	12	12	1	0	1	1	0	1	0
2024	6/5/2024	2	12	12	1	0	1	1	0	1	0
2024	6/6/2024	2	12	12	1	0	1	1	0	1	0
2024	6/7/2024	2	12	12	1	0	1	1	0	1	0
2024	6/8/2024	2	12	12	1	0	1	1	0	1	0
2024	6/9/2024	2	12	12	1	0	1	1	0	1	0
2024	6/10/2024	2	12	12	1	0	1	1	0	1	0
2024	6/11/2024	2	12	12	1	0	1	1	0	1	0
2024	6/12/2024	2	12	12	1	0	1	1	0	1	0
2024	6/13/2024	2	12	12	1	0	1	1	0	1	0
2024	6/14/2024	2	12	12	1	0	1	1	0	1	0
2024	6/15/2024	2	12	12	1	0	1	1	0	1	0
2024	6/16/2024	2	12	12	1	0	1	1	0	1	0
2024	6/17/2024	2	12	12	1	0	1	1	0	1	0
2024	6/18/2024	2	12	12	1	0	1	1	0	1	0
2024	6/19/2024	2	12	12	1	0	1	1	0	1	0
2024	6/20/2024	2	12	12	1	0	1	1	0	1	0
2024	6/21/2024	2	12	12	1	0	1	1	0	1	0
2024	6/22/2024	7	26	25	1	0	2	1	0	1	0
2024	6/23/2024	6	14	13	1	0	1	1	0	1	0
2024	6/24/2024	6	14	13	1	0	1	1	0	1	0
2024	6/25/2024	6	14	13	1	0	1	1	0	1	0
2024	6/26/2024	6	14	13	1	0	1	1	0	1	0
2024	6/27/2024	6	14	13	1	0	1	1	0	1	0
2024	6/28/2024	6	14	13	1	0	1	1	0	1	0
2024	6/29/2024	6	14	13	1	0	1	1	0	1	0
2024	6/30/2024	6	14	13	1	0	1	1	0	1	0
2024	7/1/2024	6	14	13	1	0	1	1	0	1	0
2024	7/2/2024	6	14	13	1	0	1	1	0	1	0
2024	7/3/2024	6	14	13	1	0	1	1	0	1	0
2024	7/4/2024	6	14	13	1	0	1	1	0	1	0
2024	7/5/2024	6	14	13	1	0	1	1	0	1	0
2024	7/6/2024	6	14	13	1	0	1	1	0	1	0
2024	7/7/2024	6	14	13	1	0	1	1	0	1	0
2024	7/8/2024	6	14	13	1	0	1	1	0	1	0
2024	7/9/2024	6	14	13	1	0	1	1	0	1	0
2024	7/10/2024	6	14	13	1	0	1	1	0	1	0
2024	7/11/2024	6	14	13	1	0	1	1	0	1	0
2024	7/12/2024	6	14	13	1	0	1	1	0	1	0
2024	7/13/2024	6	14	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2024	7/14/2024	6	14	13	1	0	1	1	0	1	0
2024	7/15/2024	6	14	13	1	0	1	1	0	1	0
2024	7/16/2024	6	14	13	1	0	1	1	0	1	0
2024	7/17/2024	6	14	13	1	0	1	1	0	1	0
2024	7/18/2024	6	14	13	1	0	1	1	0	1	0
2024	7/19/2024	6	14	13	1	0	1	1	0	1	0
2024	7/20/2024	6	14	13	1	0	1	1	0	1	0
2024	7/21/2024	6	14	13	1	0	1	1	0	1	0
2024	7/22/2024	6	14	13	1	0	1	1	0	1	0
2024	7/23/2024	6	14	13	1	0	1	1	0	1	0
2024	7/24/2024	6	14	13	1	0	1	1	0	1	0
2024	7/25/2024	6	14	13	1	0	1	1	0	1	0
2024	7/26/2024	6	14	13	1	0	1	1	0	1	0
2024	7/27/2024	6	14	13	1	0	1	1	0	1	0
2024	7/28/2024	6	14	13	1	0	1	1	0	1	0
2024	7/29/2024	6	14	13	1	0	1	1	0	1	0
2024	7/30/2024	6	14	13	1	0	1	1	0	1	0
2024	7/31/2024	6	14	13	1	0	1	1	0	1	0
2024	8/1/2024	6	14	13	1	0	1	1	0	1	0
2024	8/2/2024	6	14	13	1	0	1	1	0	1	0
2024	8/3/2024	6	14	13	1	0	1	1	0	1	0
2024	8/4/2024	6	14	13	1	0	1	1	0	1	0
2024	8/5/2024	6	14	13	1	0	1	1	0	1	0
2024	8/6/2024	6	14	13	1	0	1	1	0	1	0
2024	8/7/2024	6	14	13	1	0	1	1	0	1	0
2024	8/8/2024	6	14	13	1	0	1	1	0	1	0
2024	8/9/2024	6	14	13	1	0	1	1	0	1	0
2024	8/10/2024	6	14	13	1	0	1	1	0	1	0
2024	8/11/2024	6	14	13	1	0	1	1	0	1	0
2024	8/12/2024	6	14	13	1	0	1	1	0	1	0
2024	8/13/2024	6	14	13	1	0	1	1	0	1	0
2024	8/14/2024	6	14	13	1	0	1	1	0	1	0
2024	8/15/2024	6	14	13	1	0	1	1	0	1	0
2024	8/16/2024	6	14	13	1	0	1	1	0	1	0
2024	8/17/2024	6	14	13	1	0	1	1	0	1	0
2024	8/18/2024	6	14	13	1	0	1	1	0	1	0
2024	8/19/2024	6	14	13	1	0	1	1	0	1	0
2024	8/20/2024	6	14	13	1	0	1	1	0	1	0
2024	8/21/2024	6	14	13	1	0	1	1	0	1	0
2024	8/22/2024	6	14	13	1	0	1	1	0	1	0
2024	8/23/2024	6	14	13	1	0	1	1	0	1	0
2024	8/24/2024	6	14	13	1	0	1	1	0	1	0
2024	8/25/2024	6	14	13	1	0	1	1	0	1	0
2024	8/26/2024	6	14	13	1	0	1	1	0	1	0
2024	8/27/2024	6	14	13	1	0	1	1	0	1	0
2024	8/28/2024	6	14	13	1	0	1	1	0	1	0
2024	8/29/2024	6	14	13	1	0	1	1	0	1	0
2024	8/30/2024	6	14	13	1	0	1	1	0	1	0
2024	8/31/2024	6	14	13	1	0	1	1	0	1	0
2024	9/1/2024	6	14	13	1	0	1	1	0	1	0
2024	9/2/2024	6	14	13	1	0	1	1	0	1	0
2024	9/3/2024	6	14	13	1	0	1	1	0	1	0
2024	9/4/2024	6	14	13	1	0	1	1	0	1	0
2024	9/5/2024	6	14	13	1	0	1	1	0	1	0
2024	9/6/2024	6	14	13	1	0	1	1	0	1	0
2024	9/7/2024	6	14	13	1	0	1	1	0	1	0
2024	9/8/2024	6	14	13	1	0	1	1	0	1	0
2024	9/9/2024	6	14	13	1	0	1	1	0	1	0
2024	9/10/2024	6	14	13	1	0	1	1	0	1	0
2024	9/11/2024	6	14	13	1	0	1	1	0	1	0
2024	9/12/2024	6	14	13	1	0	1	1	0	1	0
2024	9/13/2024	6	14	13	1	0	1	1	0	1	0
2024	9/14/2024	6	14	13	1	0	1	1	0	1	0
2024	9/15/2024	6	14	13	1	0	1	1	0	1	0
2024	9/16/2024	6	14	13	1	0	1	1	0	1	0
2024	9/17/2024	6	14	13	1	0	1	1	0	1	0
2024	9/18/2024	6	14	13	1	0	1	1	0	1	0
2024	9/19/2024	6	14	13	1	0	1	1	0	1	0
2024	9/20/2024	6	14	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2024	9/21/2024	6	14	13	1	0	1	1	0	1	0
2024	9/22/2024	6	14	13	1	0	1	1	0	1	0
2024	9/23/2024	6	14	13	1	0	1	1	0	1	0
2024	9/24/2024	6	14	13	1	0	1	1	0	1	0
2024	9/25/2024	6	14	13	1	0	1	1	0	1	0
2024	9/26/2024	6	14	13	1	0	1	1	0	1	0
2024	9/27/2024	6	14	13	1	0	1	1	0	1	0
2024	9/28/2024	6	14	13	1	0	1	1	0	1	0
2024	9/29/2024	6	14	13	1	0	1	1	0	1	0
2024	9/30/2024	6	14	13	1	0	1	1	0	1	0
2024	10/1/2024	6	14	13	1	0	1	1	0	1	0
2024	10/2/2024	6	14	13	1	0	1	1	0	1	0
2024	10/3/2024	6	14	13	1	0	1	1	0	1	0
2024	10/4/2024	6	14	13	1	0	1	1	0	1	0
2024	10/5/2024	6	14	13	1	0	1	1	0	1	0
2024	10/6/2024	6	14	13	1	0	1	1	0	1	0
2024	10/7/2024	6	14	13	1	0	1	1	0	1	0
2024	10/8/2024	6	14	13	1	0	1	1	0	1	0
2024	10/9/2024	6	14	13	1	0	1	1	0	1	0
2024	10/10/2024	6	14	13	1	0	1	1	0	1	0
2024	10/11/2024	6	14	13	1	0	1	1	0	1	0
2024	10/12/2024	6	14	13	1	0	1	1	0	1	0
2024	10/13/2024	6	14	13	1	0	1	1	0	1	0
2024	10/14/2024	6	14	13	1	0	1	1	0	1	0
2024	10/15/2024	6	14	13	1	0	1	1	0	1	0
2024	10/16/2024	6	14	13	1	0	1	1	0	1	0
2024	10/17/2024	6	14	13	1	0	1	1	0	1	0
2024	10/18/2024	6	14	13	1	0	1	1	0	1	0
2024	10/19/2024	6	14	13	1	0	1	1	0	1	0
2024	10/20/2024	6	14	13	1	0	1	1	0	1	0
2024	10/21/2024	6	14	13	1	0	1	1	0	1	0
2024	10/22/2024	6	14	13	1	0	1	1	0	1	0
2024	10/23/2024	6	14	13	1	0	1	1	0	1	0
2024	10/24/2024	6	14	13	1	0	1	1	0	1	0
2024	10/25/2024	6	14	13	1	0	1	1	0	1	0
2024	10/26/2024	6	14	13	1	0	1	1	0	1	0
2024	10/27/2024	6	14	13	1	0	1	1	0	1	0
2024	10/28/2024	6	14	13	1	0	1	1	0	1	0
2024	10/29/2024	6	14	13	1	0	1	1	0	1	0
2024	10/30/2024	6	14	13	1	0	1	1	0	1	0
2024	10/31/2024	6	14	13	1	0	1	1	0	1	0
2024	11/1/2024	6	14	13	1	0	1	1	0	1	0
2024	11/2/2024	6	14	13	1	0	1	1	0	1	0
2024	11/3/2024	6	14	13	1	0	1	1	0	1	0
2024	11/4/2024	6	14	13	1	0	1	1	0	1	0
2024	11/5/2024	6	14	13	1	0	1	1	0	1	0
2024	11/6/2024	6	14	13	1	0	1	1	0	1	0
2024	11/7/2024	6	14	13	1	0	1	1	0	1	0
2024	11/8/2024	6	14	13	1	0	1	1	0	1	0
2024	11/9/2024	6	14	13	1	0	1	1	0	1	0
2024	11/10/2024	6	14	13	1	0	1	1	0	1	0
2024	11/11/2024	6	14	13	1	0	1	1	0	1	0
2024	11/12/2024	6	14	13	1	0	1	1	0	1	0
2024	11/13/2024	6	14	13	1	0	1	1	0	1	0
2024	11/14/2024	6	14	13	1	0	1	1	0	1	0
2024	11/15/2024	6	14	13	1	0	1	1	0	1	0
2024	11/16/2024	6	14	13	1	0	1	1	0	1	0
2024	11/17/2024	6	14	13	1	0	1	1	0	1	0
2024	11/18/2024	6	14	13	1	0	1	1	0	1	0
2024	11/19/2024	6	14	13	1	0	1	1	0	1	0
2024	11/20/2024	6	14	13	1	0	1	1	0	1	0
2024	11/21/2024	6	14	13	1	0	1	1	0	1	0
2024	11/22/2024	6	14	13	1	0	1	1	0	1	0
2024	11/23/2024	6	14	13	1	0	1	1	0	1	0
2024	11/24/2024	6	14	13	1	0	1	1	0	1	0
2024	11/25/2024	6	14	13	1	0	1	1	0	1	0
2024	11/26/2024	6	14	13	1	0	1	1	0	1	0
2024	11/27/2024	6	14	13	1	0	1	1	0	1	0
2024	11/28/2024	6	14	13	1	0	1	1	0	1	0

Calculates Max Daily Emissions for the Entire Project

	MAX:	27	221	153	8	2	9	8	0	8	0
Year	Date	Max Daily Emissions (lbs/day)									
		ROG	NOX	CO	PM10 Ex	PM10 D	PM10 T	PM2.5 Ex	PM2.5 D	PM2.5 T	SOX
2024	11/29/2024	6	14	13	1	0	1	1	0	1	0
2024	11/30/2024	6	14	13	1	0	1	1	0	1	0
2024	12/1/2024	6	14	13	1	0	1	1	0	1	0
2024	12/2/2024	6	14	13	1	0	1	1	0	1	0
2024	12/3/2024	6	14	13	1	0	1	1	0	1	0
2024	12/4/2024	6	14	13	1	0	1	1	0	1	0
2024	12/5/2024	6	14	13	1	0	1	1	0	1	0
2024	12/6/2024	6	14	13	1	0	1	1	0	1	0
2024	12/7/2024	6	14	13	1	0	1	1	0	1	0
2024	12/8/2024	6	14	13	1	0	1	1	0	1	0
2024	12/9/2024	6	14	13	1	0	1	1	0	1	0
2024	12/10/2024	6	14	13	1	0	1	1	0	1	0
2024	12/11/2024	6	14	13	1	0	1	1	0	1	0
2024	12/12/2024	6	14	13	1	0	1	1	0	1	0
2024	12/13/2024	6	14	13	1	0	1	1	0	1	0
2024	12/14/2024	6	14	13	1	0	1	1	0	1	0
2024	12/15/2024	6	14	13	1	0	1	1	0	1	0
2024	12/16/2024	6	14	13	1	0	1	1	0	1	0
2024	12/17/2024	6	14	13	1	0	1	1	0	1	0
2024	12/18/2024	6	14	13	1	0	1	1	0	1	0
2024	12/19/2024	6	14	13	1	0	1	1	0	1	0
2024	12/20/2024	6	14	13	1	0	1	1	0	1	0
2024	12/21/2024	6	14	13	1	0	1	1	0	1	0
2024	12/22/2024	6	14	13	1	0	1	1	0	1	0
2024	12/23/2024	6	14	13	1	0	1	1	0	1	0
2024	12/24/2024	6	14	13	1	0	1	1	0	1	0
2024	12/25/2024	6	14	13	1	0	1	1	0	1	0
2024	12/26/2024	6	14	13	1	0	1	1	0	1	0
2024	12/27/2024	6	14	13	1	0	1	1	0	1	0
2024	12/28/2024	6	14	13	1	0	1	1	0	1	0
2024	12/29/2024	6	14	13	1	0	1	1	0	1	0
2024	12/30/2024	6	14	13	1	0	1	1	0	1	0
2024	12/31/2024	6	14	13	1	0	1	1	0	1	0

Operational

Modeling Outputs

Operational Emissions - Existing Marine Vessels Scenario 1

Marine Calculations

Code	Equipment	Number of Pieces	Main	Aux	Pounds per day					
					ROG	NOX	CO	PM10	PM2.5	SO2
Existing	Tug Scenario 1	2	1	1	7	59	54	1	1	0

Operational Emissions - Existing Marine Vessels Scenario 1

Marine Calculations	**2025**

Code	Equipment	Number of Pieces	Main	Aux	Tons per year						Metric tons per year			
					ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e
Existing	Tug Scenario 1	2	1	1	0	0	0	0	0	0	24	0	0	24

Operational Emissions - Existing Marine Vessels Scenario 2

Marine Calculations

Code	Equipment	Number of Pieces	Main	Aux	Pounds per day					
					ROG	NOX	CO	PM10	PM2.5	SO2
Existing	Assist Scenario 2	3	1	1	8	60	54	1	1	0
Existing	Pusher Scenario 2	1	1	1	1	9	7	0	0	0

Operational Emissions - Existing Marine Vessels Scenario 2

Marine Calculations	**2025**

Code	Equipment	Number of Pieces	Main	Aux	Tons per year						Metric tons per year			
					ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e
Existing	Assist Scenario 2	3	1	1	0	0	0	0	0	0	24	0	0	24
Existing	Pusher Scenario 2	1	1	1	0	0	0	0	0	0	3	0	0	3

Operational Emissions - Project Marine Vessels

Marine Calculations

Code	Equipment	Number of Pieces	Main	Aux	Pounds per day					
					ROG	NOX	CO	PM10	PM2.5	SO2
Future	Assist	2	1	1	6	49	45	1	1	0
Future	Pusher	3	1	1	3	27	21	1	1	0

Operational Emissions - Project Marine Vessels

Marine Calculations	2025

Code	Equipment	Number of Pieces	Main	Aux	Tons per year						Metric tons per year			
					ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e
Future	Assist	2	1	1	0.02	0.12	0.11	0.00	0.00	0.00	13	2.51E-04	5.65E-04	13
Future	Pusher	3	1	1	0.01	0.07	0.05	0.00	0.00	0.00	6	2.73E-04	5.86E-04	6

Tug Activity

MMSI	IMO	VESSNAME	SHIPTYPE	FLAG	Out of Port		In Port			Compliance	Propulsion		Auxiliary		
					Moving	Stopped	Moving	Stopped	MY	Date	No	HP each	No	HP each	
338533000	7207748	SHANNON DANN	Assist Tug	United States	6.820	0.000	3.326	51.329	1970	2009	2	975	2	100	Dann Ocean Towing Inc
365934954	8987929	JOHN QUIGG	Assist Tug	United States	8.012	0.000	4.506	3.507	2004	2019	2	2400	2	133	Olympic Tug & Barge Inc
366755010	9188532	MASTER	Assist Tug	United States	20.134	0.000	599.926	764.612	1997	2015	2	2400	2	141	Crowley Maritime Corp
366764730	9188570	SCOUT	Assist Tug	United States	15.376	0.050	1394.594	6698.942	1998	2015	2	2400	2	141	Crowley Maritime Corp
366888800	9122734	TIOGA	Assist Tug	United States	15.565	0.048	958.836	7082.628	1994	2013	2	1975	2	107	Crowley Maritime Corp
366999010	8967046	ISLAND VOYAGER	Assist Tug	United States	7.620	0.000	1.258	6.501	1973	2009	2	2101	2	100	Island Tug & Barge Co
367726390		BERNADINE C	Assist Tug	United States	9.427	0.000	4.346	6.235	2015	2015	2	1000	2	87	Curtin Maritime
									Large	2014	2	2255	2	124	
From 2016 Port of Sand Diego Inventory									Small	2012	2	988	2	94	

Operational Tug Emission Factor Development

Tug Characteristics

		Propulsion		Auxiliary	
Tugs	MY	No	HP each	No	HP each
Assist 1	2014	2	2000	2	110
Assist 2	2014	2	2500	2	125
Assist 3	2014	2	3000	2	150
Pusher	2012	2	750	2	95

For Deterioration Purposes

Useful Life		Annual Hrs		12000 hr Det Cap	
Prop	Aux	Prop	Aux	Prop	Aux
21	23	2274	2486	5.28	4.83

Useful life, annual hours, and load factors from 2010 ARB Harbor Craft Emission Inventory Methodology
https://ww3.arb.ca.gov/msei/chc-appendix-b-emission-estimates-ver02-27-2012.pdf

Zero Emission Levels

Unit	SO2	CO2	N2O
g/kWh	0.17	652	0.031
g/hp-hr	0.13	486	0.023

All vessels will be fully deteriorated by 2025

1kW = 1.34104 hp

HP	Kw	MY	Eng	CH4 g/kWh	CH4 g/hp-hr
95	71	2012	Aux	0.032	0.024
110	82	2014	Aux	0.032	0.024
125	93	2014	Aux	0.022	0.016
150	112	2014	Aux	0.022	0.016
750	559	2012	Prop	0.018	0.013
2000	1491	2014	Prop	0.018	0.013
2500	1864	2014	Prop	0.018	0.013
3000	2237	2014	Prop	0.018	0.013

From 2013 Port of Long Beach Inventory
http://www.polb.com/civica/filebank/blobdload.asp?BlobID=12238

Uncorrected Zero Hr Emission Factors (g/hp-hr)

Tug	Engine	MY	No	HP	LF	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Assist 1	Main	2014	2	2000	0.50	0.68	4.37	3.73	0.10	0.10	0.13	486	0.013	0.023
	Aux	2014	2	110	0.31	1.18	5.32	3.73	0.22	0.21	0.13	486	0.024	0.023
Assist 2	Main	2014	2	2500	0.50	0.68	4.37	3.73	0.10	0.10	0.13	486	0.013	0.023
	Aux	2014	2	125	0.31	0.81	3.80	3.73	0.09	0.09	0.13	486	0.016	0.023
Assist 3	Main	2014	2	3000	0.50	0.68	4.37	3.73	0.10	0.10	0.13	486	0.013	0.023
	Aux	2014	2	150	0.31	0.81	3.80	3.73	0.09	0.09	0.13	486	0.016	0.023
Pusher	Main	2012	2	750	0.50	0.68	5.10	3.73	0.15	0.15	0.13	486	0.013	0.023
	Aux	2012	2	95	0.31	1.18	5.32	3.73	0.22	0.21	0.13	486	0.024	0.023

ULSD Fuel Correction Factors

MY	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
1995 and older	0.720	0.930	1.000	0.720	0.720	0.043	1.000	0.720	0.930
1996 to 2010	0.720	0.948	1.000	0.800	0.800	0.043	1.000	0.720	0.948
2011 and newer	0.720	0.948	1.000	0.852	0.852	0.043	1.000	0.720	0.948

USLD Corrected Zero Hr Emission Factors (g/hp-hr)

Tug	Engine	MY	No	HP	LF	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Assist 1	Main	2014	2	2000	0.50	0.49	4.14	3.73	0.09	0.08	0.01	486	0.010	0.022
	Aux	2014	2	110	0.31	0.85	5.04	3.73	0.19	0.18	0.01	486	0.017	0.022
Assist 2	Main	2014	2	2500	0.50	0.49	4.14	3.73	0.09	0.08	0.01	486	0.010	0.022
	Aux	2014	2	125	0.31	0.58	3.60	3.73	0.08	0.07	0.01	486	0.012	0.022
Assist 3	Main	2014	2	3000	0.50	0.49	4.14	3.73	0.09	0.08	0.01	486	0.010	0.022
	Aux	2014	2	150	0.31	0.58	3.60	3.73	0.08	0.07	0.01	486	0.012	0.022
Pusher	Main	2012	2	750	0.50	0.49	4.84	3.73	0.13	0.12	0.01	486	0.010	0.022
	Aux	2012	2	95	0.31	0.85	5.04	3.73	0.19	0.18	0.01	486	0.017	0.022

Engine Deterioration Factors

HP Range	ROG	NOX	CO	PM10	PM2.5
25 -50	0.51	0.06	0.41	0.31	0.31
51-250	0.28	0.14	0.16	0.44	0.44
> 250	0.44	0.21	0.25	0.67	0.67

2025 Deteriorated Emission Factors (g/hp-hr)

Tug	Engine	MY	No	HP	LF	ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Assist 1	Main	2014	2	2000	0.50	0.54	4.36	3.96	0.10	0.10	0.01	486	0.010	0.022
	Aux	2014	2	110	0.31	0.90	5.19	3.86	0.20	0.20	0.01	486	0.017	0.022
Assist 2	Main	2014	2	2500	0.50	0.54	4.36	3.96	0.10	0.10	0.01	486	0.010	0.022
	Aux	2014	2	125	0.31	0.62	3.71	3.86	0.08	0.08	0.01	486	0.012	0.022
Assist 3	Main	2014	2	3000	0.50	0.54	4.36	3.96	0.10	0.10	0.01	486	0.010	0.022
	Aux	2014	2	150	0.31	0.62	3.71	3.86	0.08	0.08	0.01	486	0.012	0.022
Pusher	Main	2012	2	750	0.50	0.54	5.09	3.96	0.15	0.14	0.01	486	0.010	0.022
	Aux	2012	2	95	0.31	0.90	5.19	3.86	0.20	0.20	0.01	486	0.017	0.022

Operational Emissions - Existing Portable Diesel Equipment

							3	4	5	6	7	8
Code	**Equip**	**per call**	**hrs to berth**	**HP**	**LF**	**Fuel**	**Pounds per day**					
							ROG	**NOX**	**CO**	**PM10**	**PM2.5**	**SO2**
Existing	Generators	2	5	550	0.74	Diesel	0.3	1.2	9.9	0.0	0.0	0.0
Existing	Fire Pump	2	5	175	0.74	Diesel	0.2	3.3	3.7	0.1	0.1	0.0

Operational Emissions - Existing Portable Diesel Equipment

							2025									
													9	10	11	
Code	Equip	per call	hrs to berth	HP	LF	Fuel	Tons per year						Metric tons per year			
							ROG	NOX	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e
Existing	Generators	2	5	550	0.74	Diesel	0.002	0.009	0.079	0.000	0.000	0.000	18.5	0.0	0.0	18.7
Existing	Fire Pump	2	5	175	0.74	Diesel	0.001	0.026	0.030	0.001	0.001	0.000	5.9	0.0	0.0	5.9

Construction Equipment Emission Factors

Tier 3

	2	3	4	5	6	7	8	9	10	11
Equipment Type	**HP**	**ROG**	**NOX**	**CO**	**PM10**	**PM2.5**	**SO2**	**CO2**	**CH4**	**N2O**
Generator Sets	500	0.12	2.32	2.60	0.09	0.09	0.01	568.30	0.02	0.01
Pumps	175	0.12	2.32	2.60	0.09	0.09	0.01	568.30	0.03	0.01

Tier 4

2	3	4	5	6	7	8	9	10	11
HP	**ROG**	**NOX**	**CO**	**PM10**	**PM2.5**	**SO2**	**CO2**	**CH4**	**N2O**
500	0.06	0.26	2.20	0.01	0.01	0.01	568.30	0.02	0.01
175	0.06	0.26	2.20	0.01	0.01	0.01	568.30	0.03	0.01

BAE All Truck Scenario Energy Analysis

Construction Energy Calcs	Unit	Amount	BTU	MBTU
Trucks	gallons (diesel)	27,659	3,581,448,474	*3,581*
Workers	gallons (gasoline)	9,429	1,074,264,297	*1,074*
Equipment	gallons (diesel)	110,568	14,317,168,120	*14,317*
Marine	gallons (diesel)	36,707	4,753,174,969	*4,753*
total				***23,726***

Operations Energy Calcs	Unit	Amount	BTU	MBTU
Existing Offroad	gallons (diesel)	2,389	309,343,979	*309*
Future Offroad	gallons (diesel)	1,493	193,339,987	*193*
Existing Marine	gallons (diesel)	2,672	345,967,218	*346*
Future Marine	gallons (diesel)	1,805	233,747,385	*234*
total				***-228***

Conversions		Source
BTU_kWh	3,416	Argonne 2015
BTU/1 gallon gasoline	113,927	BTU
BTU/1 gallon diesel	129,488	BTU
kg CO2 per gal diesel	10.21	Climate Registry 2018
kg CO2 per gal gasoline	8.76	Climate Registry 2018
kgs per MT	1000	

Summary

	Energy Consumption (in million BTUs)	
	Construction	Operations
Trucks	3,581	
Workers	1,074	
Equipment	14,317	-116
Marine	4,753	-112
Total	**23,726**	**-228**

Construction is over the life of construction; operational consumption is on an annual basis

BAE 50/50 Scenario Energy Analysis

Construction Energy Calcs	Unit	Amount	BTU	MBTU
Trucks	gallons (diesel)	24,056	3,115,000,992	*3,115*
Workers	gallons (gasoline)	9,429	1,074,264,297	*1,074*
Equipment	gallons (diesel)	110,568	14,317,168,120	*14,317*
Marine	gallons (diesel)	37,914	4,909,423,305	*4,909*
total				***23,416***

Operations Energy Calcs	Unit	Amount	BTU	MBTU
Existing Offroad	gallons (diesel)	2,389	309,343,979	*309*
Future Offroad	gallons (diesel)	1,493	193,339,987	*193*
Existing Marine	gallons (diesel)	2,672	345,967,218	*346*
Future Marine	gallons (diesel)	1,805	233,747,385	*234*
Change				***-228***

Conversions		Source
BTU_kWh	3,416	Argonne 2015
BTU/1 gallon gasoline	113,927	BTU
BTU/1 gallon diesel	129,488	BTU
kg CO2 per gal diesel	10.21	Climate Registry 2018
kg CO2 per gal gasoline	8.76	Climate Registry 2018
kgs per MT	1000	

Summary

	Energy Consumption (in million BTUs)	
	Construction	Operations
Trucks	3,115	
Workers	1,074	
Equipment	14,317	-116
Marine	4,909	-112
Total	**23,416**	**-228**

Construction is over the life of construction; operational consumption is on an annual basis

Appendix D-1

Biological Technical Study and Essential Fish Habitat Assessment for the BAE Waterfront Infrastructure Maintenance, Repair, and Replacement Project

BIOLOGICAL TECHNICAL STUDY AND ESSENTIAL FISH HABITAT ASSESSMENT FOR THE BAE WATERFRONT INFRASTRUCTURE MAINTENANCE, REPAIR, AND REPLACEMENT PROJECT SAN DIEGO, CA

Prepared for:

BAE Systems San Diego Ship Repair
2205 East Belt St
San Diego, CA 92113

Prepared by:

Merkel & Associates, Inc.
5434 Ruffin Road
San Diego, CA 92123
Phone: (858) 560-5465
Fax: (858) 560-7779

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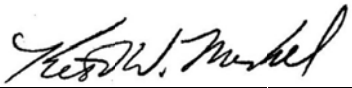

Keith Merkel, Principal Consultant

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Revised June 2020

1.0 INTRODUCTION

BAE Systems San Diego Ship Repair Inc. (BAE Systems) is a ship repair company in the San Diego area, primarily serving non-nuclear Navy vessels, as well as commercial customers. BAE Systems leases 12 acres of land and 21 acres of water from the San Diego Port District, as well as 3.5 acres of submerged land outside of the District's jurisdiction (beyond the U.S. Pierhead Line) from the California State Lands Commission (SLC). The acreage leased from both the District and the SLC comprise the San Diego Ship Repair Yard (project site) (Figure 1).

The ship repair facilities includes three working piers, five wet berths, and two floating drydocks, all of which are used to modernize, repair, and overhaul marine vessels. The smaller of the two drydocks, the Pride of San Diego, has been on site since 1984. In 2017, the larger Pride of California was commissioned to meet the growing needs of BAE Systems' customers.

Over the last three years the shipyard has undergone considerable in-water work including a facility-wide sediment removal and remediation project as well as construction of infrastructure and completion of dredging to support the installation of the Pride of California drydock. This work also included development of an off-site eelgrass mitigation site to mitigate the complete removal of eelgrass present on site that occurred with the sediment remediation project and the mitigation of overwater structures associated with the drydock project, formerly known as the Pier 1 North Drydock, now Pride of California. This eelgrass mitigation site located in the former intake channel to the decommissioned South Bay Power Plant, was oversized to accommodate the drydock and sediment remediation project risks as well as to develop mitigation for future needs associated with modernization of the waterside facilities at the shipyard. This mitigation site is presently within its 5-year establishment monitoring period.

The purpose of the presently proposed project is to maintain and improve facilities to provide for current and anticipated customer berthing needs. As part of the U.S. Navy's "Pivot West" strategy, more Navy vessels will be homeported in San Diego. New ship arrivals have already occurred and are expected to continue over the next 2 years and beyond. This means BAE must be prepared to service newer, more complex, and larger Navy vessels, which will require BAE ship repair capabilities to become more efficient.

The proposed project would replace aging structures; improve existing infrastructure, increase space utilization, and increase efficiency of operations. These improvements would allow for newer and different classes of vessels to be moored and repaired on site; however, these changes are not expected to significantly alter existing site activities or throughput. As such, operations at the BAE Systems facility would remain relatively the same after project implementation.

This report documents biological conditions at the project site, and provides an analysis of potential impacts to habitats and sensitive species, as well as provides an Essential Fish Habitat (EFH) Assessment for the proposed project.

Project Vicinity
Biological Services for BAE Systems
Waterfront Improvement Projects

Figure 1

2.0 PROJECT LOCATION AND DESCRIPTION

2.1 PROJECT LOCATION

The project site is within a working shipyard and consists of developed industrialized upland areas and in-water structures including concrete block riprap revetments, vertical bulkhead wall, piers, and pier pilings (Figure 1). The in-water bottom habitat is primarily unvegetated soft bottom, with some vegetated habitat (eelgrass) in the shallow areas adjacent to the riprap revetments and bulkhead wall. The slope of the soft bottom within the shipyard ranges from flat to steep and extends from a high elevation of approximately 0 feet MLLW to a depth of approximately -31 feet MLLW at the bayward edge of the leasehold area. Two drydock sumps exist in the shipyard and are used for submerging the drydocks to a depth suitable to allow vessels to be floated into the drydock and the drydock to be raised out of the water. These two sumps are deep holes that extend as much as 30+ feet below surrounding seafloor elevations with the deepest areas being within the Pride of San Diego sump at approximately -70 feet MLLW.

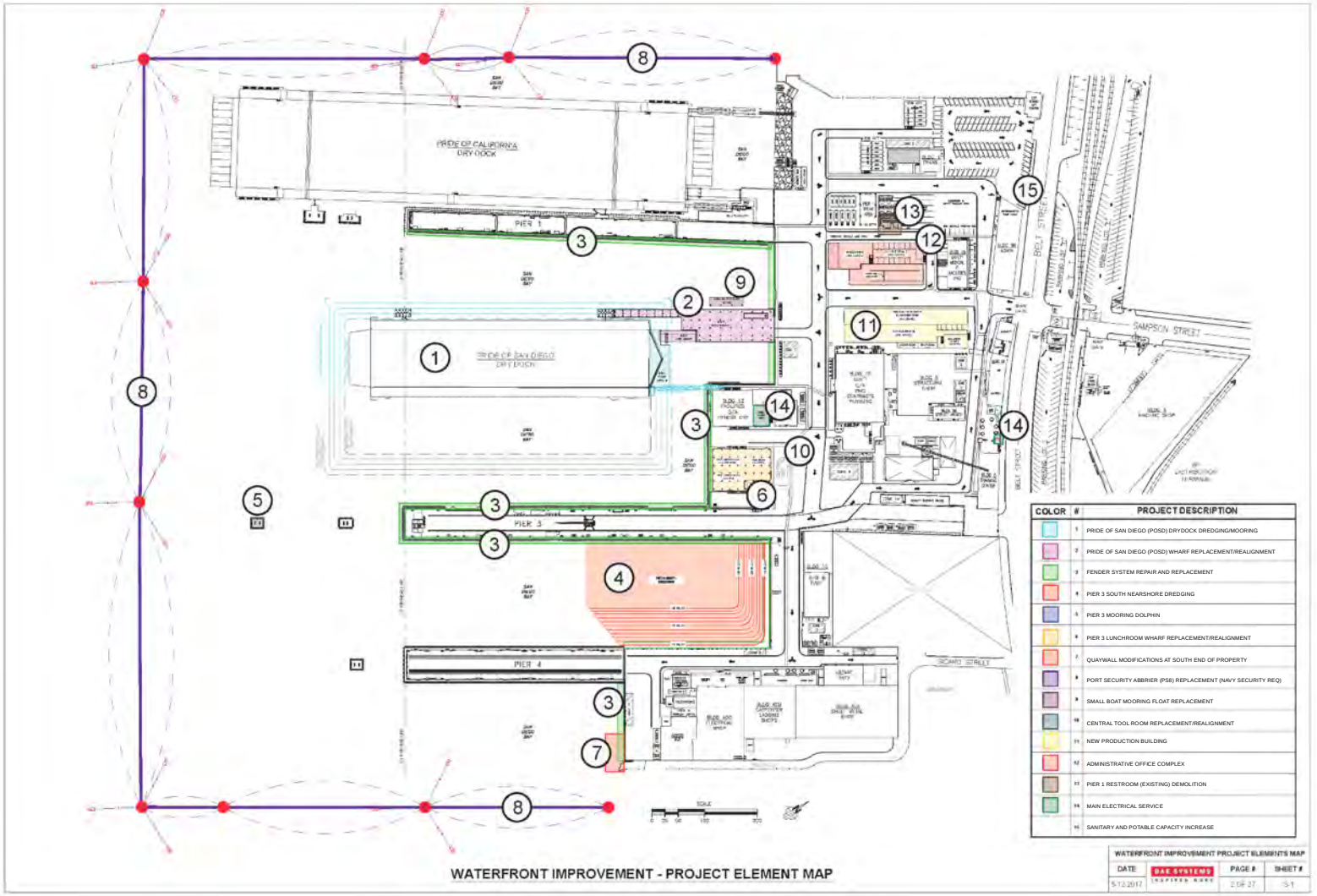
The uplands of the project area are located within a heavily industrialized region of the eastern shoreline of San Diego Bay with a marine contractor, R.E. Staite yard to the north, National Steel and Shipbuilding Company (NASSCO) to the south and Belt Street, railroad and additional heavy industry to the east. The waterside facilities are bounded by heavy marine industrial uses to the north and south and the main navigation channel of San Diego Bay to the west.

2.2 PROJECT DESCRIPTION

The proposed project has been structured to include a number of discrete elements analyzed as a unit as they are all part of the same overall installation improvement program. The project consists of 15 project elements (Elements) designed to improve efficiency and functionality of the existing BAE Systems facility. Figure 2 provides an overall site plan identifying the location of each project element by number and a summary for each of the project elements is provided below.

***Element 1 - POSD Drydock Dredging/Moorage*.** This project element involves dredging and replacement of the mooring dolphins that hold the POSD drydock in place. The moored drydock will be shifted west approximately 100 feet. Relocation of the drydock sump will require dredging to -70 feet with the removal of approximately 92,800 cubic yards of material, including 2 feet of over depth, with disposal of dredge material at an approved Ocean Dredge Material Disposal Site (anticipated to be LA-5). This project element would also require the demolition and replacement of the existing two mooring dolphins. Demolition of the two mooring dolphins would result in the removal of twenty-six 18-inch square concrete piles and 85 cubic yards of concrete caps. Replacement of the two mooring dolphins would result in the installation of thirty-eight 24-inch octagonal precast concrete piles (nineteen 24-inch octagonal precast concrete piles within each of the two mooring dolphins) and 900 square feet of surface area (450 square feet of surface area per mooring dolphin).

***Element 2 - POSD Drydock Wharf Replacement/Realignment*.** This project element involves the demolition of 5,540 square feet of existing wharf structure and twenty 18-inch concrete piles. A 12,500 square foot cast-in-place deck on 73 precast octagonal and 6 precast concrete piles is proposed. The cast-in-place deck would also include an apron at the end of the drydock and a new pedestrian access ramp and support platform on the south side of the drydock.



Project Elements Map

Biological Services for BAE Systems Waterfront Improvement Projects

Figure 2

Element 3 - Fender System Repair and Replacement. Several locations within the BAE leasehold require installation of new fender systems (122 new steel H-pile) associated with previous and planned shoreline improvements. In addition, a fender pile replacement program is proposed as follows:

- Up to 39 pile replacements per year (approximately 5% of total installed post-project fender pile per year)
- All fenders are constructed of steel H-pile (HP 14x89)
- Construction (sizing of timbers) of above water timber components will be prefabricated upland to prevent timber debris from being introduced into the Bay.

Element 4 - Pier 3 South Nearshore Dredging. This project element includes the dredging of bay sediments (approximately 15,000 cubic yards) from the toe of the dredge sump to the limit line elevation of the new bulkhead. Dredged material is proposed to be placed into dredge scows with no stockpiling of material on site, and disposed at an upland location.

Element 5 - Pier 3 Mooring Dolphin. One new mooring dolphin is proposed to be located approximately 970 feet offshore (west) of the U.S. Bulkhead Line within State Lands Commission jurisdiction. Dimensions of the proposed mooring dolphin are 16 feet by 20 feet with a 3 foot thick concrete deck. The proposed mooring dolphin would be supported by eight 24-inch concrete octagonal piles and outfitted with two 150-ton double bitts. Sixteen steel H-pile fenders, whalers, and chocks are proposed to be installed around the perimeter of the proposed dolphin.

Element 6 - Pier 3 Lunchroom Wharf Replacement/Realignment. This project element involves the removal and replacement of a 3,510 square foot over-water structure (including the existing employee lunchroom and foundation). Removal of the existing over-water structure would require the removal of twenty-six 12-inch concrete pilings. The Pier 3 Lunchroom Wharf Replacement would require the installation of forty-eight 24-inch octagonal pre-cast concrete pilings and the installation of 8,800 sf of cast-in-place decking (including edge berm and stormwater collection).

Element 7 - Quay wall Modifications at South End of Property. This project element involves the installation of up to 50 lineal feet of a submerged sheet pile structure and the removal of 300 cubic yards of rock (dredging) and 500 cubic yards of sediment in the immediate vicinity of the submerged sheet pile structure, which would be disposed at an upland location.

Element 8 - Port Security Barrier (PSB) Replacement. This project element involves the replacement of the existing PSB per new Navy security requirements with the intent of providing a physical deterrent to approaching a U.S. Navy ship. The removal/replacement of existing floating boom and the removal/replacement of weighted anchors to hold the system in place would occur.

Element 9 - Small Boat Mooring Float Replacement. This project element involves the removal and replacement of the existing small boat mooring float (320 square feet). Removal of four piles supporting the float is proposed. Replacement of an aged timber moorage float system with a concrete float (400 square feet) and installation of four 18-inch round precast concrete piling is proposed.

Element 10 - Central Tool Room Demolition/Replacement. This project element involves the demolition of the current Central Tool Room located at the foot of Pier 3. The 3-story replacement

structure will provide approximately 21,900 square feet of functional work space within a 7,300 square foot building footprint. The Central Tool Room would be relocated to the proposed wharf replacement. The proposed new structure would also replace the existing Pier 3 restroom facility currently located on the existing Pier 3 North wharf.

***Element 11 - New Production Building*.** This project element involves the demolition of an existing 17,675 square foot building and construction of a new production building at or near existing Buildings 6 or 7. The proposed 3-story production building will provide approximately 48,379 square feet of functional work space within a 16,475 square foot building footprint and would have a building height of up to 50 feet. The first floor (16,475 square feet) is envisioned for production uses and would be equipped with an interior overhead bridge crane. The second and third floors (15,952 square feet for each floor) are proposed to be used for engineering, production support and administrative functions. Demolition of the existing production area will yield 838 tons of building waste.

Element 12 - Administrative Office Building. This project element involves the elimination of temporary office trailers that currently function as the existing administration area and construction of a new administrative office building. The existing trailers occupy a floor space of 8,520 square feet and are assembled as 4 modular double or triple wide systems. The proposed 3-story administrative office building will provide approximately 46,000 square feet of functional work space within a 16,000 square foot building footprint and would have a building height of up to 55 feet. The first floor (16,000 square feet) is envisioned for production uses and includes a tool room and restroom. The second and third floors (14,000 square feet for each floor) are proposed to be used for office space. A second floor break area (2,000 square feet) is also proposed.

Element 13 - Pier 1 Restroom Renovation/Demolition. This project element involves reconfiguration and capacity changes to provide improved restroom facilities for workers. Enhancements would include water efficient fixtures, LED lighting, and other features to increase utility and efficiency. This structure will be retrofitted to increase the number of fixtures. However, upon completion of the proposed administrative office building, the Pier 1 restroom may be demolished.

Element 14 - Main Electrical Utility Service Upgrade. This project element proposes to increase the current service to the project site from 10 megawatts to approximately 12-15 megawatts. The service upgrade would also require the relocation of the existing electrical utility feed room from Building 13 to Building 65.

Element 15 - Sanitary and Potable Water Utility Service Upgrade. This project element includes investigation and construction of increased sanitary and potable water feeds from the local utility to serve the increased hotel service requirements of today's modern naval and commercial vessels.

The majority of the proposed work would take place within the Port District's jurisdiction (i.e., Elements 2, 3, 4, and 6–15). Two project elements are located either partially (Element 1) or entirely (Element 5) within State Lands Commission jurisdiction and are outside of the District's Tidelands. BAE Systems will apply directly to State Lands Commission and the California Coastal Commission for authorization and entitlements for portions of Project Elements 1 and 5 within non-District jurisdiction.

Construction of the proposed project is anticipated to begin in 2019 with the Quay Wall Modifications (Element 7) and last through December 2024. Construction of each element would not be performed sequentially as numbered in Figure 2, and construction of several elements may proceed concurrently. Construction activities would occur between 7 a.m. and 7 p.m. in compliance with the City of San Diego noise ordinance (Municipal Code Section 59.5.0404). However, dredging operations would occur 24 hours a day, 7 days per week for the duration of dredging activities. Table 1 lists the project elements in chronological order and provides the anticipated timing, duration, and construction crew size of each element.

Table 1. Proposed Construction Schedule

#	Project Element	Schedule	Duration (months)	Crew Size
7	Quay Wall Modifications	Early 2019	1.00	10
14	Electric Utility Service Update	Early 2019	3.50	5
9	Small Boat Mooring Float Replacement	July 2019–August 2019	1.00	5
3	Fender System Repair and Replacement (If continuous)	August 2019–December 2019	4.10	6
5	Pier 3 Mooring Dolphin	November 2019–December 2019	1.25	5
4	Pier 3 South Nearshore Dredging	December 2019–January 2020	2.00	10
8	Post Security Barrier Replacement	May 2020–June 2020	2.00	6
6	Pier 3 Lunchroom Wharf Replacement and Realignment	August 2020–November 2020	3.50	7
1	Pride of San Diego Drydock Dredging and Moorage	February 2022–May 2022	3.25	12
2	Pride of San Diego Drydock Wharf Replacement and Realignment	February 2022–May 2022	3.25	13
15	Sanitary Sewer and Potable Water Utility Services	July 2022–September 2022	3.00	3
11	New Production Building	October 2022–July 2023	9.25	16
12	Administration Office Building	August 2023–May 2023	9.50	16
13	Pier 1 Restroom Renovation and/or Demolition	March 2024–April 2024	1.00	10
10	Central Tool Room Demolition and Reconstruction	June 2024–December 2024	7.00	13
Note: The project construction schedule has been structured to minimize where feasible in-water work during the California Least Tern nesting/foraging season.				

The in-water construction activities require specific types of construction equipment, including a floating crane barge, used to drive concrete piles; deck barges for delivery and storage materials; and tug boats for moving equipment, the drydock, and vessels. The landside construction activities would require the use of equipment such as an 80-ton land-based mobile crane, trucks for delivery of pile and construction materials, forklifts for support, a drilling rig, impact hammer, and vibratory hammer. Some additional equipment would include concrete trucks for pouring concrete structures, and trucks to deliver construction materials. Generally, construction materials anticipated to be used for the proposed project consist of rebar, structural steel, concrete, electrical and mechanical systems, tools, and equipment. General construction stages would require one or more of the following equipment, as identified in Table 2.

Table 2. Anticipated Construction Equipment

Construction Stage	Equipment
Dredging	A dredge crane on a barge Scow/barge Dump truck Runoff control features and containment structures Tug boat Survey vessel Tractor/loader/backhoe
Demolition of Existing Structures	Crane Forklift Miscellaneous construction equipment Other material handling equipment Welders Generator Tractor/loader/backhoe Tug boat
Construction	Crane Forklifts Miscellaneous construction equipment Other material handling equipment Welders Generators

3.0 PROJECT REGULATORY REQUIREMENTS

The proposed project is subject to the following regulations.

3.1 FEDERAL REGULATIONS

Clean Water Act

The federal Water Pollution Control Act Amendments of 1972 (33 United States Code [USC] 1251–1376), as amended by the Water Quality Act of 1987, and better known as the CWA, is the major federal legislation governing water quality. The purpose of the federal CWA is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Discharges into waters of the United States are regulated under CWA Section 404. Waters of the United States include: 1) all navigable waters (including all waters subject to the ebb and flow of the tide); 2) all interstate waters and wetlands; 3) all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, or natural ponds; 4) all impoundments of waters mentioned above; 5) all tributaries to waters mentioned above; 6) the territorial seas; and 7) all wetlands adjacent to waters mentioned above. Important applicable sections of the CWA are discussed below:

- Section 401 requires an applicant for any federal permit that proposes an activity that may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the CWA. Certification is provided by the respective Regional Water Quality Control Board (RWQCB). A Section 401 permit from the SWRCB (State Water Resources Control Board) or RWQCB-SDR would be required for issuance of a permit by the U.S. Army Corps of Engineers (USACE).
- Section 404 regulates the discharge of dredged or fill materials to waters of the U.S. and provides for issuance of permits by the USACE.

Rivers and Harbors Appropriation Act

The Rivers and Harbors Appropriation Act of 1899 (33 USC 403), commonly known as the Rivers and Harbors Act (R&HA), prohibits the construction of any bridge, dam, dike, or causeway over or in navigable waterways of the United States without congressional approval. Under R&HA Section 10, the USACE is authorized to permit structures in or over navigable waters. Building or modifying wharves, piers, jetties, and other structures in or over the waters of the San Diego coastline requires USACE approval through the Section 10 permit process.

Endangered Species Act

The Endangered Species Act (ESA) protects plants and wildlife that are listed as endangered or threatened by the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). ESA Section 9 prohibits the taking of endangered wildlife, where taking is defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 Code of Federal Regulations [CFR] 17.3). The term "harm" is defined as an "act which actually kills or injures wildlife," including through "significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife." The term "harass" means an act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, including breeding, feeding or sheltering (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or

destroying any endangered plant on federal land, as well as removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law. Under ESA Section 7, lead federal agencies are required to consult with the USFWS or NMFS if the lead agency determines that its actions, including permit approvals or funding, may adversely affect an endangered species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS or NMFS may issue an incidental take statement allowing take of the species that is incidental to another authorized activity, provided the action will not jeopardize the continued existence of the species. In cases where the federal agency determines its action may affect, but would be unlikely to adversely affect, a federally listed species, the agency may choose to informally consult with the USFWS and/or NMFS. This informal consultation typically involves incorporating measures intended to ensure effects would not be adverse. Concurrence from the USFWS and/or NMFS concludes the informal process. Without such concurrence, the federal agency may formally consult to ensure full compliance with the ESA.

Marine Mammal Protection Act

The Marine Mammal Protection Act of 1972 (MMPA) prohibits, with certain exceptions, the take of marine mammals in United States waters and by United States citizens on the high seas and the importation of marine mammals and marine mammal products into the United States. Under the MMPA, "take" is defined as "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal" (16 U.S.C. 1362) and further defined by regulation (50 CFR 216.3) as "to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal". NMFS administers the MMPA. Under the 1994 Amendments to the MMPA, harassment is statutorily defined as any act of pursuit, torment, or annoyance which:

- ***(Level A Harassment)*** has the potential to injure a marine mammal or marine mammal stock in the wild; or,
- ***(Level B Harassment)*** has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits take of nearly all birds where members of the bird's taxonomic family are considered to be migratory. This results in the inclusion of most species of birds afforded protection. Under the MBTA, take means only to kill, directly harm, or destroy individuals, eggs, or nests, or to otherwise cause failure of an ongoing nesting effort.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) of 1976 was established to promote domestic and commercial fishing under sound conservation and management principles. National Marine Fisheries Service (NMFS), as a branch of the National Oceanic and Atmospheric Administration (NOAA), implements the act via eight regional fisheries management councils (FMCs). The FMCs in turn prepare and implement fishery management plans (FMPs) in accordance with local conditions. The Pacific FMC is responsible for the Pacific region, in which the Project site is located. The FMPs also establish EFH for the species they manage and require consultation with NMFS for actions that may adversely affect EFH. Following receipt of an EFH,

NMFS will provide EFH Conservation Recommendations to the lead agency detailing measures that may be taken by the agency to conserve EFH. Within 30 days of receipt of EFH Conservation Recommendation, the project lead agency must respond in writing, including a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. These measures will be incorporated into the final project.

3.2 STATE REGULATIONS

California Coastal Act

The California Coastal Act (CCA) is intended to provide protection of the unique nature and public interest values of the state's coastal fringe. The CCA is implemented by the District for the land and water within its jurisdiction, subject to oversight by California Coastal Commission (CCC). The CCA recognizes California ports and harbors as primary economic elements of the national maritime industry. Within the Port of San Diego, the District administers the CCA under an adopted Port Master Plan and updates to the Port Master Plan that require concurrence from the CCC. Land and waters outside of the District's Port Master Plan are administered by the CCC or by local jurisdictions operating under adopted Local Coastal Programs that have been approved by the CCC.

California Endangered Species Act

The California Endangered Species Act (CESA) authorizes the California Fish and Game Commission to designate endangered, threatened, and rare species and to regulate the taking of these species (California Fish and Game Code [FGC] Sections 2050–2098). The CESA defines endangered species as those whose continued existence in California is jeopardized. State-listed threatened species are those not presently facing extinction, but that may become endangered in the foreseeable future. FGC Section 2080 prohibits the taking of state-listed plants and animals. Unlike the federal ESA, the CESA does not include harassment within its take definition and as such, has a statutorily higher threshold standard for take than does the federal ESA. The California Department of Fish and Wildlife (CDFW) also designates fully protected or protected species as those that may not be taken or possessed without a permit from the California Fish and Game Commission and/or CDFW. Species designated as fully protected or protected may or may not be listed as endangered or threatened.

When a species is both state- and federally-listed, an expedited request for consistency with the USFWS biological opinion may be issued through a request for Section 2080.1 consistency determination, if take authorization under the CESA is required.

California Fish and Game Code

The FGC is implemented by the California Fish and Game Commission, as authorized by Article IV, Section 20, of the Constitution of the State of California. FGC Sections 3503, 3503.5, 3505, 3800, and 3801.6 protect all native birds, birds of prey, and nongame birds, including their eggs and nests, that are not already listed as fully protected and that occur naturally within the state. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (e.g., hawks, owls, eagles, and falcons), including their nests or eggs. As defined in the Fish and Game Code, "take" means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill (Fish and Game Code Section 86). The CDFW is the state agency that manages native fish, wildlife, plant species, and natural communities for their ecological value and their benefits to

people. The CDFW oversees the management of marine species through several programs, some in coordination with NMFS and other agencies.

3.3 LOCAL REGULATIONS

San Diego Unified Port District Port Master Plan

Through implementation of the Port Master Plan (PMP), the District maintains authority over tidelands and submerged lands conveyed in trust to the District by the California legislature. Any amendments to the PMP must be reviewed and certified by the CCC. Under the certified PMP, the District has the authority to issue Coastal Development Permits (CDPs) for projects within its jurisdiction.

San Diego Bay Integrated Natural Resources Management Plan

The District and U.S. Navy jointly implement the Integrated Natural Resources Management Plan (INRMP) (U.S. Navy 2013a). This long-term collaborative strategy for managing the Bay's natural resources provides planning guidance for good stewardship of the natural resources within San Diego Bay. The INRMP does not carry regulatory authority, but rather establishes a baywide plan for natural resource management that has been vetted by the regulatory agencies with land use authority over the Bay and a broad spectrum of stakeholders. The plan provides valuable guidance on siting of facilities, managing resources, and consideration of natural resource enhancement opportunities within the Bay.

4.0 ENVIRONMENTAL SETTING

The description of the environmental setting of the project below is based on existing biological information for San Diego Bay, including the San Diego Bay INRMP (U.S. Navy 2013a), and physical and biological surveys conducted for the proposed project on October 19 and 30, 2018, as well as extensive site investigations completed over the preceding years in association with other project activities conducted at the shipyard. Work was completed using interferometric sidescan sonar (ISS), which provided an image of seafloor backscatter within the entire project area. Sidescan backscatter data were acquired at a frequency of 468 kHz, with a scanning range of 31 meters (102 feet) for both the starboard and port channels, resulting in a 62 meters (204-foot) wide swath. All data were collected in latitude and longitude using the North American Datum of 1983 (NAD 83). The survey was conducted by running transects spaced to allow for overlap between adjoining sidescan swaths. Transect surveys were performed until the entirety of the survey area was captured in the survey record. Following completion of the survey, the data were converted into a geographically registered mosaic through digital post-processing, and plotted on a geo-rectified aerial image of the project area. Resources of interest were then digitized to show their distribution within the survey area. Interpretation of the backscatter data allowed for an assessment of the distribution of eelgrass (*Zostera marina*). Because of highly constrained conditions on the water with piers, booms, overhead lines, and vessels, complete eelgrass surveys by ISS were not possible and a second element of mapping was undertaken by using SCUBA divers and a tightly controlled 3 meter grid to map eelgrass within areas where access by vessel or acoustic swath survey was not possible. Given high water clarity and grid control, divers were able to view and map all of the eelgrass present in the survey area either by ISS or SCUBA diver observation or both.

Following the spatial mapping of eelgrass beds, SCUBA divers verified the mapping data and measured the density of actively growing leaf shoots by conducting leaf shoot counts within a 1/16th quadrat. Replicate quadrats were randomly placed within the eelgrass bed of the project and reference areas to obtain shoot density for the eelgrass beds.

In addition to surveys for eelgrass mapping under the CEMP, the SCUBA divers also swam along the bottom, shoreline, and pier and pile structures in order to characterize all habitats present within the project area.

The field surveys completed for this project were supplemented using results of similar work completed by M&A within the BAE Systems shipyard to ensure a complete characterization of the communities present within the project area. Projects specifically referenced for this analysis include the BAE Pier 4 Replacement Project (M&A 2012), North Shipyard Sediment Site Cleanup Project (M&A 2015a and 2015b), and the BAE Pier 1 North Drydock Project (M&A 2016).

4.1 HABITATS WITHIN THE PROJECT SITE

The INRMP differentiates habitats by depth, with intertidal habitat encompassing the area between +7.8 to -2.2 feet MLLW, shallow subtidal habitat between -2.2 and -12 feet MLLW, moderately deep subtidal habitat between -12 and -20 feet MLLW, and deep subtidal habitat deeper than -20 feet MLLW (U.S. Navy 2013a). Deep and moderately deep habitats maintain similar biological functions, while shallow habitat has the potential to support greater primary productivity, and overall greater

diversity of habitats and ecological communities. Given the developed nature of the project site, the Upland Transition and Upland Area were considered any area greater than +7.8 feet MLLW, and generally delineated by the bulkhead wall. It was not possible to clearly delineate the shallow subtidal habitat due to the lack of bathymetric data. Therefore, habitats were delineated into two categories: upland and in-water, with sub-categories classified if present. A summary of the various habitat types within the project site and a 200 foot buffer around the project site is provided in Table 3, depicted in Figure 3, and described in the following section.

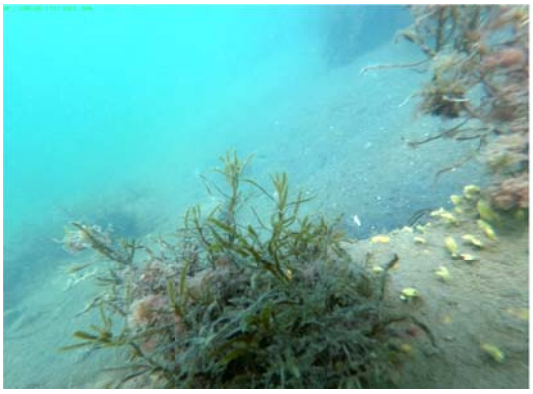
Table 3. Habitat Summary in Project Study Area.

Category	Habitat Type	Area (square feet)
Upland Habitat	Urban/Developed	1,190,171 sf (27.32 ac)
Marine Habitat	Unvegetated soft bottom	2,375,401 sf (54.53 ac)
	Rock revetment	19,585 sf (0.45 ac)
	Vegetated soft bottom (Eelgrass)	9,790 sf (0.22 ac) - vegetated cover 13,510 sf (0.31 ac) - areal extent 40,709 sf (0.93 ac) - spatial distribution 30,919 sf (0.71 ac) – unveg. spatial distribution 31.7% vegetated cover
Surface Cover	Piers and Docks	420,900 sf (9.66 ac)

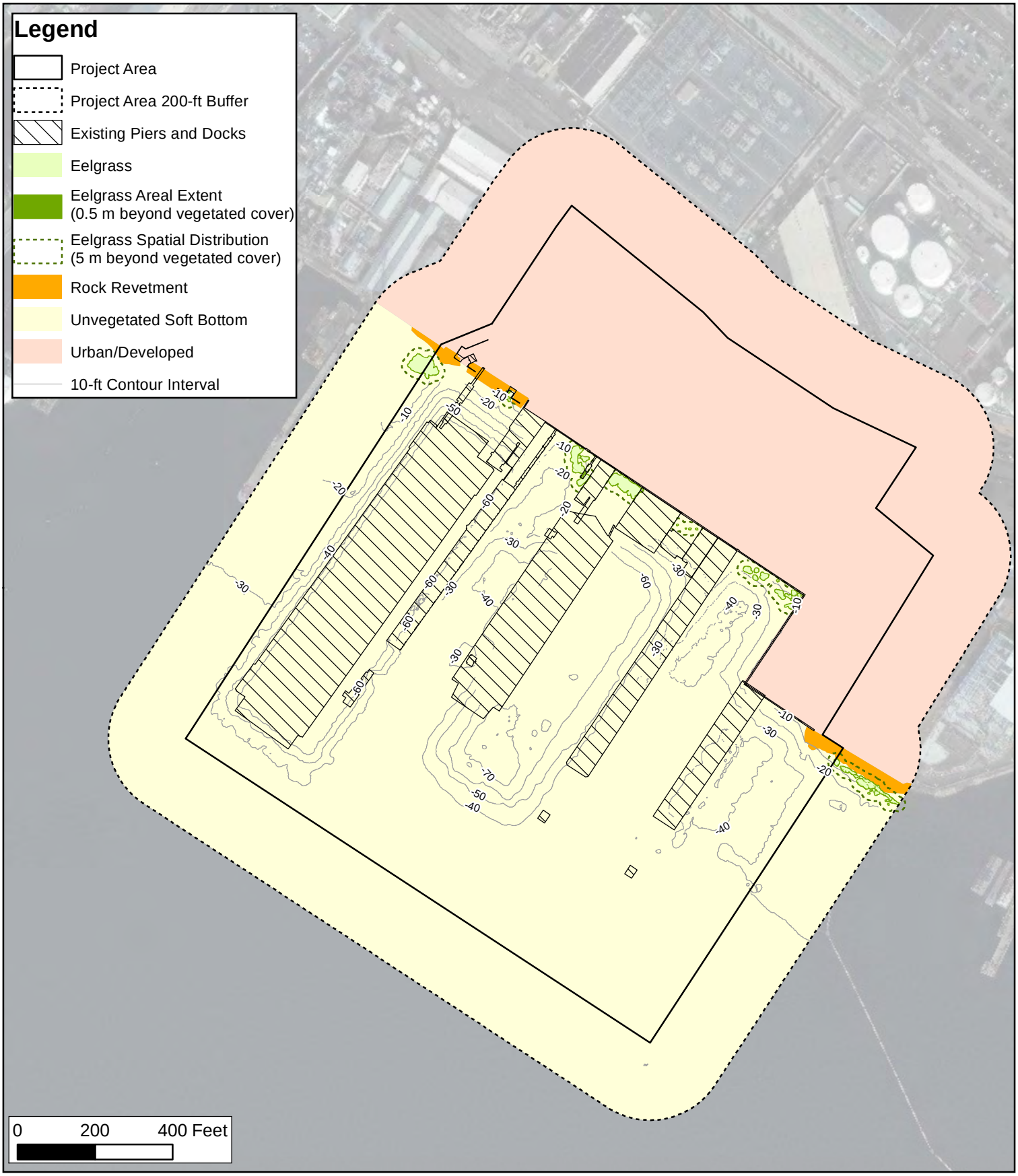
Spatial metrics reported are per CEMP (NOAA Fisheries WCR 2014) definitions.

Subtidal Unvegetated Habitat

Unvegetated soft bottom occurs throughout most of the BAE project site, with depths ranging from -2 feet to the deepest drydock sump at approximately -70 feet MLLW (Figure 3). Scattered within the soft bottom, particularly near piers, are scattered patches of isolated debris supporting macroalgae and sessile invertebrates. These features typically support an assemblage of native and non-native species. The majority of the project areas are considered to be deep or moderately deep subtidal habitat, with soft bottom consisting of sand, gravel, mud and silt, and some submerged debris (e.g. tire bumpers, scraps of metal, and biogenic debris including mollusk shell and calcareous bryozoan skeletons that provide structure to the fine sediment bottom near pier structures. Unvegetated soft bottom occurs under much of the existing piers, where shading and water depth prevent the growth of eelgrass.



Hard substrate rubble scattered in soft bottom habitat near existing shipyard structures. The rubble supports a mix of native and non-native species. In exposed shallow water algae is common, while under piers and in deeper water debris is generally covered in sessile macroinvertebrates and small mobile invertebrates, fish, such as the sandbass in this photo, are commonly associated with the rubble.



Exisitng Conditions
Biological Services for BAE Systems
Waterfront Improvement Projects

Figure 3

Although primarily bare, soft bottom in the shallow water area contains occasional clumps of red algae (*Gracilaria* spp.*, Ceramium* spp.), loose clumps of green algae (*Ulva* spp.), and commonly, a film of benthic diatoms forming mats over portions of the bottom. Patches of the invasive *Sargassum muticum* and *S. horneri* are also found on rubble piles, with the *S. horneri* being found deeper and more scattered than the *S. muticum*. The benthic algae, while providing little structure to the soft bottom habitat, does provide a food source for many invertebrates, provides carbon enrichment for detritivores, and produces oxygen during daylight hours.

Unvegetated soft bottom habitat with evidence of burrowing invertebrates, likely solitary tube-dwelling anemones, amphipods, and molluscs.

Fish species typically found in this habitat include round stingrays (*Urobatis halleri*), barred sand bass (*Paralabrax nebulifer*), spotted sand bass (*Paralabrax maculatofasciatus*), specklefin midshipman (*Porichthys myriaster*), black croaker (*Cheilotrema saturnum*), and gobies (Family Gobiidae). Invertebrates on the surface of this habitat are sparse, but evidence of burrowing invertebrate activity is apparent, likely from bivalves (*Chione* spp., *Macoma nasuta*), the amphipod (*Grandidierella japonica*), bay ghost shrimp (*Neotrypaea* spp.), burrowing anemones (*Harenactis attenuata*) and tube-dwelling anemones (*Pachycerianthus* spp.). Other invertebrates commonly observed within the BAE Systems waters include the opisthobranch (*Navanax inermis*), slender sea pen (*Stylatula elongata*), as well as calcareous bryozoans and the soft bryozoan *Zoobotryon verticillatum*. No evidence of the non-native and invasive Japanese mussel (*Musculista senhousia*) was observed. The occasional debris found on the bottom supports species more typical of hard substrates, including sponges (Phylum Porifera), scale worm (Family Polynoidae), golden gorgonion (*Muricea californica*), invasive non-native tunicates (*Styela plicata* and *Botrylloides* spp.), and spiny lobster *(Panulirus interruptus*).

Shallow soft bottom habitat around eelgrass seedlings. The oxygen production from diatom mats can be seen by the bubbles scattered over the bay floor.

In the deeper waters of the drydock sumps fine sediment and accumulated debris is common. Typical mud bottom is seen in this artificially illuminated photo. Fish observed included round rays and black croaker.

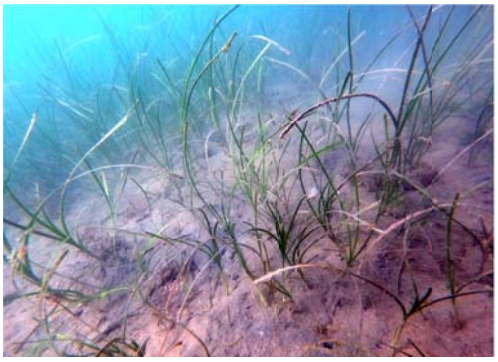
Subtidal Vegetated Habitat

Vegetated subtidal habitats are an essential component of southern California's coastal marine environment. Vegetated shallows within the project area refer to beds of eelgrass (*Zostera marina*). Eelgrass beds function as important habitat for a variety of invertebrate, fish, and avian species. For many species, eelgrass beds are an essential biological habitat component for at least a portion of their life cycle, providing resting and feeding sites along the Pacific Flyway for avian species, and nursery sites for numerous species of fish. Eelgrass within the project site is interspersed with red algae

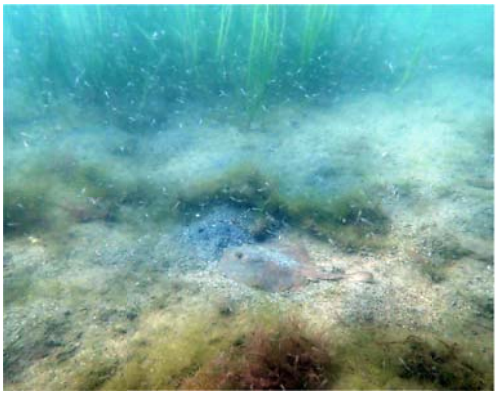
such as *Gracilaria verrucosa*, and green algae, such as *Ulva* spp. Typical fish species associated with eelgrass include pipefish (*Syngnathus* spp.), kelpfish (Family Clinidae), surfperch (Family Embiotocidae) as well as schooling fish such as topsmelt (*Atherinops affinis*) and anchovy (*Anchoa* spp.). In San Diego Bay eelgrass is typically restricted to tidal elevations of 0 feet MLLW or lower. In unconstrained areas, during winter months, as desiccation stress declines, eelgrass may spread into intertidal areas. Eelgrass then recedes away from the shore and into deeper waters as warmer summer weather increases likelihood of desiccation and higher light levels and longer day lengths occur. As a result eelgrass often exhibits a season oscillation in upper and lower margins within unconstrained environments.

However, the eelgrass within the project area occurs within a vertically constrained environment with the upper elevation of the natural eelgrass range constrained by the presence of bulkheads and revetted slopes and the lower elevations within the range being constrained by steep dredged slopes to accommodate deep draft vessel berthing. As a result, eelgrass occurs along a narrow shoreline margin between overwater pier and dock structures. In addition, the eelgrass present in the shipyard is also of very recent origin. While the eelgrass occurs roughly within areas that have historically supported eelgrass, all of the eelgrass within the shipyard was removed in 2015 in association with the shipyard sediment remediation project. This prior eelgrass removal was fully mitigated within the south San Diego Bay eelgrass mitigation site under CEMP standards. The recent reoccurrence of eelgrass in the area is from seedling recruitment that occurred between late 2016 and 2018 with the most prolific recruitment likely occurring in 2018 based on widespread first year seedlings comprising the majority of the eelgrass inside the shipyard (Figure 3). In many cases eelgrass recruitment has been into gravelly sand cover material placed near the toes of revetment slopes. The one area of mature established eelgrass within the project area is located at the northwest margin of the BAE Systems San Diego Shipyard site were a small patch of eelgrass extends offsite to the west.

Scattered seedling eelgrass from 2018 germination was common in the shallow margins of the shipyard. Much of this had germinated into substrate supporting larger gravels that was placed during the shipyard sediment remediation project that had completely eliminated eelgrass from the shipyard.



In some areas, eelgrass was more extensive and likely reflects eelgrass that initially germinated in 2017.



Larval giant kelpfish (Heterostichus rostratus) were observed in swarms in and around the eelgrass near the shoreline. The unvegetated soft bottom continues to exhibit the coarse sand conditions from sediment remediation work completed in late 2015. Algae and round stingrays, sandbass and spiny lobster were common in these areas.

The survey of in-water habitats at the project site completed in October 2018 detected eelgrass in the shallow water of the project site (typically less than -12 feet MLLW) adjacent to rip rap revetment and along the bulkhead wall (Figure 3). At one location a small patch of seedling eelgrass extended to a depth of -18 feet; however, it is unlikely to persist at this depth through the winter. The vegetated cover of eelgrass within the study area totaled 9,790 square feet (0.22 acre). The areal extent of eelgrass within the study area in October 2018 was 13,510 square feet (0.31 acre) and the spatial distribution was 40,709 square feet (0.93 acre) (Table 3).

As indicated, this eelgrass is recurrent within the same footprints previously mitigated in association with the shipyard sediment remediation project conducted under prior permit. Therefore for the present analysis, impacts to eelgrass are presumed to have been previously addressed and are not subject to additional mitigation.

Intertidal/Shallow Subtidal Riprap Revetments

The shoreline along the northern and southern portions of the project site is armored with concrete block riprap revetment that is mainly within intertidal elevations and extends down to shallow subtidal depths where it transitions to vegetated and unvegetated subtidal habitat. The intertidal riprap is generally free of macrofauna, but where invertebrate organisms were observed, these predominantly belonged to the phylum Mollusca, mainly represented by the native oyster (*Ostrea lurida*), non-native Pacific oyster (*Crassostrea gigas*), as well as arthropods including the lined shore crab (*Pachygrapsus crassipes*).

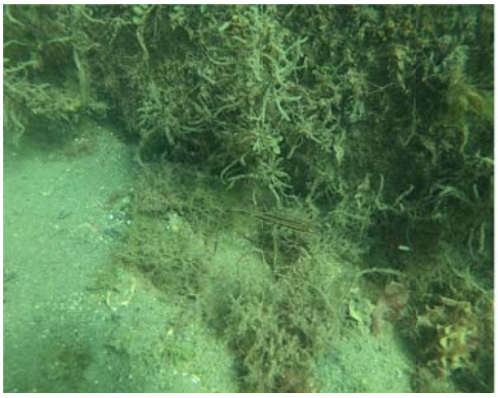
*California spiny lobster (*Panulirus interruptus*) is common in shoreline rubble at BAE Systems*

The subtidal riprap within the project site displayed more diversity of flora and fauna. Algal species observed subtidally included green alga (*Ulva* spp.) and brown algae including *Dictyota* spp*., Colpomenia* spp*.* and the non-native *Sargassum muticum*. Invertebrate species observed included encrusting sponges (*Haliclona* sp.), navanax, native and non-native Pacific oyster, spiny lobster, and bryozoans including *Zoobotryon verticillatum* and *Bugula neritina.* Fish species that are typical along subtidal portions of the riprap include topsmelt, round stingray, barred sand bass, kelp bass (*Paralabrax clathratus*), juvenile black croaker, black surfperch (*Embiotoca jacksoni*), and opaleye (*Girella nigricans*).

Shallow subtidal rip rap revetments contain numerous algal species including Ulva sp. *and* Dictyota sp*., and coralline algae (*Corallina sp.*).*

Vertical Bulkhead Wall

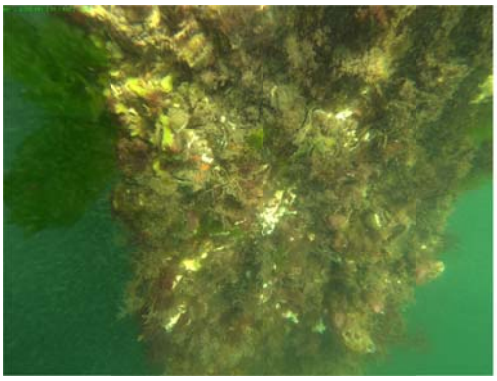
Vertical bulkhead wall occurs along the majority of the shoreline within the project site. Bulkhead walls do not provide the same structural complexity or void areas for sheltering marine organisms as does riprap. The fauna observed along the upper intertidal vertical bulkhead was limited to barnacles (*Balanus* spp., *Chthamalus* spp.) and non-native Pacific oyster. However, at the lower margins of the wall, algal growth and encrusting sessile invertebrate growth dominates the wall faces. In general the wall environments lack substantial relief; however, some of the walls have corrugated sheetpile relief and a greater structural complexity.



Base of vertical bulkhead wall showing algal and invertebrate cover within subtidal portions of the wall.

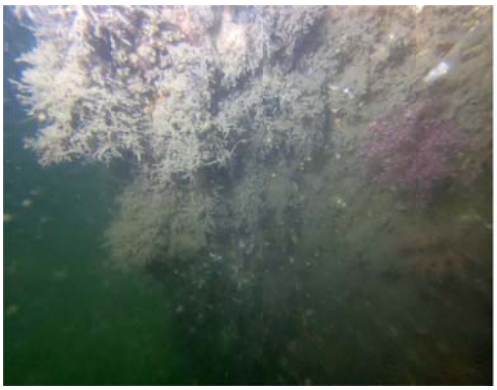
Pier Piles

Pier and wharf pilings provide habitat for an assemblage of organisms known as the fouling community. This community appears to attract schooling fish, which feed on the attached invertebrates and algae, and obtain refuge from predation (Glasby 1999). The species present and the overall complexity of the fouling community on pier pilings are dependent upon a number of factors including tidal elevation and inundation time, light availability, wave exposure, and size and shape of the pilings themselves (Connell and Glasby 1999, Connell 2001). While several studies indicate that man-made marinas do not support the same complexity of organisms as do natural reefs, it is apparent that pier pilings in coastal marinas do provide habitat value for fouling communities and associated fish assemblages (Clynick 2008). Piles exposed to greater circulation and higher light levels tend to support the most complex and productive communities. This is the case in the project area where piles on exposed sides supported more diverse encrusting communities.



*The upper portion of the pier piles are dominated by barnacles (*Balanus *spp.), native and non-native Pacific oyster (*Ostrea lurida *and* Crassostrea gigas*), and mussel (*Mytilus galloprovincialis*). Below the intertidal zone fouling tunicates, sponges, and bryozoans become dominant. Dominant species include coralline and red algae, sponges (Phylum Porifera), and tunicates including* Styela clava, Styela plicata*, and* Botrylloides *spp.*

The pier piles in the project site support numerous species of sessile, or sedentary, invertebrates. At the highest tidal elevations, the pilings are dominated by barnacles (*Chthamalus* spp., *Balanus* spp.). At lower tidal elevations, the native oyster, and Mediterranean mussel (*Mytilus galloprovincialis*) are dominant. Other invertebrates include non-native oyster, sponges (Phylum Porifera), multiple species of tunicates including *Styela clava*, *Ciona* spp., and *Botrylloides* sp., hard and soft bryozoans, including the widespread invasive *Zoobotryon verticillatum*, and feather duster worms (Family Sabellidae). Mobile



The fouling community of on the lower piles is generally dominated by bryozoans and sponges with organisms that are tolerant of silt accumulation dominating the pile community.

observed on pier pilings. When established, these species can form vigorous stands and forms a thick canopy over the native biota (IUCN Invasive Species Specialist Group 2007).

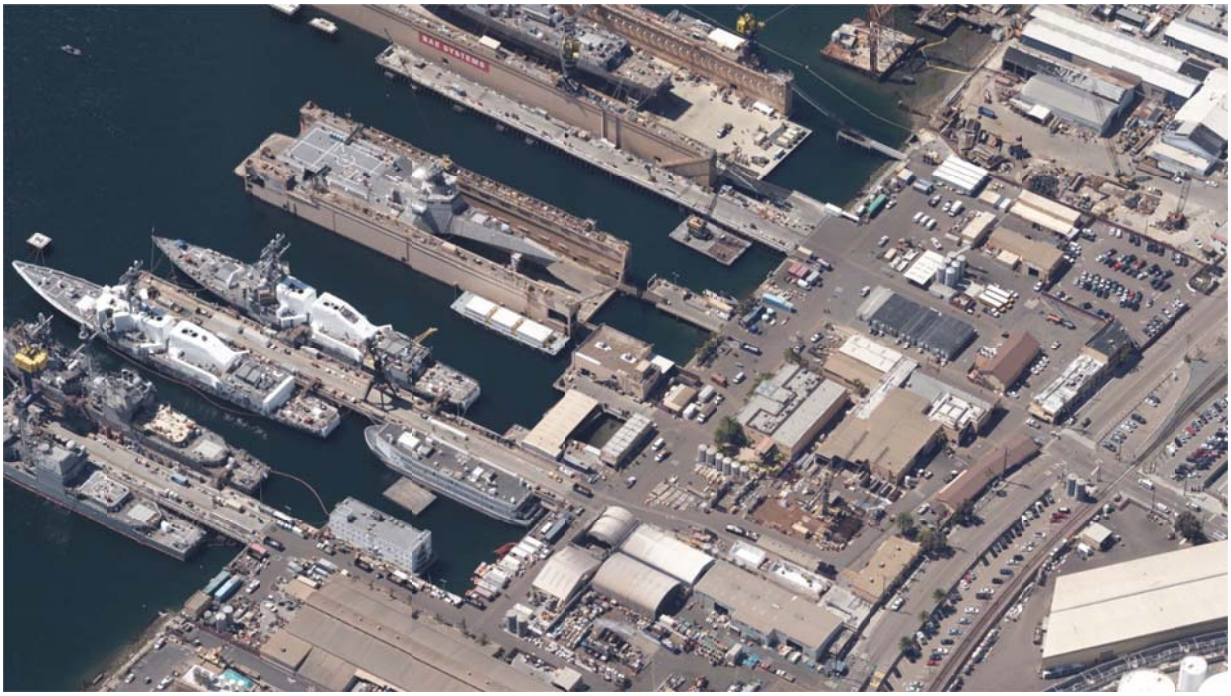
Open Water

Open water/water column habitat due to its three dimensional component, is the largest habitat type within the project site, and supports pelagic fishes and occasionally marine mammals. The most common schooling species known to occur within the project site are topsmelt along with northern and deepbody anchovy (*Engraulis mordax* and *Anchoa compressa*). The occurrence of these species in open water is important to several species of piscivorous birds including pelicans, terns, loons, grebes, cormorants, and mergansers. These fish also provide an important forage base for predatory fish species. In general, the open waters of the shipyard experience limited avian use due to the high level of activities and the high overhead structures of vessels, cranes, and piers that create a perceived threat for birds on the water. Schooling fish move through the area with the tides, but are generally funneled towards the high flow velocity areas in the channel to the west of the site. Within the shipyard, schooling topsmelt are common around the piers where they aggregate by the structures.

Upland Transition and Upland Areas

The upland transition and upland areas of the project site consist of highly developed lands and are completely surrounded by urban development, with vegetation being limited to very limited ornamental plantings. As such, upland resources are sparse and are limited to urban-tolerant and commensal species.

No special status wildlife species are expected to occur within the upland and transition areas of the project site. Wildlife species noted in the upland and transition areas consist primarily of common urban associated species and are dominated by avian fauna such as of mourning dove (*Zenaida macroura*), house finch (*Haemorhous mexicanus*), European starling (*Sturnus vulgaris*), American Crow (*Corvus brachyrhynchos*), rock pigeon (*Columba livia*), house sparrow (*Passer domesticus*) and western gull (*Larus occidentalis*). The western fence lizard (*Sceloporus occidentalis*) is the only reptile species likely to occur. Mammal species are limited to non-native rodent species such as house mouse (*Mus musculus*), Norway rat (*Rattus norvegicus*), and black rat (*Rattus rattus*). Additionally, two other common mammals often associated with urban development, racoon (*Procyon lotor*) and Virginia opossum (*Didelphis virginiana*), are also likely to occur within the upland areas of the project site.



An overview oblique aerial photograph shows the developed nature of the uplands within the study area. The site is nearly fully paved with only the northernmost lot being comprised of a gravel pad.

The photograph shows the most extensive collection of vegetated upland area within the shipyard. This consists principally of a variety of palm trees within raised planters.

No special status flora species are expected to occur in the upland areas. Observed vegetation is limited to ornamental and landscaped species such as palm trees (*Syagrus* sp., *Phoenix canariensis,* etc.), and bird of paradise (*Strelitzia* sp.).

Some upland areas have a potential to be utilized by other regionally common migratory birds that are not designated as special status species under CEQA, but are protected under the federal MBTA and California Fish and Game Code Sections 3503 and 3513. Avian species classified as migratory under the MBTA have a potential to nest within the study area. These include mourning dove, house finch, and western gull. Mourning dove generally construct nests of small twigs on a horizontal limb, in the crotch of a tree, or on secluded areas within urban structures in the absence of suitable trees or shrubs, with breeding occurring from late January through September. House finch build nests of fine weed and grass stems and leaves, as well as items such as string and feathers, in a variety of urban and non-urban areas, with breeding occurring from March to July. Western gull often utilize urban structures at suitable nest locations when cliff edges and natural locations are limited. In southern California, western gull will nest mainly from April to July.

4.2 WETLANDS AND SENSITIVE HABITATS

Wetlands, as defined by the USACE, are not present within the developed project site. The nearest wetlands to the project site are located on Delta Beach on the west side of the bay from the site at a distance of approximately 1.6 miles and the marshes of the San Diego Bay Wildlife Refuge, located approximately 3.5 miles south of the project site.

Eelgrass is a rooted aquatic plant that inhabits shallow soft bottom habitats in quiet waters of bays and estuaries, as well as sheltered coastal areas. It can form dense beds that provide substrate, food, and shelter for a variety of marine organisms. Eelgrass is considered a Submerged Aquatic Vegetation (SAV), and a "special aquatic site" under the CWA. Pursuant to the MSA, eelgrass is designated as a Habitat Area of Particular Concern (HAPC) within EFH for various federally-managed fish species within the Pacific Coast Groundfish Fisheries Management Plans (FMP) (NMFS 2008a). As noted in the Subtidal Vegetated Habitat section, a total of 9,790 square feet of eelgrass was present within the project site in October 2018.

4.3 WILDLIFE CORRIDORS

The project site does not provide any terrestrial movement corridors, and no marine mammal, reptile, or fish migratory corridors occur within the site. However, some marine fish species, such as anchovy, sardine, and topsmelt, move into and out of the Bay for spawning, nursery, and foraging. The southern portions of the Bay, including the South San Diego Bay National Wildlife Refuge and South Bay Salt Ponds further to the south, provide stopover habitat for migrating waterfowl and shorebirds. San Diego Bay, like all of California, is located within the Pacific Flyway.

Several whale species migrate along the coast of California, including the California gray whale (*Eschrichtius robustus*). The peak northward migration of male gray whales occurs in mid-March, followed two months later by the second migration wave, which is composed of cows and calves. Whales typically do not occur within the very shallow waters of south San Diego Bay, adjacent to the project site and their occurrence in the bay is generally a rarity.

4.4 SENSITIVE WILDLIFE

Table 4 identifies sensitive animal species known to occur in San Diego Bay, and identifies the likelihood of these species to occur within the project site. While several sensitive species are known to occur in south San Diego Bay and in the marshes adjacent to the Bay, few species are known to regularly occur within or immediately adjacent to the project site. Only two species listed by USFWS and/or CDFW as federally or state endangered or threatened have an elevated potential to occur within the project site: the federally threatened green sea turtle (*Chelonia mydas*) which has not been documented in the study area but which is known to move in and out of San Diego Bay and thus must pass by the project site, and the federally and state endangered California least tern (*Sternula antillarum browni*) which is known to occasionally forage in the study area as it regularly cruises the shorelines of San Diego Bay and forages opportunistically when in the Bay.

South San Diego Bay supports a population of eastern Pacific green sea turtles of between 16 and 61 individuals that primarily remain in the warm waters of south San Diego Bay, though some are known to leave the bay to nest on the beaches of offshore islands of Mexico (Eguchi et al. 2010). Long-term acoustic tagging and GPS tracking studies by NMFS indicate that the population has historically congregated in the warm waters of the cooling water discharge channel at the now closed South Bay Power Plant in south San Diego Bay. The shutdown of the South Bay Power Plant has made movements of turtles harder to predict. Recent tracking studies have noted turtles utilizing areas of San Diego Bay much farther north than their historically recognized foraging areas, but still primarily located south of the Sweetwater River Channel; recent tracking data indicates that turtles spend 95% of their time south of the Sweetwater River Channel (Bredvik et al 2015).

The California least tern nests along the west coast of North America, from Baja California, Mexico, north to the San Francisco Bay area. California least terns are seasonal residents of San Diego Bay, typically arriving in mid- to late-April to nest at several colonies adjacent to San Diego Bay, and are generally present through August, with September 15 marking the end of the season. Along the shores of the San Diego Bay, California least terns nest at multiple sites. The closest to the project site are the D Street Fill, the Chula Vista Wildlife Reserve, and along the South Bay Salt Works levees managed by the SDUPD and USFWS. These three sites are located approximately 3.5 miles, 4.3 miles, and 5.3 miles from the project site, respectively. California least terns actively forage for fish in the waters adjacent to nesting colonies in San Diego Bay, as well as in nearshore coastal waters outside of San Diego Bay. Given the duration of project, it is anticipated that some project construction elements would occur during the nesting season for California least tern; however, the construction schedule has been structured to minimize where feasible in-water work during the California least tern nesting/foraging season.

Finally, several species of marine mammals could occur in the bay (Table 4). California sea lion (*Zalophus californianus californianus*) and, to a lesser extent, Pacific harbor seal (*Phoca vitulina richardsi*) are the two most common species of marine mammals that occur in San Diego Bay and adjacent coastal waters. Neither species breeds within San Diego Bay, and both are only occasional visitors to central San Diego Bay. California sea lion may occasionally be observed adjacent to the project site, but Pacific harbor seal are not expected to occur. Over the course of 145 days of marine mammal monitoring from April to November 2016, only 7 sea lions were observed in proximity to the shipyard (Merkel & Associates 2017c). Dolphins and whales are rarely observed in the Bay, and are not anticipated to be present within the project site.

Table 4. Sensitive Species with Potential to Occur within the Project Site

Common Name	Scientific Name	Status	Occurrence in Project Site
Reptiles Green Sea Turtle	*Chelonia mydas*	FT	Low Potential – Resident population occurs in south San Diego Bay and individuals are known to leave the bay. They may travel through the project areas or more likely travel along the eelgrass vegetated western side of the bay.
Birds California Brown Pelican	*Pelecanus occidentalis californicus*	CDFW FP	High Potential – No nesting, roosts on security barrier, rip rap, docks, pilings, etc. at project site infrequently and typically in low numbers.
Double-crested Cormorant (nesting)	*Phalacrocorax auritus*	CDFW WL	High Potential – Nests in South Bay Salt Works but forages in open waters throughout the bay.
Northern harrier (nesting)	*Circus cyaneus*	CDFW SSC	Low Potential –- Nests in marshes in south bay and is uncommon on the urbanized east shore.
Osprey (nesting)	*Pandion haliaetus*	CDFW WL	Low Potential – Nests in south SD Bay and typically forages in the south bay.
American peregrine falcon (nesting)	*Falco peregrinus anatum*	CDFW FP, FWS BCC	Moderate Potential – Nests on tall structures such as the Coronado Bridge and may forage in the area on rare occasion.
California Least tern (nesting)	*Sternula antillarum browni*	SE, FE	High Potential – Nests on habitual colonies within San Diego Bay. The nearest colony is at Delta Beach on the west side of the bay located approximately 1.9 miles south west of the project area. Least terns are a migratory species found in the area from approximately April 1 through September 1 of each year.
Caspian tern (nesting)	*Hydroprogne caspia*	FWS BCC	Moderate Potential – Nests in South Bay Salt Works and forages along project site occasionally.
Black skimmer (nesting)	*Rynchops niger*	CDFW SSC	Moderate Potential – Nests in South Bay Salt Works and forages along project site occasionally.
Elegant tern (nesting)	*Thalasseus elegans*	CDFW WL	High Potential – Nests in South Bay Salt Works and forages along the project site.
Mammals Pacific harbor seal	*Phoca vitulina richardsi*	MMPA	Low Potential – Forages in north Bay and is uncommon in the mid bay.
California sea lion	*Zalophus californianus californianus*	MMPA	Moderate Potential – Forages and loafs in the north Bay with uncommon occurrences in the mid bay.
Coastal bottlenose dolphin	*Tursiops truncatus*	MMPA	Low Potential – Uncommon forager in deep channels of the north Bay. Rarely seen in mid and south SD Bay.
California gray whale	*Eschrichtius robustus*	MMPA	Very Low Potential – Regular migrant in offshore waters, but uncommon in Bay and nearshore waters. Very rarely seen in SD Bay.

SE – State Endangered; **FE** – Federally Endangered; **FT** – Federally Threatened; **CDFW SSC** – CDFW Species of Special Concern; **CDFW-FP** – CDFW Fully Protected Species; **CDFW-WL** – CDFW Watch List; **FWS-BCC** – USFWS Bird of Conservation Concern; **MMPA** – species protected by the Marine Mammal Protection Act

5.0 ESSENTIAL FISH HABITAT

5.1 ESSENTIAL FISH HABITAT BACKGROUND INFORMATION

The MSA requires federal action agencies to consult with NOAA's NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH. The EFH Guidelines (50 CFR 600.05 - 600.930) outline the process for federal agencies, NMFS and the Fishery Management Councils to satisfy the EFH consultation requirement under Section 305(b(2)-(4)) of the Magnuson-Stevens Act. As part of the EFH Consultation process, the guidelines require Federal action agencies to prepare a written EFH Assessment describing the effects of that action on EFH (50 CFR 600.920(e)(1)). The EFH Assessment is a necessary component for efficient and effective consultations between a federal action agency and NMFS. In the case of the present project, work proposed would require permitting under section 404 of the Clean Water Act and section 10 of the Rivers & Harbors Act. For these permit actions, the Army Corps of Engineers is the lead federal action agency.

Definitions

EFH consist of those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity (16 U.S.C. 1802(10)). The following definitions apply to the sections of this document that address potential project impacts and protective measures:

- Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate (50 CFR 600.10).
- Substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities (50 CFR 600.10).
- Necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem (50 CFR 600.10).
- Healthy ecosystem means an ecosystem where ecological productive capacity is maintained, diversity of the flora and fauna is preserved, and the ecosystem retains the ability to regulate itself. Such an ecosystem should be similar to comparable, undisturbed ecosystems with regard to standing crop, productivity, nutrient dynamics, trophic structure, species richness, stability, resilience, contamination levels, and the frequency of diseased organisms (50 CFR 600.810(a)).
- Adverse effect means any impact that reduces quality and/or quantity of EFH. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810(a)).

Habitat Areas of Particular Concern

EFH guidelines published in Federal regulations identify HAPC as types or areas of habitat within EFH that are identified based on one or more of the following considerations:

- The importance of the ecological function provided by the habitat.

- The extent to which the habitat is sensitive to human-induced environmental degradation.
- Whether, and to what extent, development activities are or will be stressing the habitat type.
- The rarity of the habitat type (50 CFR 600.815(a)(8)).

HAPCs considered potentially present within the project site include estuarine and seagrass habitat (NMFS 1999). Estuaries are protected nearshore areas such as bays, sounds, inlets, and river mouths, influenced by ocean and freshwater. Because of tidal cycles and freshwater runoff, salinity varies within estuaries and results in great diversity, offering freshwater, brackish and marine habitats within close proximity (NMFS 1999). Given the large scale of San Diego Bay combined with the limited freshwater and highly punctuated influence associated with creeks and drainage, the region of the bay within which the project is strongly dominated by marine influences and maintains year-round oceanic salinities and does not meet the estuary definition and the areas is not considered to be an estuary HAPC. Seagrasses are vascular plants, not seaweeds, forming dense beds of leafy shoots in the lower intertidal and subtidal areas. Eelgrass (*Zostera marina*) is seagrass found on soft-bottom substrates in intertidal and shallow subtidal areas of bays and estuaries as well as some coastal nearshore areas. Eelgrass is considered to be an HAPC present within the project area.

NMFS Managed Ichthyofauna Present in San Diego Bay

The ichthyofauna in San Diego Bay has been previously studied (M&A 2000, Allen 1999, Hoffman 2006). The first truly baywide seasonal study of fishes was published in April 1999, after five years of sampling (1994-1999). In 2005, a follow-up study to Allen's work was performed by Vantuna Research Group (VRG 2006 and 2009), using identical methods. To date, these studies have identified a minimum of 109 species of fish in San Diego Bay (U.S. Navy 2013a). The following analysis makes extensive use of Allen's and VRG's baywide survey data sets because they are both recent and comprehensive (surveys were completed quarterly, at four stations throughout San Diego Bay, utilizing six sampling gear types). The other studies reviewed for this analysis are utilized primarily to confirm the presence of fish species and to identify any additional species not captured during the baywide surveys.

Of these 109 species known to occur in San Diego Bay, eleven are managed by the NMFS under two Fishery Management Plans (FMPs) - the Coastal Pelagics and Pacific Groundfish Management Plans (Table 5) (NMFS 1998, PFMC 2016). Four of the five fish managed under the Coastal Pelagics FMP are represented in San Diego Bay. The northern anchovy and Pacific sardine (*Sardinops sagax*) are the most abundant pelagics identified by Allen, ranking 1st and 4th in abundance, and 3rd and 10th in biomass, respectively (Table 5). Together, these two species accounted for 46.3% of the total abundance and 11.6% of the total biomass of fish enumerated by Allen (1999). The Pacific mackerel (*Scomber japonicas*) and jack mackerel (*Trachurus symmetricus*) are the other two coastal pelagics to potentially occur within the project Site. These two species were much less abundant than the northern anchovy and Pacific sardine, and were ranked by Allen as 32nd and 52nd in total abundance and 24th and 73rd in total biomass, respectively. Together the two species accounted for less than 1% of total abundance and biomass of fish captured in Allen's study.

Table 5. Table of NMFS managed fish species previously found in San Diego Bay.*

Common Name	Scientific Name	Rank**	
		Abundance	Biomass
Coastal Pelagics FMP			
Northern Anchovy	*Engraulis mordax*	1st	3rd
Pacific Sardine	*Sardinops sagax*	4th	10th
Pacific Mackerel	*Scomber japonicus*	32nd	17th
Jack Mackerel	*Trachurus symmetricus*	52nd	29th
Pacific Groundfish FMP			
California Scorpionfish	*Scorpaena gutatta*	41st	24th
English Sole	*Parophrys vetulus*	76th	73rd
Leopard Shark	*Triakis semifasciata*	NC	NC
Soupfin Shark	*Galeorhinus zyopterus*	NC	NC
Spiny Dogfish	*Squalus acanthias*	NC	NC
Cabezon	*Scorpaenichthys marmoratus*	NC	NC
Grass Rockfish	*Sebastes rastrelliger*	NC	NC

*Data compiled from Allen (1999), Merkel & Associates (2000), Hoffman (2006), Vantuna (2006, 2009), and U.S. Navy (2013)

**Rank refers to the relative rankings among 78 fish species observed by Allen (1999). Ranks are for total abundance and biomass, respectively.

NC = Not Captured during Allen's 1999 study.

Of the 87 species managed under the Pacific Groundfish FMP (PFMC 2016), two have been found in San Diego Bay during the studies analyzed for this assessment: California scorpionfish and English sole (*Parophrys vetulus*). These species were observed only rarely in San Diego Bay during the five and a half years of Allen's study, ranking 41st and 76th by abundance and 24th and 73rd by biomass, respectively (Table 5). Together these two species accounted for less than 0.5% of the total abundance and biomass of fish captured (Allen 1999). In eighteen years of sampling in San Diego Bay, Hoffman (2006) never captured English sole and captured only four California scorpionfish, though the habitat sampled was not typical of scorpionfish or sole. In addition to the species captured during Allen's study, three species of shark and cabezon have also been reported for San Diego Bay; these species are also rarely captured and have been reported primarily as species taken by recreational fisherman (U.S. Navy 2013a). Finally, grass rockfish (*Sebastes rastrelliger*) comprised a single individual captured during baywide surveys in July 2005 (VRG 2006).

Biological Descriptions for Managed Species

The following descriptions of the life histories of the eleven managed species listed above provide the background information required to make a determination of the suitability of the project area to support and provide essential habitat for these species.

Northern anchovy

Northern anchovy historically ranged from the Queen Charlotte Islands, British Columbia south to Cape San Lucas, Baja California. More recently, populations have moved into the Gulf of California, Mexico. Larvae and juveniles are often abundant in nearshore areas and estuaries with adults being more oceanic. However, adults can be abundant in shallow nearshore areas and estuaries and eggs and larvae have been found offshore. Northern anchovy are non-migratory but do make extensive

inshore-offshore movements and along-shore movements. Spawning occurs throughout the year; in southern California, spawning occurs between January and May. Northern anchovy are one of the most abundant fish in the California current and are important prey for a variety of fish, birds, and marine mammals (Emmett et al. 1991).

Pacific sardine

Pacific sardine is a pelagic species. Individuals can be found in estuaries, but are most common in open coastal habitats and offshore. The Pacific sardine is wide ranging with sardines in the Alguhas, Benguela, California, Kuroshio, and Peru currents, and off New Zealand and Australia being considered the same species. Changes in distribution are common and linked to environmental conditions. In California, sardines are highly mobile and move seasonally. Older adults move from southern California and northern Baja spawning grounds to feeding grounds off the Pacific Northwest and Canada. Younger individuals (two to four years old) migrate to feeding grounds in central and northern California. Juveniles occur in nearshore habitats off northern Baja and southern California. Although numbers vary greatly, at times sardines are the most abundant fish species in the California current. In southern populations spawning occurs year-round with a peak from April to August between Point Conception and Magdalena Bay. Eggs and larva are found everywhere adults are found. Sardines are planktivores consuming both phytoplankton and zooplankton. They are themselves prey for a variety of predators. Eggs and larvae are consumed by numerous planktivores with juvenile and adults being consumed by a variety of fish, birds, and mammals (NMFS 1998).

Pacific mackerel

Pacific mackerel is a pelagic species. In the northeastern Pacific, Pacific mackerel range from Banderas Bay, Mexico to southeastern Alaska and usually occur within 20 miles of shore. Local populations spawn from Eureka, California south to Cabo San Lucas, Baja California with peak spawning occurring between late April and July. However, fecundity is more closely tied to sufficient food and environmental conditions than to season. Pacific mackerel larvae are predated by numerous invertebrate and vertebrate planktivores. Juveniles and adults are important prey for many large fishes, marine mammals, and birds. Due to their larger size, they are likely less important as forage than Pacific sardine or northern anchovy which are available to a wider variety of predators and are more abundant (NMFS 1998).

Jack mackerel

Jack mackerel is a schooling fish that ranges widely throughout the northeastern Pacific. Individuals are found along the mainland coasts to an offshore limit approximated by a line running from Cabo San Lucas, Baja California, to the eastern Aleutian Islands, Alaska. Typically, small jack mackerel (< 6 years of age) are most abundant near the mainland coast and islands in the Southern California Bight. Older individuals fill out the geographic range and are generally found offshore in deep water and along the coastline north of Point Conception, California. Jack mackerel spawn between February and October in California, with peak spawning activity between March and July. Larvae eat primarily copepods with the small jack mackerel found off southern California consuming large zooplankton, juvenile squid and anchovy. Jack mackerel are prey items for large predators such as tunas and billfish. They are likely only of minor significance as prey for marine birds because of the large size of adults and their deep schooling (NMFS 1998).

California scorpionfish

The California scorpionfish ranges from Santa Cruz, California south to Uncle Sam Bank, Baja California. It is a benthic species found in both sandy and rocky habitats. Individuals are predominantly solitary, but are known to aggregate near prominent features both natural and human-made. Young fish live in shallow habitats typically hidden within dense algae and bottom-encrusting organisms. Spawning occurs between May and September and peaks in July. Eggs are laid in a gelatinous mass that floats near the surface. The primary food items include juvenile crabs, small fishes (e.g. northern anchovy), octopus, isopods, and shrimps (NMFS 2008a).

English sole

English sole range from central Baja California to Unimak Island, Alaska. They occur in greatest numbers north of Point Conception, California. Juveniles are found in all Pacific coast estuaries from San Pedro Bay, California to Puget Sound with Elkhorn Slough, California being the southernmost estuary where they are abundant. Adults make limited movements with a northward migration in the spring to summer feeding grounds, returning in the fall. Spawning occurs over soft-bottom substrates at depths of 50-70 m. Spawning occurs between December and April for southern stocks. Eggs are buoyant and larvae are pelagic. Adults and juveniles prefer soft sand and mud bottoms generally in less than 12 m of water. Larvae are likely eaten by larger fishes, with juveniles falling prey to larger fishes, marine mammals, and birds. Adults may be eaten by marine mammals, sharks and other large fishes.

Leopard Shark

Leopard shark (*Triakis semifasciata*) are found from southern Oregon to Baja California, Mexico including the Gulf of California. They are most common in northern California bays and estuaries and along southern California beaches. They are also common in enclosed, muddy bays, and also reside in flat, sandy areas, mud flats, sandy and muddy bottoms, strewn with rocks near rocky reefs, and kelp beds. Leopard sharks are most common on or near the bottom in waters less than 13 feet deep, but have been caught as deep as 300 ft. They spawn and pup in shallow water. Seasonally, pups are along sandy beaches and in protected bays. A large grouping of this species is known to occur during summer months at La Jolla Shores Beach, north of San Diego Bay. The maximum recorded length of a leopard shark is six feet, but most do not exceed five feet in length. Females may take 10 to 15 years to reach maturity, while males may only take 7 to 13 years. The maximum age is reported to be 30 years. This species feeds on a variety of prey including crabs, clams, fish, and octopus. Leopard sharks are undoubtedly more common in San Diego Bay waters than capture data would suggest as this species commonly occurs in eelgrass beds and quiescent shallows and an aggregation of adult leopard sharks was observed along the Coronado First Avenue shoreline in 2005 (Merkel, pers. obs.).

Soupfin Shark

Soupfin shark (*Galeorhinus zyopterus*) range from northern British Columbia to Abreojos Point, Baja California and the Gulf of California. This shark is an abundant coastal-pelagic species of temperate continental and insular waters. They are often associated with the bottom, inhabiting bays and muddy shallows. Males and females apparently segregate by gender; adult males occur in deeper water and adult females occur closer inshore. Females and young tend to be more common in southern California waters. Primary nursery grounds are in southern California inshore areas south of Point Conception, with females moving in to bays to bear live young. Soupfin sharks are

opportunistic carnivores, preying upon moderate-sized bony fishes, echinoderms, shrimp, invertebrates and squid. This species is a rare species in San Diego Bay (U.S. Navy 2013a).

Spiny Dogfish

Spiny dogfish (*Squalus acanthias*) are found in temperate and subarctic latitudes in both the northern and southern hemispheres. In the northern and central Pacific Ocean, they occur from the Bering Sea to Baja California. Spiny dogfish typically inhabit waters less than 350 m deep and occur from the surface and intertidal areas to greater depths. The species is commonly found in inland seas, such as San Francisco Bay and Puget Sound, and in shallow bays from Alaska to central California. Mating with internal fertilization occurs on the ocean bottom between September and January. Adult females move inshore to shallow waters during the spring to release their young. Spiny dogfish are carnivorous scavengers. They are important predators on many commercial fishes and invertebrates. Their diet consists primarily of fish, especially sandlance, herring, smelts, cods, capelin, hake, and ratfish; and of invertebrates, particularly shrimp, crabs, worms, krill, squid, octopus, jellyfish, and sea cucumbers. Fish become a more important dietary source as the dogfish grow larger.

Cabezon

Cabezon (*Scorpaenichthys marmoratus*) are found in southeast Alaska to as far south as Punta Abreojos in central Baja California. They dwell primarily on hard bottoms in shallow water from intertidal pools to depths of 76 meters. Cabezon are abundant all year in estuarine and subtidal areas, as well as to mid-depths along the continental shelf. They are most abundant in estuaries of the West Coast, where all life stages can be found. Juveniles first appear in kelp canopies, tide pools, and other shallow rocky habitats such as breakwaters from April to June. Cabezon do not migrate and spend most of their time sitting in holes on reefs, in pools, or on kelp blades beneath the canopy, but not actively swimming. In shallow water they move in and out with the tide to feed. Their habit of sitting can make them an easy target for recreational divers. The spawning season for cabezon runs from late October to March and peaks in January in southern California. Juveniles and adults are carnivorous, feeding opportunistically. Small juveniles depend mainly on amphipods, shrimp, crabs, and other small crustaceans while adults consume crabs, small lobsters, mollusks (abalone, squid, octopus), small fish (including rockfishes), and fish eggs.

Grass Rockfish

Grass rockfish is a common, shallow-water rockfish found from Playa Maria Bay, Baja California to Yaquina Bay, Oregon, although they are most common south of southern Oregon. Grass rockfish have become an important component of the live-fish fishery. Among rockfishes, they have one of the shallowest and narrowest depth ranges. They are found from the intertidal zone to 184 feet, and are commonly found from the intertidal to 20 feet. Grass rockfish are common in nearshore rocky areas, along jetties, in kelp and in eelgrass. Around reef structures, adults may be found hiding in crevices. Larvae are released from January to March, with the peak release occurring in January. This species is expected to be very rare in San Diego Bay.

6.0 IMPACT ANALYSIS

The project site is similar to other industrialized areas within San Diego Bay with regard to distribution of habitats, biological features, and sediment characteristics. This analysis focuses on stressors associated with the proposed project elements and their potential impact to biological resources including in-water habitat (i.e., subtidal [vegetated and unvegetated] habitat, open water, intertidal/shallow subtidal riprap revetments, and pier piles) including sensitive habitats (e.g., eelgrass), upland habitat, wildlife corridors, and sensitive species within the project area.

Criteria for determining the significance of project-related impacts on biological resources are based on the resource's relative sensitivity and regional status, including the proportion of the resource that would be affected relative to its occurrence in the project region (San Diego Bay), the sensitivity of the resource to activities (e.g., noise or disturbance) associated with the proposed project, and the duration or ecological ramifications associated with the effect. Impacts are considered significant if they would results in:

- Degradation of critical habitat or reduction in the population size of a listed species (threatened or endangered);
- Degradation of rare or biologically valuable habitat;
- A measurable change in ecological function within the project vicinity;
- A measurable change in species composition or abundance beyond that of normal variability;
- A substantive loss of water surface area through fill or surface water coverage as a result of permanent structures such as docks, wharves, and permanently moored vessels. Small structures such as moorings, navigational aids, individual or widely spaced piles do not result in a substantive loss of water area; or
- An obstruction or alteration of circulation patterns that result in a discernable degradation of water mixing, circulation, or flushing to the extent that biota would be negatively affected in the system.

Impacts to habitats and wildlife can be measured as direct and/or indirect. Direct impacts are those that have a direct impact on habitats or wildlife and occur contemporaneously with the action. Direct impacts of in-water construction to wildlife include immediate physical and physiological impacts such as abrupt changes in behavior, flight response, diving, evading, flushing, cessation of feeding, and physical impairment or mortality. Direct impacts to habitats can include damage from construction activities, as well as permanent habitat loss due to project construction. In contrast, indirect impacts are effects that are caused by or will result from the proposed action at a later time, but are still reasonably certain to occur.

Project stressors (e.g., construction, dredging, pile removal and installation) are similar in nature although the magnitude or duration may vary based on the project element (e.g., both Element 1 and Element 4 require dredging, and while the method and equipment are expected to be similar, the duration may be different due to dredge volume). Since elements of the project will be phased over several years, the impacts are analyzed by habitat type and based on the potential stressor, and summarized for each element. In addition, various elements are considered including impacts from operations, as well as, construction of each element.

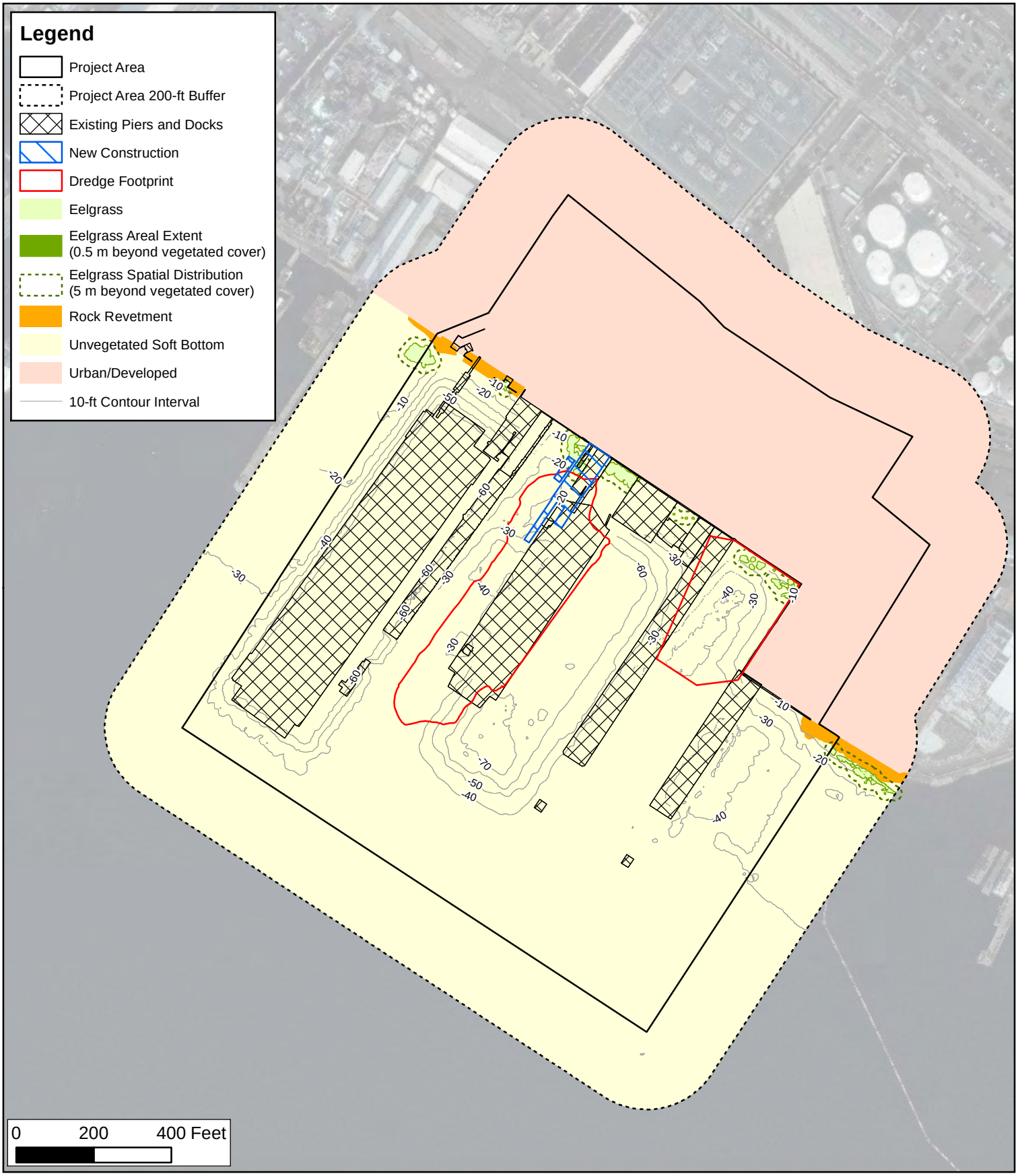
6.1 IN-WATER HABITAT AND EFH IMPACTS

Subtidal Unvegetated Habitat

Direct impacts to the benthic community would include the loss or mortality of any benthic infauna and epifauna within the pile driving/removal and dredge footprints. However, the impact area is relatively small (Table 6) compared to the amount of similar habitat within the bay (approximately 6,650 acres; U.S. Navy 2013a). There is considerable similar soft bottom habitat immediately adjacent to the project area, as well as throughout the bay (Figure 4). These comparable adjacent areas would be expected to provide alternative foraging habitat for opportunistic motile species during the period immediately following bottom disturbance associated with construction and dredging, and structural improvements including removing and replacing piles.

In addition, it is anticipated that the disturbed areas would be re-colonized immediately by adult migration from adjacent areas as well as the more protracted colonization by larval recruitment. A multi-year study completed in San Diego Bay concluded that the density and biomass of benthic infaunal invertebrates within a dredged area of San Diego Bay recovered within 5 months of dredging disturbance, with a full recovery of demersal fish and epibenthic species diversity being reached between 17 and 24 months post-disturbance (M&A 2009). As a result, the impact of in-water construction, dredging, pile removal and installation on the soft bottom benthic community is considered temporary and minimal.

The proposed project would also increase bay surface area coverage as noted in Table 6. It is estimated that Element 2 would increase surface cover by 6,960 square feet, Element 6 by 5,885 square feet, and Element 9 by 80 square feet, for a total of approximately 12,925 square feet. The permanent increase in bay coverage would be significant and would require mitigation. BAE has a surplus of eelgrass within the South Bay Mitigation Site constructed to mitigate eelgrass impacts from the shipyard sediment remediation project and bay coverage associated with the Pride of California Drydock (Pier 1 North Drydock) bay coverage . The South Bay eelgrass mitigation site was sized with surplus to ensure the mitigation needs of 5.57 acres of successful eelgrass were established for the prior project with reservation of any resultant surplus being applied to future project needs. The site was constructed to be 6.77 acres, and at the time of its 12-month review period (June 2018), the site supported 6.44 acres of eelgrass and is expected to be successful with a surplus of eelgrass. At the 12-month review period, the existing surplus of eelgrass was 0.87 acre (approximately 37,900 square feet) (M&A 2018). This is approximately 230 percent more than would be required to offset bay coverage impacts anticipated from the proposed work. While the ultimate area of successful eelgrass development within the mitigation areas is not known since the mitigation area is still early within its 5-year monitoring period, it is expected that the site will generate adequate eelgrass to offset the additional shipyard reconfiguration bay coverage impacts at a 1:1 ratio.



Waterfront Improvements
Biological Services for BAE Systems
Waterfront Improvement Projects

Figure 4

Table 6. Impact Summary Table for In-Water Elements

Project Element	Potential Stressor(s)	Impact Footprint (ft^2)	Dredge Volume (cy)	Area of Bay Coverage* (ft^2)	Pile Count**	Eelgrass Impacts*** (ft^2)
Element 1	In-water construction; Dredging; Pile removal and installation	Dredging-152,814 Dolphins-1800 Total-154,614	92,800	-900 +900 Net=0	-26 (18-in) +38 (24 in) Net=+12	--
Element 2	In-water construction; Pile removal and installation	12,500	--	-5,540 +12,500 Net=+6,960	-20 (18-in) +73 (24-in) +6 (18-in) Net=+59	477
Element 3	In-water construction; Pile removal and installation	--	--	--	-/+503 H-piles +122 H-piles Net=+122	--
Element 4	In-water construction; Dredging	Dredging-82,287	15,000	--	-	1,450
Element 5	In-water construction; Pile installation	900	--	--	+8 (24-in) +16 H-piles Net=+24	--
Element 6	In-water construction; Pile removal and installation	8,800	--	-/+ 3,510 -2,915 +8,800 Net=+5,885	-27 (12-in) +48 (24-in) Net=+21	--
Element 7	In-water construction; Dredging; Pile installation	50 linear feet	300 500	--	50 linear ft of AZ-26 sheetpile	--
Element 8	In-water construction;	3,500 linear ft Remove and replace existing boom	--	--	--	--
Element 9	In-water construction; Pile removal and installation;	400	--	-320 +400 Net=+80	+4 (18-in)	77
Cumulative Total		Dredging-235,101 Construction-249,826	108,600	+12,925	-/+ 576 piles Net +242 piles Net: approx. 25 sheet piles	2,004

*Negative numbers indicate a reduction in bay coverage or pile count. Positive number indicates an increase. -/+ indicates no net change since remove and replace.
**Pile counts are approximate and include all pile types present (e.g. concrete, steel); + indicates an increase; -/+ indicates remove and replace.
***Impacts associated with proposed project were mitigated under the shipyard sediment remediation project.
cy-cubic yards

The proposed project would also result in a net increase of 242 piles associated with the removal/replacement of existing piles (576 piles) and the installation of new piles associated with new structures (Table 6). That the placement of pier pilings to support structures such as docks, piers, and bridges is not typically considered to be bay fill (USACE 1990). The only instance where pilings are considered to be bay fill is when they are installed in a manner where they function specifically as fill material. In such an instance, piles result in significant changes in water circulation patterns. The proposed project does not include the installation of pilings to function as bay fill. The project site is in central San Diego Bay in an area of low water velocity. Water velocities in San Diego Bay peak in the narrower portion of the bay located northwest of the Coronado Bay Bridge, and then decrease as the Bay becomes wider southeast of the Bridge. Areas with low water velocities are less impacted by impediments (such as pier piles) placed in the field of flow. As a result, it is not anticipated that installation of the more additional piles would meaningfully alter water velocities, sedimentation rates, or circulation patterns in the bay. The installation of piles would result in a small decrease in subtidal unvegetated habitat; however, increased piles would be expected to increase the biological productivity of the area by providing greater primary substrate and increased exposure of organisms to the water column. At piles located near the edges of the pier and mooring dolphins, the communities would also benefit from increased primary productivity as a result of macroalgal growth. As a result the increase in the number of pier pilings is not considered to be a significant impact. The impacts associated with the removal and installation of piles is discussed in a separate subsequent section.

Of the managed fish species, unvegetated soft bottom habitat is only suitable for English sole and spiny dogfish. Due to the rarity or absence of these species from San Diego Bay, the impacts on subtidal unvegetated EFH and managed fish species are considered to be minimal with the concurrent surface coverage mitigation. The presence of structures and bay coverage would not be considered to be adverse alterations of the habitat with respect to California scorpionfish which preferentially occur on structures rather than soft bottom and which are commonly associated with manmade structures. However, this species would be expected to be uncommon

Subtidal Vegetated Habitat

Eelgrass vegetated habitats are an essential component of southern California's coastal marine environment. In the project site, eelgrass extends from the base of the riprap revetment and bulkhead wall to approximately -12 feet MLLW (Table 3 and Figure 3). The proposed project would impact approximately 2,004 square feet of eelgrass habitat (Figure 4), and generally the California Eelgrass Mitigation Policy would offer specific guidelines for appropriate responses and mitigation measures for activities that threaten eelgrass vegetated habitats (NMFS 2014). However, the recent Shipyard Sediment Abatement Project resulted in complete removal of eelgrass from the project site which was mitigated at the South Bay Eelgrass Mitigation Site. Therefore, no new mitigation is proposed since mitigation for impacts to these areas has been met, and any impact to existing eelgrass would not require mitigation.

It is worth noting the proximity of eelgrass off-site to the south of Element 7 Quay Wall Modifications on the NASSCO facility. This eelgrass area was impacted and mitigated similarly as that on the BAE site as part of the San Diego Shipyard Sediment Remediation – South Yard. However, eelgrass mitigation for the NASSCO facility was completed on-site near the BAE/NASSCO boundary and thus portions of the off-site eelgrass within proximity to Element 7 are mitigation

plantings for the prior impacts and thus do not fit within the previously mitigated impact class. The San Diego Shipyard Sediment Remediation – South Yard mitigation site located a distance of 78 feet from the BAE lease boundary and the southern end of Element 7. Surveys conducted under the CEMP using interferometric sidescan sonar would allow for mapping of eelgrass beds within 100 feet of the BAE leasehold boundary from within the BAE leasehold. However, direct site access to the adjacent eelgrass beds on NASSCO is also accommodated by the present security boom configuration between shipyards and on-going collaborative access relationships for environmental investigations along the common boundary.

Open water

As noted above, the proposed project would result in increased bay surface area coverage over open water habitat (12,925 square feet). This would decrease the foraging habitat available for piscivorous avian species. In addition, the proposed project would have temporary impacts to water quality and open water habitat. Temporary effects may include localized increases in turbidity and sedimentation, along with lowered dissolved oxygen levels associated with disturbance of anoxic sulfidic sediments during dredging activities and removal and installation of piles. This elevated turbidity could potentially temporarily affect the local foraging success of fish-foraging avian species. Many fish species are attracted to elevated turbidity, while others may avoid it. Given the short-term nature of construction and the localized area of work, the temporary impacts to open water would be considered less than significant. The permanent increase in bay coverage would be significant and would require mitigation, and as discussed previously, would be offset through the purchase of credits from a mitigation bank

Effects from dredging and pile removal and installation include temporary and localized increases in turbidity and sedimentation within the water column. Pile removal and driving is anticipated to affect a relatively small area of water through increased turbidity which would be localized and dissipate quickly following bottom disturbance. It is anticipated that the effects of these construction-related turbidity impacts on fish would be temporary and minor. Some species of demersal and pelagic fish would avoid construction areas, resulting in the displacement of, followed by post-construction re-colonization by these species. Some sedentary demersal fishes may be affected by the temporary increase in sediment loads within the water column during construction, while more opportunistic fish species would be expected to temporarily move into the dredging area to take advantage of suspended benthic prey organisms. These temporary changes in fish distribution are not expected to result in substantial adverse effects.

Intertidal/ Shallow Subtidal Riprap Revetment

The riprap revetment within the southern portion of the project site is planned to be removed and replaced with a vertical bulkhead wall (Element 7). This would result in permanent loss of riprap substrate due to bulkhead replacement (Table 6). The riprap habitat would be replaced by 50 feet of vertical bulkhead wall and sloping unvegetated subtidal soft bottom habitat.

Impacts to the riprap fish community would occur during riprap removal. Some fish would temporarily avoid the work area and move to adjacent riprap during construction due to turbidity and underwater pressure waves associated with the bulkhead sheet piling installation, while other species may be expected to form local feeding aggregations where encrusting communities are damaged by the work. More opportunistic fish species would be expected to temporarily move just

outside of the effective range of the impact, then immediately return to forage on the released or damaged biota. These temporary impacts are not considered to be significant given the continued wide availability of comparable intertidal and subtidal riprap habitat both up and downshore of the project site that would serve as a temporary refuge.

Bulkhead walls do not provide the same structural complexity or void areas for sheltering marine organisms as does riprap. The fouling or encrusting communities of invertebrates and algae present on bulkhead walls are more similar to that found on pier piles. In one study completed in San Diego Bay, the intertidal biota of bulkhead walls in the bay consisted of only a few species highly tolerant to desiccation such as barnacles (M&A 2010). The biomass and species richness increased in subtidal regions. Fish assemblages associated with bulkhead walls have not been studied. According to the M&A study, bulkheads could be expected to provide foraging opportunities to fish because of the associated fouling organisms, although their relative value is likely low. Bulkheads are typically adjacent to a variety of deep-water marine uses and, therefore, present no intertidal area other than the periodically exposed vertical face of the wall. However, the riprap revetment within the project site does not consist of loosely placed quarry rock, as is typical of riprap. Rather the riprap revetment within the project site consists of tightly placed concrete blocks, forming a relatively steep slope down to bay bottom. In some areas, this block has loosened to create crevices and structural complexity, while in other areas the riprap forms an almost vertical wall. As such, the existing riprap habitat is more similar to the vertical bulkhead wall than to typical quarry rock riprap-armored shoreline.

Because of this relatively low quality habitat function of the existing riprap, along with the increase in open water, subtidal unvegetated bottom, and associated habitat values resulting from removal of riprap revetment, impacts to intertidal and subtidal riprap revetment are not considered to be significant.

Piles

The proposed project would result in the removal/replacement of 576 existing piles and a net increase of 242 concrete piles and steel H piles associated with the work (Table 6). The potential project-related impacts associated with removal and installation of pier piles are temporary loss of habitat and forage opportunity for fish, and the physical effects of pile driving on fish. Impacts to other sensitive species are discussed in subsequent sections. Since piles are to be installed with a net increase in pile count and area, impacts are not anticipated to structure-oriented species, including California scorpionfish, which are generally associated with the pile and hard bottom communities. This species is managed by NMFS under the Pacific Groundfish Fishery Management Plan (NMFS 2008a); however, it is expected to be uncommon to rare in the vicinity of the project and thus work would not substantively affect scorpionfish, positively or negatively. The mud surrounding the bottom of the piles also supports a fish community comprised of black croaker, barred sandbass, spotted sandbass, kelp bass, and round stingrays (non-managed species). Spiny dogfish could also occur beneath the piers. Mud bottom would be disturbed during pile installation and removal, but It is anticipated that this impact would be temporary and that these species would quickly utilize the newly installed piles.

Following construction, any fouling algal and invertebrate pile community would be anticipated to rapidly colonize the new piles. Fouling organisms are typically rapid recruiters to newly available

space. While it may take a decade for piling communities to completely stablize (Butler and Connolly 1999), studies have shown that the epibiotic community on cleared or new hard substrate rapidy colonizes and achieves the same abundance and taxonomic diversity of adjacent undisturbed control areas within one to three years (Vance 1988, Pinn et al. 2005). Based on these results, it is anticipated that the piling community would be developed to the extent necessary to provide the full value of habitat presently represented at the site within a short time period. Therefore, these effects are considered to be minor and not significant.

Hydroacoustics

- *Biological In-water Noise Thresholds*

Another potential impact due to pile driving includes ensonification of the water as a result of impact hammer pile driving and vibratory hammer driving and pulling of piles. Ensonification can result in temporary and or permanent impacts to organisms in the water and may result in impacts to marine organisms where sound pressure levels are elevated either acutely or repetitively. Sound energy dissipates with distance from the source and the spread of the transmission. As the acoustic wave front passes, it creates a variation in pressure that can affect biological organisms through physiological sensations that trigger behavioral response, or in more severe cases through tissue and organ damaging concussive forces (Hastings and Popper 2005). Sound pressures are generally expressed as metrics of peak pressure (L_{peak}), root mean squared (rms), and sound exposure level (SEL). L_{peak} is the maximum sound pressure level reached from the passage of a single energy pulse. The RMS is the square root of the sum of squares of the pressure contained within the period of time containing 90 percent of the sound energy. The SEL is the constant sound level in one second that has the same amount of acoustic energy as the original time-varying sound (i.e., the total energy of an event). For pile driving, SEL is calculated by summing the cumulative pressures of a single energy pulse squared over the time of the event (Caltrans 2015). To calculate the total exposure from repeated events (e.g., multiple hammer blows), the Accumulated SEL (SEL_{cum}) is used and is largely a function of the defined time period and the number of ensonification events occurring during the time period and is calculated as SEL_{cum}= SEL + 10*log(# hammer strikes).

The MMPA regulates the "take" of marine mammals, including take through exposure to sound. For the purposes of the present analysis, there are two levels of take that are relevant. Take with the potential for injury is considered Level A take. Exposure to high intensity or prolonged sound at lower intensity may result in auditory threshold shifts (TS) wherein animals suffer from noise-induced loss of hearing over a portion or all of the animal's auditory range. The effects may be temporary threshold shifts (TTS) or permanent (PTS). Level B take may result in behavioral disruption but not injury. NMFS has developed technical guidance on sound characteristics that are likely to cause injury in marine mammals (NMFS 2016).

Dual criteria have been used to assess auditory injury (Level A harassment) within the NMFS Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (NMFS 2016). Under the technical guidance, differences in auditory frequency ranges and hearing sensitivity between marine mammals have been used to define five different hearing groups. These include low-frequency cetaceans (baleen whales), mid-frequency cetaceans (toothed whales and dolphins), high-frequency cetaceans (true porpoises, river dolphins, other), phocid pinnipeds (true seals), and otariid pinnipeds (sea lions and fur seals). For the present project, four of the hearing group thresholds are relevant. The gray whale, which is expected to be very rare within the bay, is

considered to a low-frequency cetacean. Gray whales are expected to have PTS onset thresholds at peak sound pressure levels of 219 dB re: 1 µPa or 183 dB re: 1µPa^{2}s for cumulative sound exposure level (SEL_{cum}) over a 24-hour period. Exposure to non-impulsive sounds (e.g. vibratory pile driving) is expected to result in onset of PTS at 199 dB re: 1µPa^{2}s. The bottlenose dolphin, a mid-frequency cetacean, is expected to experience the onset of PTS with impulsive noise (e.g., impact hammering) at peak sound pressure levels of 230 dB re: 1 µPa or 185 dB re: 1µPa^{2}s for cumulative sound exposure level (SEL_{cum}) over a 24-hour period. Exposure to non-impulsive sounds (e.g. vibratory pile driving) is expected to result in onset of PTS at 198 dB re: 1µPa^{2}s. For phocid pinnipeds, including harbor seal, the onset of PTS is expected with impulsive peak sound pressure levels of 218 dB re: 1 µPa or 185 dB re: 1µPa^{2}s SEL_{cum}. Sound levels resulting in the onset of PTS from non-impulsive underwater noise are assumed to be 201 dB re: 1µPa^{2}s. For otariid pinnipeds, including the California sea lion, the onset of PTS is expected with impulsive peak sound pressure levels of 232 dB re: 1 µPa or 203 dB re: 1µPa^{2}s. Sound levels resulting in the onset of PTS from non-impulsive underwater noise are assumed to be 219 dB re: 1µPa^{2}s (NMFS 2016 and 2018a) (Table 7). For calculation of distances from noise source to the outer boundary within which the PTS threshold is expected to be exceeded, NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) Spreadsheet Tool was employed (NMFS 2018b).

Table 7. Thresholds of hydroacoustic sound pressure level exposure for the project.

Resource	Level of Effect	Impulsive Threshold Level*	Non-Impulsive Threshold Level*
Marine Mammal	Gray Whale – Low-frequency Cetacean (Level A – potential for injury) exposure	219 dB_{peak} 183 dB_{SELcum}	199 dB_{SELcum}
	Bottlenose Dolphin – Mid-frequency Cetacean (Level A – potential for injury) exposure	230 dB_{peak} 185 dB_{SELcum}	198 dB_{SELcum}
	Harbor Seal – Phocid Pinniped (Level A – potential for injury) exposure	218 dB_{peak} 185 dB_{SELcum}	201 dB_{SELcum}
	California Sea Lion – Otariid Pinniped (Level A – potential for injury) exposure	232 dB_{peak} 203 dB_{SELcum}	219 dB_{SELcum}
	Cetacean/Pinniped (Level B – behavioral) exposure	160dB_{rms}	120**dB_{rms}
Green Sea Turtle	Adaptive action trigger for impulsive noise exposure	160dB_{rms}	
	Potential harassment take from exposure	166dB_{rms}	
	Injury from sound exposures	190 dB_{rms}	190 dB_{rms}
Fish	Peak sound pressure levels at 10 m from source	206dB_{peak}	
	Daily accumulated sound exposure levels (fish ≥ 2 grams)	187dB_{SELcum}	
	Daily accumulated sound exposure levels (fish < 2 grams)	183dB_{SELcum}	

*Peak re: 1µPa, SEL re: 1µPa2sec, SELcum (SEL_{cum}= SEL + 10*log(# hammer strikes)
**The 120 dB threshold may be slightly adjusted if background noise levels are at or above this level.

The onset of behavioral disturbance from anthropogenic noise depends on multiple factors including both extrinsic and intrinsic factors. Further, marine mammals are known to rapidly habituate to noise and cease behavioral response rapidly once the threat level of the sound has been ascertained. This makes establishment of behavioral thresholds more complicated than

establishment of physiological thresholds that drive Level A take definition. For this reason, the current NMFS recommended levels of 160 dB_{rms} re 1 µPa for impulse noises (impact pile driving), and 120 dB_{rms} re 1 µPa for continuous noises (vibratory pile driving and removal) have been adopted as the acoustic level for onset of behavioral harassment (Table 7). Level B impact thresholds are the same for cetaceans and pinnipeds but differ by type of sound generation.

Other marine species of high concern may also be impacted by in water noise. These include green sea turtles. Green sea turtles would not commonly occur near the project area; however, should they be present at any time, they may be potentially exposed to construction related hydroacoustic impact. NMFS has not established specific in-water acoustic thresholds for green sea turtles; however, the U.S. Navy, in coordination with NOAA, developed standards for assessment of sound impacts to turtles for purposes of the Hawaii-Southern California Training and Testing Final EIS/OEIS (U.S. Navy 2013b). The document examined sound effects and sea turtle physiological literature in developing criteria for non-impulsive and impulsive noise sources. For sea turtles, the Navy established a threshold for injury from vibratory pile driving and impact driving at 190 dB_{rms}. Behavioral effects thresholds were noted to be more complex to establish than injury as there is limited data on turtle behavioral response to sound. In review of the literature, the lowest sound intensity stimulus that resulted in a behavioral response was 166 dB_{rms} that resulted in increased swimming activity in caged green and loggerhead sea turtles (McCay et al. 2000, as reported in U.S. Navy 2013b). However, it also appears from the literature that turtles become habituated to repeated exposures to sound. Under such circumstances, noises even as high as 179 dB_{rms} were tolerated by turtles without behavioral response when exposure became regular (Moein Bartol et al. 1995, as reported in U.S. Navy 2013b). Based on the available information, behavioral response by turtles to environmental ensonification is triggered at higher sound intensities than for marine mammals. Further, turtles exhibit a low frequency hearing range typically below 2kHz such that higher frequency sounds (such as from sonar) are generally omitted from audiologic sensors and thus would not be expected to result in behavioral response (U.S. Navy 2013b). As a result, the potential for behavioral response to sound is further limited to sounds at both elevated intensity and low frequency.

There are no widely adopted behavioral thresholds for sound impacts to turtles. For this reason, during consultation on acoustic impacts associated with the Pier 1 North Drydock, two thresholds below "injury" were developed for application to turtle presence in the work area proximity (M&A 2017a) and these are to be applied for the current project as well. Because the occurrence of green sea turtles in the central portion of San Diego Bay would be considered rare and the anticipated sound thresholds for behavioral impacts to green sea turtles are higher than for marine mammals, for expedience a conservative standard for monitoring for the presence of turtles has been adopted to employ the marine mammal behavioral harassment standards of 160 dB_{rms} to turtles as well as mammals. While monitoring for turtle presence will apply the lower sound pressure level threshold, avoidance of take of turtles is still based on the lack of turtle presence within the 166 dB_{rms} pressure level identified as having demonstrated behavioral response in green sea turtles (Table 7). The 166dB_{rms} sound pressure level would not be expected to be achieved much beyond the existing industrial eastern shore and deep channel environments of central bay

In 2008, NOAA Fisheries, USFWS, CDFW, and transportation agencies of California, Oregon, and Washington agreed to assess project effects using Interim Criteria for Injury to Fish from Pile Driving

Activities (Fisheries Hydroacoustics Working Group 2008). The interim criteria for assessment include both peak noise levels and accumulated sound exposure levels (SEL_{cum}). These are summarized in Table 7.

The interim criteria for fish were generally developed for endangered salmonids and are considered to be conservative indicating that the criteria are based on a potential for effect rather than a likelihood of effect. It should be noted that while the current interim criteria have not been replaced and stand as the only adopted standards, they were widely criticized at the time of adoption for being too conservative and not based on the best available science at the time (Carlson et al. 2007). Presently, there is considerable quantitative study data that suggests that for physiological effects, the cumulative exposure thresholds are lower than necessary to be protective. In studies of the effects of pile driving on the onset of physiologic injury to chinook salmon (Halvorsen et al., 2011a, b) and other species (Casper et al. 2011a) it has been demonstrated that an SEL_{cum} below approximately 207 dB re 1µPa2·s do not result in the onset of injury and that SEL_{cum} as high as 210 dB re 1µPa2·s produced physiological effects that were considered by the researchers as inconsequential. While the interim criteria remain the standard against which the present project is analyzed, it is important to acknowledge the extremely conservative nature of the thresholds as relevant to their establishment in the context of the "may affect" standard of the Endangered Species Act and has principally been used as a standard for consultation when endangered fish species are involved.

- *In-water Project Noise Levels*

The proposed project is expected to include driving of 18-inch and 24-inch prestressed concrete piles using a hydrojet-impact hammer methodology. The project is expected to drive AZ-26 steel sheetpiles with vibratory hammer methods and would be expected to drive 14-inch steel H fender piles by vibratory means with potential for some minimal impact driving of steel pilings being required.

Assumptions on pile driving activities were applied to develop cumulative SELs for the project against which sound exposure level impact thresholds could be evaluated. For the Pier 1 North Drydock, it was assumed that 5 24-inch octagonal concrete piles could be driven in a day and that the total number of repetitive impact pile strikes per day was estimated to be up to 2,900, or 580 blows per pile. However, during completion of the drydock project, it was determined that multiple types of piles being driven, the pre-setting of combi-wall piles by vibratory means, and partial jetting allowed piles to be more efficiently driven and thus some days included very high blow counts. For the Pier 1 North Drydock project, the mean blows per pile varied by type of pile, with 327 blows/pile for 18-inch concrete piles, 527 blows/pile for 24-inch concrete, and 606 blows/pile for the large steel king piles. However, generally more piles were struck per day than was initially estimated. As a result, the pile strikes averaged 2,883 blows per day during the 49 days over which piles were driven (M&A 2017a). This mean was almost exactly the estimated maximum blow counts anticipated. For this reason, the anticipated blow count was raised for the present analysis to the mean plus one standard deviation of the blow counts encountered during the Pier 1 North Drydock project for a total of 5,022 blows/day. This count is greater than 90 percent of the blow counts on driving days, and only one day (2 percent) of pile driving during the prior project substantively exceeded this estimate. Across all pile types, an average of 525.1 blows/pile were required to set the piles. As a result, an average of 9.6 piles per day has been assumed for the

present analysis (5,022 blows/day divided by 525.1 blows per pile). The adjustment in pile blow counts is expected to be an over-estimate for the present project elements due to the smaller scale of work and less potential for production pile driving activities. Further, it is expected that concrete pile driving within the project area will employ both hydraulic jetting to advance piles and associated impact driving. This approach to driving results in reduced blow counts and softer tip sediments which reduces overall noise generated during the blows. Both of these factors would be expected to diminish cumulative sound exposure levels.

Each pile type and driving method results in expected differing sound conditions in the water. These are also greatly influenced by the nature of the sediment into which the piles are driven, the depth of the water, the mass of material attached to the pile, the extent of pile embedment, and sound focusing or dissipation associated with the environment or surrounding media through which sound propagates. However, for the purpose of assessing potential impacts of construction on sensitive marine receptors, a pile driving hydroacoustic assessment has been undertaken. This assessment has derived data from two sources of information. The first is surrogate pile driving data derived from measurements taken at Berth 22 and Berth 30 in Oakland Harbor and Parson Slough in Monterey as reported in Appendix I of the Caltrans Technical Guidance on assessment of pile driving noise (Caltrans 2015). This appendix is generally referred to as the Caltrans Compendium and provides information on hydroacoustics of pile driving projects that have been completed for which there are measured noise levels. The application of surrogate project data with similar pile types, sizes, hammers, and water conditions allows for predictions of noise effects from a project prior to the physical implementation of the project. The compendium data were previously relied on for the environmental review of the Pier 1 North Drydock (Pride of California). Compendium derived data provides a good basis for unmitigated sound generation. These data have been presented for each pile type to be driven and the anticipated means of driving the piles that may be applied (Table 8).

Table 8. Potential noise generation levels for impact and vibratory pile driving

PILES AND DRIVING DETAILS				**SOUND PRESSURE LEVELS (dB) (Caltrans Compendium 2015) (Data from Oakland Berths 22 and 30 and Parson Slough Monterey)**		
PROJECT PILING MATERIAL	**SIZE (Dia or Depth)**	**HAMMER SIZE**	**PROJECT WATER DEPTH**	**PEAK (L_{peak}@10m)**	**ROOT MEAN SQUARE (rms@10m)**	**SOUND EXPOSURE LEVEL (SEL@10m)**
Square Pile (Concrete)	18"	Delmag D42-22	5m - 10m	185	166	154
Octagonal Pile (Concrete)	24"	Delmag D62-22	5m - 10m	187 (AVG)	175 (AVG)	165 (AVG)
AZ-26 700 Piling (Steel)	24" (width)	Vibratory (typ)	3m - 5m	175	160	159
H-Piling Fender (Steel)	14" (depth)	Delmag D42-22	12m - 19m	200	178	166
		Vibratory	12m - 19m	161	147	NA

The second source of information is derived from on-site hydroacoustic monitoring conducted for the Pier 1 North Drydock project. This project completed in 2016 included use of the same types of piles, as well as others, that are proposed to be driven in the present project. During the on-site construction it was determined that substantially lower noise generation and propagation occurred than was anticipated from the surrogate project sound data and application of simple transmission loss modeling within a non-confined environment. This was likely the result of many factors. First the high site topographic and structural complexity of the shipyard served to create a number of acoustic barriers and shadowing locally. Second, piles were substantively advanced into the sediment using methods that curb energy transfer to the water such as hydrojetting for all concrete piles using a combination of jetting and impact driving, vibratory advancement for steel piles prior to driving by hammer when required, selection of the lowest energy hammers practical for the work. Finally, implementation for sheet piles and combi-wall piles, the interlocking of multiple sheets and maximum vibratory embedment prior to hammer strikes spread energy over a much more massive surface and allowed greater transfer of energy into the sediment than the water column.

The sound levels generated during the Pier 1 North Drydock project incorporated a number of contractor, project, and equipment specific measures to ensure acoustic threshold shut downs did not occur. This included everything from multiple hammer selections and changes during work, in-water equipment and vessel positioning to contain noise, providing acoustic dampening mass to piles, and field adjustments to pile driving activities, including calculation of allowable blows to remain below thresholds and adapting the work schedule to remain compliant. The mitigating effects of these measures cannot be assumed to be directly transferrable to the much smaller project elements included in the present project. For this reason, impact evaluations have been based purely on the more conservative surrogate project sound data, while mitigating recommendations have been based on observed successful methods applied on-site for the Pier 1 North Drydock. This methodology provides for identification of both maximum likely impact levels and effective mitigation methods that may be adaptively implemented to remain below noise thresholds.

- *In-water Noise Impacts*

Table 7 summarizes the noise exposure thresholds for impacts to various marine organisms of concern within the project area. Table 8 summarizes noise levels anticipated to be generated from the types of piles to be driven and the methods of pile driving to be implemented within the project area based on the Caltrans Technical Guidance Appendix 1 noise compendium (Caltrans 2015). Using these noise impact thresholds and anticipated noise levels, the distance from pile driving source to the outer limits at which noise impacts would potentially occur was calculated using the inverse square law to calculate sound transmission loss using a practical spreading loss model. The model applied for determining transmission loss (TL) is

$$TL=B^* \log 10 (R) + C^*R$$

Where:

B = logarithmic loss predominantly by spreading;
C = linear loss through scattering and absorption;
R = ratio of the receiver distance (R_1) to source reference distance (R_2).

This equation assumes spherical spreading from a source within a non-confined environment. As such, it reflects a conservative oversimplification of transmission loss. The model has been simplified in form using an assumption that linear transmission loss (C) is equal to zero, and practical spreading is assumed as a hybrid between spherical (field free) spreading (B=20) and cylindrical loss (B=10). For the simplified model with a variant range, it is assumed that B= 15. This results in a simplified equation for TL of:

$$TL = 15 * \log 10 (R)$$

By applying transmission loss to the surrogate noise levels it was possible to determine at what distance impact thresholds would be exceeded for sensitive receptors of concern. The companion User Spreadsheet Tool to Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (NMFS 2018b) was employed to simplify calculations of PTS employed as a metric for Level A take for marine mammal calculations (Appendix 1). For other resources, the transmission loss equation above was applied to define the distance from sound sources at which the impact threshold would be exceeded. These were identified as the Zones of Influence (ZOI). ZOIs vary by resource and pile type and driving methods. Table 9 identifies the ZOIs for sensitive receptors. Where noise levels at the source are expected to be lower than the threshold of impact, no impact is expected and the table reflects a value of LOWER. Where the nature of sound generated is not applicable to the threshold metric, the table reflects a value of NA.

For injury to fish from cumulative sound exposure levels, the initial SEL for all piles is below the impact threshold for fish with masses of less than 2 grams (183 dB_{SELcum}) and fish over 2 grams (187 dB_{SELcum}). However, the cumulative SEL from 5,022 blows drives the ZOI outward to the distances reported for fish in Table 9. Using surrogate sound data from the compendium, no cumulative SEL impact thresholds for fish are met until after 63 blows on 24-inch concrete piles or 50 blows on 14-inch steel H-piles, which would be expected to affect fish under 2 grams. For fish over 2 grams, initial ZOI for impacts would begin to emerge only after 158 blows on 24-inch concrete piles or 125 blows on 14-inch steel H-piles.

In addition to driving piles, the project includes extraction of piles. This includes extraction of 12-inch and 18-inch concrete piles as well as 14-inch steel H-piles. It has been assumed that these piles would be removed by vibratory driver/extractor hammer. The Navy generated considerable sound data on pile removal using pile clippers and wire saws to cut piles at the mudline; however, no vibratory extraction data were generated (NAVFAC SW 2018). No other sources of data were located on which to base the sound levels generated by vibratory extraction. However, observations made during the removal of fender piles and steel pipe piles while construction of the Pier 1 North Drydock project was underway suggested that vibratory extraction of these piles was very rapid and much quieter than was the driving of similar piles. Based on these observations and a lack of surrogate data, it has been conservatively assumed for the purposes of this analysis that extraction of piles via vibratory means would generate less than or equal noise to the initial driving of the piles via vibratory means (H piles), or impact means where vibratory data does not exist (concrete piles) (Table 9).

With the relationship of noise thresholds to noise generation and the identification of activities within which ZOIs have been defined, Table 10 identifies potential impacts characterized as the potential to exceed sound thresholds concurrent with biological receptors present.

Potential impacts in the form of Level B harassment of marine mammals and harassment take of green sea turtles would be considered significant biological impacts. This is due to the low level standard for harassment impact to species under the Marine Mammal Protection Act and the Endangered Species Act.

Impacts to fish are not considered to be significant due to the fact that only cumulative sound exposure levels would affect fish and exposure to impactive sound levels would be anticipated to behaviorally mitigated by fish moving away from potentially damaging sound sources. No singular peak acoustic event would be expected to generate potential for injury to fish and thus behavioral mitigation would be possible under all circumstances.

Table 9. Noise threshold zones of influence (ZOI) for different receptors

Pile Type	Nature of Impact (Behavioral or Injurious) (Marine Mammals Definition is Level B or Level A)	Gray Whale	Bottlenose Dolphin	Harbor Seal	California Sea Lion	Green Sea Turtle Harrassment Take	Green Sea Turtle Adaptive Action Trigger*	Fish (≥2 gms)		Fish (<2 gms)	
Impact Pile Driving											
18" Square Concrete Piles	Potential Behavioral Impacts (Marine Mammals - Level B)	25	25	25	25	10	25	NA	NA	NA	NA
	Potential for Injury (Marine Mammals - Level A)	34.2	1.2	18.3	1.3	Lower	Lower	Lower	Lower	Lower	Lower
24" Octagonal Concrete Piles	Potential Behavioral Impacts (Marine Mammals - Level B)	100	100	100	100	40	100	NA	NA	NA	NA
	Potential for Injury (Marine Mammals - Level A)	185.2	6.6	99.1	7.2	Lower	Lower	Lower	100	Lower	184
14" H-Piling Steel Fender	Potential Behavioral Impacts (Marine Mammals - Level B)	158	158	158	158	63	158	NA	NA	NA	NA
	Potential for Injury (Marine Mammals - Level A)	216.0	7.7	115.6	8.4	Lower	Lower	4	117	4	184
Vibratory Pile Driving											
AZ-26 700 Steel Sheet Piling	Potential Behavioral Impacts (Marine Mammals - Level B)	631	631	631	631	Lower	NA	NA	NA	NA	NA
	Potential for Injury (Marine Mammals - Level A)	20.8	1.8	12.6	0.9	Lower	NA	NA	NA	NA	NA
14" H-Piling Steel Fender	Potential Behavioral Impacts (Marine Mammals - Level B)	86	86	86	86	Lower	NA	NA	NA	NA	NA
	Potential for Injury (Marine Mammals - Level A)	2.8	0.2	1.7	0.1	Lower	NA	NA	NA	NA	NA
Vibratory Pile Extraction											
18" Square Concrete Piles	Potential Behavioral Impacts (Marine Mammals - Level B)	25	25	25	25	10	25	NA	NA	NA	NA
	Potential for Injury (Marine Mammals - Level A)	34.2	1.2	18.3	1.3	Lower	Lower	Lower	Lower	Lower	Lower
24" Octagonal Concrete Piles	Potential Behavioral Impacts (Marine Mammals - Level B)	100	100	100	100	40	100	NA	NA	NA	NA
	Potential for Injury (Marine Mammals - Level A)	185.2	6.6	99.1	7.2	Lower	Lower	Lower	100	Lower	184
14" H-Piling Steel Fender	Potential Behavioral Impacts (Marine Mammals - Level B)	86	86	86	86	Lower	NA	NA	NA	NA	NA
	Potential for Injury (Marine Mammals - Level A)	2.8	0.2	1.7	0.1	Lower	NA	NA	NA	NA	NA

Table 10. In-water Noise Impact Summary Table by Project Element

Project Element	Pile Count**	Potential Impacts
Element 1 - POSD Drydock Dredging/Moorage	-26 (18-in) +38 (24 in) Net=+12	1) Potential Level A and B Impact to Marine Mammals 2) Potential Harassment Take of Green Sea Turtle 3) Potential cumulative injury of fish, including managed species
Element 2 - POSD Drydock Wharf Replacement/ Realignment	-20 (18-in) +73 (24-in) +6 (18-in) Net=+59	1) Potential Level A and B Impact to Marine Mammals 2) Potential Harassment Take of Green Sea Turtle 3) Potential cumulative injury of fish, including managed species
Element 3 - Fender System Repair and Replacement	-/+503 H-piles +122 H-piles Net=+122	1) Potential Level A and B Impact to Marine Mammals 2) Potential Harassment Take of Green Sea Turtle 3) Potential cumulative injury of fish, including managed species
Element 4 - Pier 3 South Nearshore Dredging	--	None
Element 5 - Pier 3 Mooring Dolphin	+8 (24-in) +16 H-piles Net=+24	1) Potential Level A and B Impact to Marine Mammals 2) Potential Harassment Take of Green Sea Turtle 3) Potential cumulative injury of fish, including managed species
Element 6 - Pier 3 Lunchroom Wharf Replacement/Realignment	-27 (12-in) +48 (24-in) Net=+21	1) Potential Level A and B Impact to Marine Mammals 2) Potential Harassment Take of Green Sea Turtle 3) Potential cumulative injury of fish, including managed species
Element 7- Quay wall Modifications at South End of Property	50 LF of sheet pile	1) Potential Level A and B Impact to Marine Mammals
Element 8-Port Security Barrier (PSB) Replacement	--	None
Element 9 - Small Boat Mooring Float Replacement	+4 (18-in)	1) Potential Level A and B Impact to Marine Mammals 2) Potential Harassment Take of Green Sea Turtle
Cumulative Total	-/+ 576 piles Net +242 piles Net: approx. 25 sheet piles	1) Potential Level A and B Impact to Marine Mammals 2) Potential Harassment Take of Green Sea Turtle 3) Potential cumulative injury of fish, including managed species

Marine Mammals and Green Sea Turtles

Table 9 indicates a range of ZOIs for differing species and types of pile driving activities. For an impact to occur, the animal receptor must be present within the ZOI at the time of pile driving and the pile driving noise must exceed the thresholds identified in Table 7. As indicated previously, only 7 sea lions were observed over 145 days of marine mammal monitoring from April to November 2016 and no turtles were observed within the monitored ZOIs of the shipyard area during this period. As such, it is anticipated that acoustic impacts to marine mammals and turtles may be readily avoided by avoidance of pile driving during periods when marine mammals and turtles are present within the defined ZOIs. Further, because the principal triggers for adverse effect are based on cumulative exposure rather than peak sound levels, sensitive receptor animals would need to remain present within the ZOIs for a period of time in order to accumulate threshold sound exposure levels. This combined with the relatively limited numbers of mammals or turtles in this area of the bay make exposure avoidance a very practical mitigation measure for the project.

In addition, during the monitoring of the Pier 1 North Drydock, it was also noted that sound levels in the water were substantively lower than surrogate noise levels from the compendium data. As indicated, it is not clear that the same level of noise attenuation achieved at the Pier 1 North Drydock project would be achieved with the various smaller and widely distributed elements under the present project. However, it is reasonable to assume that with the low frequency of mammal occurrence in the area and no observed occurrence of turtles in project proximity, avoidance of impact by restricting pile driving to periods when mammals and turtles are outside of applicable ZOIs would effectively mitigate impacts to a less than significant level.

Fish and Managed Fish Species

For fish, avoidance is not fully possible because fish are ubiquitously present within the shipyard and would be expected to be within the influence area of pile driving activities. However, cumulative sound exposure levels would be expected to be self-mitigated behaviorally by fish moving away from sound sources or into acoustic shadows. It is anticipated that most fish would not be exposed to high accumulated sound levels as a result of behavioral response to undesirable noise levels. This would allow fish to escape potential injury from sustained presence within impulsive noise environments. No mitigation of impacts to fish is considered to be required due to the lack of significant impacts to fish being expected from the project.

The effects of intense sound from pile driving activities are expected to be temporary behavioral avoidance of habitat during pile driving. The extent and duration of avoidance will depend upon many factors including the intensity of sound energy, frequency of energy, duration of driving, and species of fish, among others. For species managed under the Coastal Pelagics FMP, it is anticipated that schooling northern anchovy and Pacific sardine have a potential to be displaced from the area during pile driving. However, these fish within the family Clupeidae are considered to have relatively poor sensitivity to sound (Mann et al. 2001). For species managed under the Pacific Groundfish FMP, species are expected to be uncommon to very rare in the area and would be expected to be similarly displaced if present. However, unlike the Coastal Pelagics that would be more exposed to direct propagated noise, groundfish near the bottom may not be fully displaced from the area, but rather may seek refuge in acoustic shadows within the local area such as remaining below surrounding bottom terrain that blocks and absorbs sound. For cartilaginous fish, including the managed spiny dogfish that may occur in the area, the lack of a swim bladder and low sensitivity to sound makes these species less susceptible to noise impacts although very little else is known about noise impacts to elasmobranchs (Casper et al. 2003).

The displacement of managed species is not expected to result in substantial impacts due to the generally poor quality of habitat, limited duration and temporary nature of impacts, and capacity for behavioral avoidance and minimization of impacts by fish.

6.2 UPLAND TRANSITION AND UPLAND AREA IMPACTS

Elements 10 through 15 of the proposed project consist of construction in a highly urban setting which supports no special status wildlife or flora species and no sensitive upland habitats. Therefore, no impacts from the proposed project on the upland habitat are expected. No significant impacts to biological resources are anticipated from the implementation of the proposed project or any of its elements.

6.3 IMPACTS TO WETLANDS AND SENSITIVE HABITATS

As described above, the nearest adjacent wetlands to the project site are wetlands located across the bay at Delta Beach on the Naval Amphibious Base 1.6 miles to the west and within the marshes of the San Diego Bay Wildlife Refuge located over 3.5 miles to the south. The proposed project would not alter water flow or water quality to marsh habitat, and is not anticipated to degrade marshlands in any way. Therefore no significant impacts to wetlands are anticipated to occur.

As described above, eelgrass is considered to be a sensitive habitat and "special aquatic site" under the CWA and is designated as EFH. Although impacts to approximately 2,004 square feet of eelgrass habitat are expected from the proposed project, impacts are not considered to be significant since these impacts have previously been mitigated as described above.

6.4 IMPACTS TO WILDLIFE CORRIDORS

As described above, the project site is located within the Pacific Flyway but does not provide any specific terrestrial movement corridors, and no marine mammal, reptile, or fish migratory corridors occur within it. Construction will be phased over five years, with intermittent periods of construction-related noise, vibration and shock waves that could cause animals to flee. Protective measures will be in place during times when construction activities occur that may result in increased disturbance activity such as pile driving and dredging (see Mitigation Section). Consequently, impacts of the proposed project on wildlife corridors, movement of resident and migratory species, and usage of nursery sites are considered to be less than significant.

6.5 IMPACTS TO SENSITIVE WILDLIFE

Table 4 provides a summary of sensitive animal species that have potential to occur within the project site. The following text expands on the likelihood of occurrence for these species, and describes potential impacts to sensitive species that may result from project implementation.

Reptiles

Environmental threats to turtle populations include contamination from coastal runoff, fueling facilities, marina and dock construction, dredging, aquaculture, oil and gas exploration and extraction, and increased underwater noise and boat traffic that can degrade marine habitats used by marine turtles. Turtles swimming or feeding at or just beneath the surface of the water are particularly vulnerable to boat and vessel strikes, which can result in serious propeller injuries and death. Potential impacts to green sea turtle from the proposed project are primarily related to construction activities associated with pile driving, vessel traffic, and bottom-disturbing activities.

As described previously, south San Diego Bay supports a resident population of federally threatened eastern Pacific green sea turtle. Historically, this population resided primarily within the warm water discharge channel for the South Bay Power Plant. The closure of the plant in 2010 resulted in turtles utilizing areas of the Bay much farther north; however, tracking studies indicate that turtles still spend 95% of their time south of the Sweetwater River Channel (Bredvik et al 2015).

The proposed project has been determined to have limited potential to affect green sea turtles based on a number of factors. These include, first and foremost, the anticipated low occurrence of turtles within the industrialized east bay vicinity, as well as, the limited potential for adverse

interactions between turtles and vessels. However, it was determined that, if turtles were to occur within the immediate project area, then they would be potentially exposed to construction related hydroacoustic impact with still lesser risk of injury from direct impact with vessels or in-water equipment due to avoidance behavior.

The potential impacts to green sea turtles from noise impacts has been discussed previously. These impacts have been determined to be significant for project elements 1-3, 5-6, and 9 (Table 10). Potential impacts to green sea turtles are anticipated to be harassment impacts from exposures of turtles to impulsive sound pressures above 166 dB_{rms}

With the implementation of the protective measure of monitoring for green sea turtles to ensure that turtles do not enter applicable ZOIs when pile driving is underway, impacts would be less than significant. Other protective measures included in the project to minimize impacts to turtles included maintenance of no wake boat speeds within and adjacent to the project site. These measures will reduce the likelihood of striking and injuring turtles. Therefore, with protective measures incorporated, impacts to eastern Pacific green sea turtle are considered to be less than significant.

Birds

Of the sensitive avian species with potential to occur within or adjacent to the project site, six are listed as federally or California state endangered or threatened, or California Department of Fish and Wildlife fully protected. These include California brown pelican (*Pelecanus occidentalis californicus*), American peregrine falcon (*Falco peregrinus anatum*), light-footed Ridgway's rail (*Rallus obsoletus levipes*), western snowy plover (*Charadrius alexandrinus nivosus*), California least tern, and Belding's savannah sparrow (*Passerculus sandwichensis beldingi*).

Two of these species – light-footed Ridgway's rail and Belding's savannah sparrow – nest and forage in marshes, including the E Street Marsh within the San Diego Bay National Wildlife Refuge. Neither of these two species is expected to occur in the project site, and impacts to these species from the proposed project are not anticipated.

California Brown pelican is protected at nesting colonies and communal roosting areas. American peregrine falcon is also protected at nesting locations. These two species have a similarly low likelihood of occurrence within the project site. California brown pelicans roost in small groups throughout the Bay, particularly along Zuniga jetty, rip rap shorelines, and docks and piers in the northern portion of the Bay; however, the species does not nest in the Bay. Peregrine falcon has historically nested in Point Loma, on downtown San Diego buildings, and on the Coronado Bridge, but nesting sites in south San Diego Bay are not documented. Based on this low likelihood of occurrence of these species at the project site, impacts are not anticipated.

Western snowy plover and California least tern both nest seasonally within San Diego Bay. During its breeding season, April to October, the endangered California least tern is observed in San Diego Bay, nesting at Lindbergh Field, North Island Naval Station, the Naval Amphibious Base Delta Beach, D Street Fill, the Chula Vista Wildlife Reserve and the South Bay Saltworks in the South San Diego Bay Unit of the San Diego National Wildlife Refuge. The nesting colonies nearest to the project site are located at D Street Fill, the Chula Vista Wildlife Reserve, and along the South Bay Salt Works

levees and in Pond 11 that are managed by the SDUPD and USFWS. These three sites are located approximately 3.5 miles, 4.3 miles and 5.3 miles from the project site, respectively. California least terns actively forage for fish in the waters adjacent to nesting colonies in San Diego Bay, as well as, in nearshore coastal waters outside of the Bay. Given the duration of project, it is anticipated that some project construction elements would occur during the nesting season for California least tern; however, construction schedule has been structured to minimize where feasible in-water work during the California least tern nesting/foraging season. If dredging or in-water construction occurs during the nesting season, mitigation measures such as have a monitor for the presence and activity of terns, as well as water quality BMPs would reduce impacts to less than significant. Noise generation within the shipyard from pile driving activity would not be considered a significant impact on terns.

In San Diego Bay, nesting for western snowy plover occurs from March through July along the beach at NAS North Island (3 miles from the project site), at NAB Coronado (2 miles from the project site), and further south along the Silver Strand Training Complex and the beaches of the Tijuana River National Estuary Research Reserve (TRNERR) (8 miles from the project site). This species has not nested at the D Street Fill/Sweetwater Marsh NWR since 2000 (R. Patton, pers. comm). This species has a low likelihood to occur based on limited foraging habitat and the distance of the project site from active nesting colonies, and impacts to this species are therefore not anticipated.

Other sensitive avian species with low or moderate potential to occur in the vicinity of the project site include double crested cormorant (*Phalacrocorax auritus*), elegant tern (*Thalasseus elegans*), Caspian tern (*Hydroprogne caspia*), and black skimmer (*Rynchops niger*) (Unitt 2004), all of which nest within San Diego Bay at the South Bay Salt Works. Sensitive raptors include osprey (*Pandion haliaetus*), and northern harrier (*Circus cyaneus*). Osprey is known to nest within San Diego Bay, with recent nests located at NAS North Island, the National City shoreline, and at the Chula Vista Wildlife Reserve. Northern harrier nests on the ground, within marshes and grasslands. This species has been known to nest in south San Diego Bay, within the TRNERR, and the Sweetwater Marsh NWR (Unitt 2004). While all of these species may be occasional visitors to the project site, none nest within the project site and impacts to these avian species are not anticipated.

Marine Mammals

Harbor seals and California sea lions are observed commonly in northern San Diego Bay and less commonly in central and southern portions of the Bay, where the project site is located. There are no established haul-out, foraging, or breeding areas used by these or other marine mammals within the project site or vicinity, although they may make occasional transient use of the area. Project construction is anticipated to be phased over several years and any marine mammals would be expected to leave the site for adjacent waters if disturbed by project construction. However, the Marine Mammal Protection Act prohibits "take" of marine mammals. The definition of "take" under the Act, like that of the Endangered Species Act, includes "harassment". For this reason, a potentially significant impact to marine mammals could occur if animals are disturbed during construction activities, even if they are not harmed by the activities.

Similar to sea turtles, potential impacts to marine mammals from the proposed project are primarily related to construction activities associated with pile driving, vessel traffic, and bottom-disturbing activities. Marine mammals could be struck by boats or boat motors at the project site

but of greatest concern would be if marine mammals were to occur within the immediate project area, then they would be potentially exposed to construction related hydroacoustic impact with still lesser risk of injury from direct impact with vessels or in-water equipment due to avoidance behavior.

Hydroacoustic impacts have been previously discussed and impacts were considered to be significant. Therefore, with the implementation of protective measures such as monitoring to ensure marine mammals remained outside of ZOIs during pile driving, impacts would be less than significant. Other protective measures included in the project to minimize impacts to marine mammals included maintenance of no wake boat speeds within and adjacent to the project site. With protective measures incorporated, impacts to marine mammals are considered to be less than significant.

6.7 CUMULATIVE IMPACTS

Cumulative effects are defined by CEQA as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Cumulative impacts can be derived from a single project or a number of separate projects, and is further defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions." The San Diego Bay INRMP identifies specific concerns related to cumulative effects of all types of activities within San Diego Bay. These include piecemeal habitat loss and fragmentation within the Bay despite the intent of cumulative effects analysis under CEQA and the National Environmental Policy Act (NEPA). Based on the definitions provided under CEQA and the issues identified in the INRMP, the following analysis assumes that a significant adverse cumulative biological resources impact would occur where the construction or operation of the cumulative projects would encroach into areas containing sensitive biological resources, affect the movement of wildlife species, result in loss or fragmentation of sensitive habitats, or affect the functionality of a planned conservation area.

As discussed above, the potentially significant biological resource impacts from the proposed project include direct loss of surface cover which would be offset via credits from an eelgrass mitigation bank. Impacts to sensitive animals are reduced to less than significant by incorporation of protective measures during construction, and while the proposed project would impact eelgrass, mitigation is not proposed as the impacts are to beds that have already been mitigated for under other project permit conditions.

The project has been assembled to include all fifteen of the current pending independent projects within the BAE Systems San Diego Shipyard. As a result the project includes most project area activities. On-going repairs are underway on infrastructure within the NASSCO shipyard to the south. These activities are of a similar nature to those underway in the project area. However, all projects proposed or underway in the area are likely to have impacts of limited temporal effect and would not be expected to develop significant cumulative impacts.

7.0 MITIGATION AND PROTECTIVE MEASURES

7.1 BAY COVERAGE MITIGATION

Based on current project design, BAE Systems would be required to mitigate for approximately 12,925 square feet (0.30 acres) of bay coverage. The bay coverage impact could be offset in a number of ways. The USACE and the CCC have previously permitted a 1:1 area-based mitigation for increased bay coverage that was offset by various enhancement options. The accepted list of options includes:

- removal of similar structures within the bay (e.g. dock removal)
- removal of upland fill from the bay
- creation of eelgrass habitat and/or reef structures in presently unvegetated bottom areas to increase function of equivalent area as that shaded
- purchase of credits from a mitigation bank (for fill removal or enhancement such as eelgrass)
- removal of non-functional riprap or debris from intertidal or shallow subtidal habitat in the bay to improve suitability for use by birds and fish.

For the present project, mitigation is to be accomplished by drawing from surplus eelgrass presently being established within the south bay eelgrass mitigation site that presently supports approximately 37,900 square feet (0.87 acre) more eelgrass than required to meet existing mitigation requirements for the combined Shipyard Sediment Remediation Project and the Pier 1 North Drydock (M&A 2018). While the ultimate area of successful eelgrass development within the mitigation areas is not known since the mitigation area is still early within its 5-year monitoring period, it is expected that the site will generate adequate eelgrass to offset the additional shipyard reconfiguration bay coverage impacts at a 1:1 ratio.

1) The mitigation of 12,925 square feet (0.30 acres) of bay coverage bay coverage impacts is to be performed by adding an obligation of successful eelgrass within the south bay eelgrass mitigation site equal to the bay coverage. This would raise the success requirements for the mitigation site from 5.57 acres to 5.87 acres.

7.2 MARINE RESOURCE MITIGATION

Subtidal Vegetated Communities

The impacts from the Shipyard Sediment Abatement and Pier 1 North Drydock Projects resulted in the complete removal of eelgrass from the BAE Shipyard Site, and were mitigated at South Bay eelgrass mitigation site. The proposed project would impact approximately 2,004 square feet of eelgrass and no new mitigation is proposed for the proposed project as these areas were already impacted and mitigated.

Due to concerns over potential for spread of invasive *Caulerpa taxifolia* should it be present within project areas, to the detriment of other habitats, including eelgrass, requirements for pre-construction surveys for *Caulerpa* are required. This is to be accomplished with the following measure:

2) Prior to commencing any in-water work, a survey for the invasive algae, *Caulerpa taxifolia* and other nuisance species, will be conducted in accordance with the *Caulerpa* Control Protocols (NMFS 2004).

Open Water

Prior to dredging operations within sediments unsuited for in water disposal, a turbidity curtain would be deployed to contain the sediment turbidity generated during dredging activities. The turbidity curtain will consist of geotextile fabric curtain suspended from a floatation boom at the upper hem and have ballast weights at the lower hem. Turbidity curtains shall be used for dredging sediments unsuited to in-water reuse or disposal. This is to be achieved with the following measure:

3) During dredging of unsuitable material, water turbidity would be monitored using both visual inspection and water quality monitoring stations placed around the dredge site. If either of these methods indicates turbidity limits of greater than 20 percent increase in turbidity levels at 500 feet from dredge location have been exceeded, dredging would be paused and measures would be taken to address the turbidity migration.

EFH

To address anticipated impacts to EFH from the proposed work, the following protective measures associated with construction period activities and mitigation measures, associated with long-term changes in the habitat have been incorporated into the proposed work.

4) To avoid injury to managed fish species, prior to full pile driving activities the contractor shall implement a soft-start procedure. The soft-start procedure would require contractors to initiate noise from the impact hammer with an initial strike at 40% or less of the full hammer energy followed by a 30 second waiting period. This would be expected to result in behavioral avoidance of the area in the immediate vicinity of the pile. Subsequent repetitive driving would be expected to result in continued repulsion of fish from the proximity of the driving area with avoidance distances being established by the individual sound energy levels and tolerance of individual fish. If pile driving ceases for greater than an hour then the soft-start procedures shall be reinitiated.
5) Mitigation for impacts to bay coverage is discussed in Section 7.1.

7.3 Sensitive Species Mitigation

Reptiles

To mitigate potential impacts to eastern Pacific green sea turtles to a less than significant level, the following construction measures are recommended.

6) During pile driving activity for Elements 1-3, 5-6, and 9, the contractor, under the direction of a qualified biologist, shall conduct monitoring within applicable ZOIs of any pile driving (does not include pile jetting) for turtles surfacing to breathe. The contractor shall halt work if any observations of turtles are made. Work shall not re-commence until it has been determined that the turtle(s) have left the area or have not been seen on the surface within the ZOIs for a period of 15 minutes.

7) When performing impact pile driving, the contractor shall commence work with a few short blows followed by a 5-minute period of no pile driving, prior to commencing full pile driving activities. The purpose of this activity is to encourage turtles in the area to leave the project site prior to commencement of work. The contractor, under the direction of a qualified biologist, shall then commence monitoring as described above to determine if turtles are in the area. This process should be repeated if pile driving ceases for a period of greater than an hour.
8) Construction vessel traffic shall not exceed existing ambient speed for the shipyard.

Birds

Permanent significant impacts to least terns associated with the loss of foraging habitat are addressed through mitigation of bay coverage as described above.

To mitigate potential impacts to least terns related to dredging activity to a less than significant level, the following construction measures are recommended:

Should dredging occur during the nesting season, the following construction measures are recommended:

9) The contractor, under the direction of a qualified biologist, shall conduct monitoring within 500 feet of construction activities. The contractor shall delay commencing work if terns are present and actively foraging (e.g. searching and diving) within the work area.
10) The contractor shall deploy a turbidity curtain around the dredging areas to restrict the surface visible turbidity plume to the area of construction and dredging. It shall consist of a hanging weighted curtain with a surface float line and shall extend from the surface to twenty feet down into the water column. The goal of this measure is to minimize the area of the bay in which visibility of prey by terns is obstructed.
11) The contractor, under the direction of a qualified biologist, shall be retained to identify presence of terns displaying foraging behavior (e.g. searching and diving) and assess adverse impacts, if any, to least terns. Should adverse impacts to terns occur (e.g. agitation or startling during foraging activities), construction shall cease until least terns have left the project site.

Mammals

To mitigate potential impacts to marine mammals to a less than significant level, the following construction measures are recommended.

12) During construction activities involving pile driving or extraction, the contractor, under direction of a qualified biologist, shall conduct monitoring within the applicable ZOIs defined for the activities as documented in Table 9. The contractor shall halt in water pile driving or extraction work if any observations of marine mammals are made within the defined ZOI for the mammal species encountered. Work shall not re-commence until it has been determined that the mammal(s) have left the area or have not been seen on the surface within the ZOIs for a period of 15 minutes.
13) When performing impact pile driving, the contractor shall commence work with a few short blows followed by a 1-minute period of no pile driving, prior to commencing full pile driving

activities. The purpose of this activity is to encourage mammals in the area to leave the project site prior to commencement of work. The contractor, under the direction of a qualified biologist, shall then commence monitoring as described above to determine if mammals are in the area.

14) Construction vessel traffic shall not exceed existing ambient speed for the shipyard.

8.0 CONCLUSIONS

The proposed project would be expected to result in a number of construction period impacts to local biota and habitats found in the project site (e.g., habitat disturbance, increased turbidity, noise). The majority of these impacts are anticipated to be of a short-term, temporary nature and are not expected to have permanent or population-level impact to sensitive habitat or species, EFH or managed fish species. Given the limited size of the dredge footprints, the general lack of high value habitat resources in the project area, and the anticipated rapid recovery of resource values by reestablishment of similar communities, impacts associated with dredging and other in-water construction activities in soft-bottom habitat are not considered to be significant. However, the proposed project would result in a net increase of bay surface area coverage. This impact would require mitigation, which is anticipated to be offset through credits from the South Bay eelgrass mitigation site.

Impacts to eelgrass habitat are also anticipated; however, the recent Shipyard Sediment Abatement and Pier 1 North Drydock Projects resulted in complete removal of eelgrass from the project site which was mitigated at the South Bay Eelgrass Mitigation Site. Therefore, no new mitigation is proposed as mitigation for impacts to these areas has been met, and any impact to existing eelgrass would not require mitigation.

While construction-related impacts would result in temporary impacts to local biota in the project footprints, of greatest concern is the protection of fish, marine reptiles, and marine mammals from substantive injury associated with acoustic pressure generated from pile removal and driving. To address this concern, protective measures such as a soft-start procedure and having a monitor present during construction are recommended to provide protection from injury and would reduce any impacts to less than significant.

Potential indirect impacts associated with the project include increased turbidity associated with dredging, pile removal and installation; however, construction-period BMPs would minimize the risk of these impacts.

Impacts from the proposed project would be minor for the pelagic fish species identified in Table 5. The coastal pelagics by nature have low site fidelity. Given the small area affected, interruptions causing pelagics to move into other areas would not cause biologically significant increases in competition due to habitat loss. The project would not impede the spawning success of the coastal pelagics, nor cause disturbances that increase predation. Similarly, impacts from the project would be minor for the groundfish species in Table 5. Although California scorpionfish are rare compared to the pelagics listed in Table 5, this species' high fidelity to structured habitats such as pile fields and reefs means it is likely underrepresented in most fish sampling efforts. From the information available and the habitat characteristics of this species, impacts to California scorpionfish would be probable but minimal. Construction could cause fish to flee the immediate disturbance, yet the fish will likely remain in the area to capitalize on the exposure of forage resources by construction disturbance. Spawning success would not be affected due to the pelagic spawning and buoyancy of the eggs. Other demersal species considered in this analysis are extremely rare in San Diego Bay and are not affiliated with pile fields. Should individuals of these species occur, they would likely be temporarily displaced from the area during construction and impacts are considered minimal.

Other potential impacts to marine reptiles (e.g., turtles), birds, and marine mammals could also occur as a result of the proposed project. Turtles could be struck by boats or boat motors at the project site and impacts to marine mammals (e.g. California sea lion and harbor seal) would be similar to those anticipated for turtles. Any disturbance of marine mammals is considered harassment and would be significant. While it is unlikely that marine mammals would occur in the project site, incorporation of the protection measures listed above would reduce any impacts to less than significant. Similarly, no impacts to sensitive avian species are anticipated with implementation of protective measures such as monitoring if in-water construction activity occurred during the nesting season. No significant impacts to wetlands, upland habitat, wildlife migration or corridors are anticipated. Cumulative impacts are considered to be less than significant.

9.0 REFERENCES

Allen, L.G. 1999. Fisheries inventory and utilization of San Diego Bay, San Diego, California. Final report. Nearshore Marine Fish Research Program, Department of Biology, California State University, Northridge.

Bredvik, J.J., S.E. Graham, B. Saunders. 2015. Progress Report: Evaluation of Fine Scale Movements of East Pacific Green Sea Turtles in San Diego Bay. Prepared for Commander, Naval Installations Command and Commander, U.S. Pacific Fleet. Submitted to Naval Facilities Engineering Command (NAVFAC) Southwest, California, September 2015.

Butler, A.J. and R.M. Connolly. 1999. Assemblages of sessile marine invertebrates: still changing after all these years? Marine Ecology Progress Series 182:109-118.

Caltrans. 2015. Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish. http://www.dot.ca.gov/env/bio/docs/bio-tech-guidance-hydroacoustic-effects-110215.pdf

Carlson, T.J., M.C. Hastings, and A.N. Popper. 2007. Update on recommendations for revised interim sound exposure criteria for fish during pile driving activities. Memorandum dated December 21, 2007, to Suzanne Theiss, California Department of Transportation and Paul Wagner, Washington Department of Transportation.

Casper, B.M., P.S. Lobel, and H.Y. Yan. 2003. The hearing sensitivity of the little skate, Raja erinacea: A comparison of two methods. Environmental Biology of Fishes 68:371-379.

Casper, B.M., F.M. Matthews, M.B. Halvorsen, T.J. Carlson, and A.N. Popper. 2011a. Recovery from exposure to pile driving signals by Chinook salmon. J. Acoust. Soc. Am. 129(4):2436.

Clynick, B.G. 2008. Characteristics of an urban fish assemblage: Distribution of fish associated with coastal marinas. Marine Environmental Research 65:18-33.

Connell, S.D. 2001. Urban structures as marine habitats: an experimental comparison of the composition and abundance of subtidal epibiota among pilings, pontoons, and rocky reefs. Marine Environmental Research 52:115-125.

Connell, S.D. and T.M. Glasby. 1999. Do urban structures influence local abundance and diversity of subtidal epibiota? A case study from Sydney Harbour, Australia. Marine Environmental Research 47:373-387.

Emmett, R.L., S.A. Hinton, S.L. Stone, M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries volume II: species life history summaries. ELMR report number 8. August 1991.

Eguchi, T., J. Seminoff, R. LeRoux, P. Dutton, and D. Dutton. 2010. Abundance and survival rates of green turtles in an urban environment: coexistence of humans and an endangered species. Marine Biology 157:1869-1877.

Fisheries Hydroacoustics Working Group (FHWG). 2008. Memorandum: Agreement in Principle for Interim Criteria for Injury to Fish from Pile Driving Activities. Signed by NOAA's Fisheries Northwest and Southwest Regions, U.S. Fish and Wildlife Service Regions 1 & 8, California/Washington/Oregon Departments of Transportation, California Department of Fish and Game, and the U.S. Federal Highway Administration. Available online at http://www.wsdot.wa.gov/NR/rdonlyres/4019ED62-B403-489C-AF05-5F4713D663C9/0/BA_InterimCriteriaAgree.pdf .

Glasby, T.M. 1999. Differences between subtidal epibiota on pier pilings and rocky reefs at marinas in Sydney, Australia. Estuarine, Coastal and Shelf Science 48:281-290.

Halvorsen, M.B., C.M. Woodley, B.M. Casper, T.J. Carlson, and A.N. Popper. 2011a. Derivation of a response severity index model for physiological quantification of fish response to impulsive sound. J. Acoust. Soc. Am. 129(4):2435.

Halvorsen, M.B., B.M. Casper, C.M. Woodley, T.J. Carlson, and A.N. Popper. 2011b. Predicting and mitigating hydroacoustic impacts on fish from pile installations. National Cooperative Highway Research Program Transportation Research Board of The National Academies, (in press).

Hastings, M.C. and A.N. Popper. 2005. Effects of Sound on Fish. Report to California Department of Transportation. January. 82 pp. http://www.dot.ca.gov/hq/env/bio/files/Effects_of_Sound_on_Fish23Aug05.pdf.

Hoffman, R.S. 2006. Fisheries Utilization of Eelgrass Beds in San Diego and Mission Bays 1988-2005: 18 Years of Sampling and Still Going. Status Report February 21, 2006. National Marine Fisheries Service. Long Beach, CA. 50 pp.

IUCN Invasive Species Specialist Group. 2007. Global invasive species database: *Undaria pinnatifida*. Retrieved from: http://www.issg.org/database/species/ecology.asp?si=68&fr=1&sts=&lang=EN

Mann D.A., D.M. Higgs, W.N. Tavolga, M.J. Souza, and A.N. Popper. 2001. Ultrasound detection by clupeiform fishes, Journal of the Acoustical Society of America 109: 3048-3054.

Merkel & Associates, Inc. (M&A). 2000. South Bay Power Plant cooling water discharge channel fish community characterization study. April 1997 through January 2000 final report. June 2000.

Merkel & Associates, Inc. (M&A). 2009. Demersal Fisheries Response to the 2004 Channel Deepening Project in San Diego Bay. Prepared for the Port of San Diego, Port of Los Angeles, Port of Long Beach, National Marine Fisheries Service, and Naval Facilities Engineering Command Southwest.

Merkel & Associates, Inc. (M&A). 2010. Characterization of Essential Fish Habitat in San Diego Bay PHASE II: Qualitative Habitat Characterization and Mapping Report. Prepared for Naval Facilities Engineering Command Southwest Coastal IPT.

Merkel & Associates, Inc. (M&A). 2012. Marine Biological Resources Assessment for the BAE Systems San Diego Ship Repair Pier 4 Replacement Project. Prepared for LSA Associates, Inc. 33 pp.

Merkel & Associates, Inc. (M&A). 2015a. Essential Fish Habitat Assessment for the On Site In Water Structural Improvements Elements of the BAE Systems San Diego Ship Repair Pier 1 North Drydock Project. Prepared for the San Diego Unified Port District and the U.S. Army Corps of Engineers. December 2015. 31 pp.

Merkel & Associates, Inc. (M&A). 2015b. Eelgrass Transplant and Monitoring Plan In Support of the BAE Systems San Diego Ship Repair Pier 1 North Drydock Project and the San Diego Shipyard Sediment Remediation Project North Shipyard Site, San Diego Bay, California. December 2015.

Merkel & Associates, Inc. (M&A). 2016. BAE Systems Pier 1 North Drydock Project – Essential Fish Habitat Assessment.

Merkel & Associates, Inc. (M&A). 2017a. San Diego Ship Repair Pier 1 North Drydock Project Acoustic, Marine Mammal, and Green Sea Turtle Monitoring Report.

Merkel & Associates, Inc. (M&A). 2017b. Monitoring Summary Report for the BAE Systems Pier 1 North Drydock Project. July 2017

Merkel & Associates, Inc. (M&A). 2018. BAE Systems San Diego Ship Repair Pier 1 North Drydock and San Diego Shipyard Sediment Remediation North Shipyard Site 12 Month Post Transplant Eelgrass Monitoring Report San Diego Bay, CA.

National Marine Fisheries Service (NMFS). 1998. Essential fish habitat coastal pelagic species. Modified from: Coastal Pelagics Species Fishery Management Plan [Amendment 8 to the northern anchovy fishery management plan].

National Marine Fisheries Service (NMFS). 1999 (revised 2000). Essential fish habitat: new marine fish habitat conservation mandate for federal agencies. National Marine Fisheries Service Southwest Regional Office.

National Marine Fisheries Service (NMFS). 2004. *Caulerpa* Control Protocols (Version 1.2b).

National Marine Fisheries Service (NMFS). 2008a. Pacific Coast Groundfish Fishery Management Plan for the California, Oregon, and Washington Groundfish Fishery. Pacific Fishery Management Council. July 2008.

National Marine Fisheries Service (NMFS) NOAA Fisheries, West Coast Region. 2014. California Eelgrass Mitigation Policy and Implementing Guidelines. October 2014.

National Marine Fisheries Service (NMFS). 2016. Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing, Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts. NOAA Technical Memorandum NMFS-OPR-55. July 2016.

National Marine Fisheries Service. 2018a. 2018 Revisions to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts. U.S. Dept. of Commerce., NOAA. NOAA Technical Memorandum NMFS-OPR-59, 167 p.

National Marine Fisheries Service. 2018b. Manual for Optional User Spreadsheet Tool (Version 2.0) for: 2018 Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts. Silver Spring, Maryland: Office of Protected Resources, National Marine Fisheries Service.

Naval Facilities Engineering Command Southwest (NAVFAC SW). 2018. Compendium of Underwater and Airborne Sound Data from Pile Driving and Demolition Activities in San Diego Bay. August 2018.

Pacific Fishery Management Council (PFMC). 2016. Pacific Coast Groundfish Fishery Management Plan for the California, Oregon, and Washington Groundfish Fishery. August.

Pinn, E.H., K. Mitchell, and J. Corkill. 2005. The assemblages of groynes in relation to substratum age, aspect and microhabitat. Estuarine, Coastal and Shelf Science 62:271-282.

Unitt. P. 2004. San Diego County Bird Atlas. Proceedings of the San Diego Society of Natural History. October 2004. Data retrieved from: http://www.sdnhm.org/science/birds-andmammals/projects/san-diego-county-bird-atlas/bird-atlas-google-earth-presentation/

U.S. Army Corps of Engineers (USACE). 1990. Regulatory Guidance Letter 90-08. SUBJECT: Applicability of Section 404 to Pilings. 3 pp.
Retrieved from: http://www.usace.army.mil/CECW/Documents/cecwo/reg/rgls/rgl90-08.pdf.

U.S. Department of the Navy (U.S. Navy), Naval Facilities Engineering Command Southwest and Port of San Diego. 2013 . San Diego Bay Integrated Natural Resources Management Plan, Final September 2013. San Diego, California. Prepared by Tierra Data Inc., Escondido, California.

U.S. Department of the Navy (U.S. Navy). 2013b. Hawaii-Southern California Training and Testing Final Environmental Impact Statement/Overseas Environmental Impact Statement. August 2013.

Vance, R.R. 1988. Ecological succession and the climax community on a marine subtidal rock wall. Marine Ecology Progress Series 48:125-136.

Vantuna Research Group (VRG). 2006. Fisheries Inventory and Utilization of San Diego Bay, San Diego, California for Surveys Conducted in April and July 2005. Moore Laboratory of Zoology. Occidental College. February. 103 pp.

Vantuna Research Group (VRG). 2009. Fisheries Inventory and Utilization of San Diego Bay, San Diego, California for Surveys Conducted in April and July 2008. Moore Laboratory of Zoology. Occidental College. February. 74 pp.

Appendix 1.
Calculations for Marine Mammal Underwater Sound Exposure Risks Using
USER SPREADSHEET INTRODUCTION
VERSION: 2.0 (2018)
Companion+ User Spreadsheet to:
NMFS 2018 Revision to:
Technical Guidance for Assessing the Effects of
Anthropogenic Noise on Marine Mammal Hearing:
Underwater Thresholds for Onset of Permanent and
Temporary Threshold Shifts (Version 2.0)

E.1: IMPACT PILE DRIVING (STATIONARY SOURCE: Impulsive, Intermittent)

VERSION 2.0: 2018

KEY

	User Provided Information
	NMFS Provided Information (Technical Guidance)
	Resultant Isopleth

STEP 1: GENERAL PROJECT INFORMATION

PROJECT TITLE	BAE Waterfront Infrastructure Maintenance, Repair, and Replacement Project
PROJECT/SOURCE INFORMATION	18-inch square concrete piles driven by impact means

Please include any assumptions

PROJECT CONTACT	Keith Merkel

STEP 2: WEIGHTING FACTOR ADJUSTMENT

Specify if relying on source-specific WFA, alternative weighting/dB adjustment, or if using default value

Weighting Factor Adjustment (kHz)¥	2	

¥ Broadband: 95% frequency contour percentile (kHz)
OR Narrowband: frequency (kHz); For appropriate default WFA: See INTRODUCTION tab

† If a user relies on alternative weighting/dB adjustment rather than relying upon the WFA (source-specific or default), they may override the Adjustment (dB) (row 75), and enter the new value directly. However, they must provide additional support and documentation supporting this modification.

*** BROADBAND Sources: Cannot use WFA higher than maximum applicable frequency (See GRAY tab for more information on WFA applicable frequencies)**

STEP 3: SOURCE-SPECIFIC INFORMATION

NOTE: Choose either E1-1 OR E.1-2 method to calculate isopleths (not required to fill in sage boxes for both)

E.1-1: METHOD TO CALCULATE PK AND SEL_{cum} (USING RMS SPL SOURCE LEVEL)

SEL_{cum}

Source Level (RMS SPL)	
Number of piles per day	
Strike Duration^ (seconds)	
Number of strikes per pile	
Duration of Sound Production (seconds)	0
10 Log (duration of sound production)	#NUM!
Propagation (xLogR)	
Distance of source level measurement (meters)*	

^Window that makes up 90% of total cumulative energy (5%-95%) based on Madsen 2005

*Unless otherwise specified, source levels are referenced 1 m from the source.

PK

Source Level (PK SPL)	
Distance of source level measurement (meters)*	
Source level at 1 meter	#NUM!

*Unless otherwise specified, source levels are referenced 1 m from the source.

NOTE: The User Spreadsheet tool provides a means to estimates distances associated with the Technical Guidance's PTS onset thresholds. Mitigation and monitoring requirements associated with a Marine Mammal Protection Act (MMPA) authorization or an Endangered Species Act (ESA) consultation or permit are independent management decisions made in the context of the proposed activity and comprehensive effects analysis, and are beyond the scope of the Technical Guidance and the User Spreadsheet tool.

RESULTANT ISOPLETHS*

*Impulsive sounds have dual metric thresholds (SELcum & PK). Metric producing largest isopleth should be used.

Hearing Group	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds
SEL_{cum} Threshold	183	185	155	185	203
PTS isopleth to threshold (meters)	**#NUM!**	**#NUM!**	**#NUM!**	**#NUM!**	**#NUM!**
PK Threshold	219	230	202	218	232
PTS PK isopleth to threshold (meters)	**#NUM!**	**#NUM!**	**#NUM!**	**#NUM!**	**#NUM!**

E.1-2: ALTERNATIVE METHOD TO CALCULATE PK AND SEL_{cum} (SINGLE STRIKE EQUIVALENT)

Unweighted $SEL_{cum\ (at\ measured\ distance)}$ = SEL_{ss} + 10 Log (# strikes)	**191.0**

SEL_{cum}

Source Level (Single Strike SEL)	154
Number of strikes per pile	525.1
Number of piles per day	9.6
Propagation (xLogR)	15
Distance of single strike SEL measurement (meters)*	10

*Unless otherwise specified, source levels are referenced 1 m from the source.

PK

Source Level (PK SPL)	185
Distance of source level measurement (meters)*	10
Source level at 1 meter	200.0

*Unless otherwise specified, source levels are referenced 1 m from the source.

RESULTANT ISOPLETHS*

*Impulsive sounds have dual metric thresholds (SELcum & PK). Metric producing largest isopleth should be used.

Hearing Group	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds
SEL_{cum} Threshold	183	185	155	185	203
PTS isopleth to threshold (meters)	**34.2**	**1.2**	**40.8**	**18.3**	**1.3**
PK Threshold	219	230	202	218	232
PTS PK isopleth to threshold (meters)	**NA**	**NA**	**NA**	**NA**	**NA**

WEIGHTING FUNCTION CALCULATIONS

Weighting Function Parameters	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds
a	1	1.6	1.8	1	2
b	2	2	2	2	2
f_1	0.2	8.8	12	1.9	0.94
f_2	19	110	140	30	25
C	0.13	1.2	1.36	0.75	0.64
Adjustment (dB)†	**-0.01**	**-19.74**	**-26.87**	**-2.08**	**-1.15**

$$W(f) = C + 10\log_{10}\left\{\frac{(f/f_1)^{2a}}{[1+(f/f_1)^2]^a[1+(f/f_2)^2]^b}\right\}$$

E.1: IMPACT PILE DRIVING (STATIONARY SOURCE: Impulsive, Intermittent)

VERSION 2.0: 2018

KEY

	User Provided Information
	NMFS Provided Information (Technical Guidance)
	Resultant Isopleth

STEP 1: GENERAL PROJECT INFORMATION

PROJECT TITLE	BAE Waterfront Infrastructure Maintenance, Repair, and Replacement Project
PROJECT/SOURCE INFORMATION	24-inch octagonal concrete piles driven by impact means

Please include any assumptions

PROJECT CONTACT	Keith Merkel

STEP 2: WEIGHTING FACTOR ADJUSTMENT

Specify if relying on source-specific WFA, alternative weighting/dB adjustment, or if using default value

Weighting Factor Adjustment (kHz)¥	2	

¥ Broadband: 95% frequency contour percentile (kHz) OR Narrowband: frequency (kHz); For appropriate default WFA: See INTRODUCTION tab

† If a user relies on alternative weighting/dB adjustment rather than relying upon the WFA (source-specific or default), they may override the Adjustment (dB) (row 75), and enter the new value directly. However, they must provide additional support and documentation supporting this modification.

*** BROADBAND Sources: Cannot use WFA higher than maximum applicable frequency (See GRAY tab for more information on WFA applicable frequencies)**

STEP 3: SOURCE-SPECIFIC INFORMATION

NOTE: Choose either E1-1 OR E.1-2 method to calculate isopleths (not required to fill in sage boxes for both)

E.1-1: METHOD TO CALCULATE PK AND SEL_{cum} (USING RMS SPL SOURCE LEVEL)

SEL_{cum}

Source Level (RMS SPL)	
Number of piles per day	
Strike Duration^ (seconds)	
Number of strikes per pile	
Duration of Sound Production (seconds)	0
10 Log (duration of sound production)	#NUM!
Propagation (xLogR)	
Distance of source level measurement (meters)*	

^Window that makes up 90% of total cumulative energy (5%-95%) based on Madsen 2005

*Unless otherwise specified, source levels are referenced 1 m from the source.

PK

Source Level (PK SPL)	
Distance of source level measurement (meters)*	
Source level at 1 meter	#NUM!

*Unless otherwise specified, source levels are referenced 1 m from the source.

NOTE: The User Spreadsheet tool provides a means to estimates distances associated with the Technical Guidance's PTS onset thresholds. Mitigation and monitoring requirements associated with a Marine Mammal Protection Act (MMPA) authorization or an Endangered Species Act (ESA) consultation or permit are independent management decisions made in the context of the proposed activity and comprehensive effects analysis, and are beyond the scope of the Technical Guidance and the User Spreadsheet tool.

RESULTANT ISOPLETHS*

*Impulsive sounds have dual metric thresholds (SELcum & PK). Metric producing largest isopleth should be used.

Hearing Group	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds
SEL_{cum} Threshold	183	185	155	185	203
PTS isopleth to threshold (meters)	**#NUM!**	**#NUM!**	**#NUM!**	**#NUM!**	**#NUM!**
PK Threshold	219	230	202	218	232
PTS PK isopleth to threshold (meters)	**#NUM!**	**#NUM!**	**#NUM!**	**#NUM!**	**#NUM!**

E.1-2: ALTERNATIVE METHOD TO CALCULATE PK AND SEL_{cum} (SINGLE STRIKE EQUIVALENT)

Unweighted $SEL_{cum\ (at\ measured\ distance)}$ = SEL_{ss} + 10 Log (# strikes)	**202.0**

SEL_{cum}

Source Level (Single Strike SEL)	165
Number of strikes per pile	525.1
Number of piles per day	9.6
Propagation (xLogR)	15
Distance of single strike SEL measurement (meters)*	10

*Unless otherwise specified, source levels are referenced 1 m from the source.

PK

Source Level (PK SPL)	187
Distance of source level measurement (meters)*	10
Source level at 1 meter	202.0

*Unless otherwise specified, source levels are referenced 1 m from the source.

RESULTANT ISOPLETHS*

*Impulsive sounds have dual metric thresholds (SELcum & PK). Metric producing largest isopleth should be used.

Hearing Group	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds
SEL_{cum} Threshold	183	185	155	185	203
PTS isopleth to threshold (meters)	**185.2**	**6.6**	**220.7**	**99.1**	**7.2**
PK Threshold	219	230	202	218	232
PTS PK isopleth to threshold (meters)	**NA**	**NA**	**NA**	**NA**	**NA**

WEIGHTING FUNCTION CALCULATIONS

Weighting Function Parameters	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds
a	1	1.6	1.8	1	2
b	2	2	2	2	2
f_1	0.2	8.8	12	1.9	0.94
f_2	19	110	140	30	25
C	0.13	1.2	1.36	0.75	0.64
Adjustment (dB)†	**-0.01**	**-19.74**	**-26.87**	**-2.08**	**-1.15**

$$W(f) = C + 10\log_{10}\left\{\frac{(f/f_1)^{2a}}{[1+(f/f_1)^2]^a[1+(f/f_2)^2]^b}\right\}$$

E.1: IMPACT PILE DRIVING (STATIONARY SOURCE: Impulsive, Intermittent)

VERSION 2.0: 2018

KEY

	User Provided Information
	NMFS Provided Information (Technical Guidance)
	Resultant Isopleth

STEP 1: GENERAL PROJECT INFORMATION

PROJECT TITLE	BAE Waterfront Infrastructure Maintenance, Repair, and Replacement Project
PROJECT/SOURCE INFORMATION	14-inch steel H fender piles driven by impact means

Please include any assumptions

PROJECT CONTACT	Keith Merkel

STEP 2: WEIGHTING FACTOR ADJUSTMENT

Specify if relying on source-specific WFA, alternative weighting/dB adjustment, or if using default value

Weighting Factor Adjustment (kHz)¥	2	

¥ Broadband: 95% frequency contour percentile (kHz) OR Narrowband: frequency (kHz); For appropriate default WFA: See INTRODUCTION tab

† If a user relies on alternative weighting/dB adjustment rather than relying upon the WFA (source-specific or default), they may override the Adjustment (dB) (row 75), and enter the new value directly. However, they must provide additional support and documentation supporting this modification.

*** BROADBAND Sources: Cannot use WFA higher than maximum applicable frequency (See GRAY tab for more information on WFA applicable frequencies)**

STEP 3: SOURCE-SPECIFIC INFORMATION

NOTE: Choose either E1-1 OR E.1-2 method to calculate isopleths (not required to fill in sage boxes for both)

E.1-1: METHOD TO CALCULATE PK AND SEL_{cum} (USING RMS SPL SOURCE LEVEL)

SEL_{cum}

Source Level (RMS SPL)	
Number of piles per day	
Strike Duration^ (seconds)	
Number of strikes per pile	
Duration of Sound Production (seconds)	0
10 Log (duration of sound production)	#NUM!
Propagation (xLogR)	
Distance of source level measurement (meters)*	

^Window that makes up 90% of total cumulative energy (5%-95%) based on Madsen 2005

*Unless otherwise specified, source levels are referenced 1 m from the source.

PK

Source Level (PK SPL)	
Distance of source level measurement (meters)*	
Source level at 1 meter	#NUM!

*Unless otherwise specified, source levels are referenced 1 m from the source.

NOTE: The User Spreadsheet tool provides a means to estimates distances associated with the Technical Guidance's PTS onset thresholds. Mitigation and monitoring requirements associated with a Marine Mammal Protection Act (MMPA) authorization or an Endangered Species Act (ESA) consultation or permit are independent management decisions made in the context of the proposed activity and comprehensive effects analysis, and are beyond the scope of the Technical Guidance and the User Spreadsheet tool.

RESULTANT ISOPLETHS*

*Impulsive sounds have dual metric thresholds (SELcum & PK). Metric producing largest isopleth should be used.

Hearing Group	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds
SEL_{cum} Threshold	183	185	155	185	203
PTS isopleth to threshold (meters)	**#NUM!**	**#NUM!**	**#NUM!**	**#NUM!**	**#NUM!**
PK Threshold	219	230	202	218	232
PTS PK isopleth to threshold (meters)	**#NUM!**	**#NUM!**	**#NUM!**	**#NUM!**	**#NUM!**

E.1-2: ALTERNATIVE METHOD TO CALCULATE PK AND SEL_{cum} (SINGLE STRIKE EQUIVALENT)

Unweighted $SEL_{cum\ (at\ measured\ distance)}$ = SEL_{ss} + 10 Log (# strikes)	**203.0**

SEL_{cum}

Source Level (Single Strike SEL)	166
Number of strikes per pile	525.1
Number of piles per day	9.6
Propagation (xLogR)	15
Distance of single strike SEL measurement (meters)*	10

*Unless otherwise specified, source levels are referenced 1 m from the source.

PK

Source Level (PK SPL)	200
Distance of source level measurement (meters)*	10
Source level at 1 meter	215.0

*Unless otherwise specified, source levels are referenced 1 m from the source.

RESULTANT ISOPLETHS*

*Impulsive sounds have dual metric thresholds (SELcum & PK). Metric producing largest isopleth should be used.

Hearing Group	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds
SEL_{cum} Threshold	183	185	155	185	203
PTS isopleth to threshold (meters)	**216.0**	**7.7**	**257.3**	**115.6**	**8.4**
PK Threshold	219	230	202	218	232
PTS PK isopleth to threshold (meters)	**NA**	**NA**	**7.4**	**NA**	**NA**

WEIGHTING FUNCTION CALCULATIONS

Weighting Function Parameters	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds
a	1	1.6	1.8	1	2
b	2	2	2	2	2
f_1	0.2	8.8	12	1.9	0.94
f_2	19	110	140	30	25
C	0.13	1.2	1.36	0.75	0.64
Adjustment (dB)†	**-0.01**	**-19.74**	**-26.87**	**-2.08**	**-1.15**

$$W(f) = C + 10\log_{10}\left\{\frac{(f/f_1)^{2a}}{[1+(f/f_1)^2]^a[1+(f/f_2)^2]^b}\right\}$$

A.1: Vibratory Pile Driving (STATIONARY SOURCE: Non-Impulsive, Continuous)

VERSION 2.0: 2018

KEY

	User Provided Information
	NMFS Provided Information (Technical Guidance)
	Resultant Isopleth

STEP 1: GENERAL PROJECT INFORMATION

PROJECT TITLE	BAE Waterfront Infrastructure Maintenance, Repair, and Replacement Project
PROJECT/SOURCE INFORMATION	Caltrans Compendium and BAE SD Ship Repair Project Description AZ-26 700 Sheet Pile Vibratory Driving

Please include any assumptions

PROJECT CONTACT	Keith Merkel

STEP 2: WEIGHTING FACTOR ADJUSTMENT

		Specify if relying on source-specific WFA, alternative weighting/dB adjustment, or if using default value
Weighting Factor Adjustment (kHz)¥	2.5	

¥ Broadband: 95% frequency contour percentile (kHz) OR Narrowband: frequency (kHz); For appropriate default WFA: See INTRODUCTION tab

† If a user relies on alternative weighting/dB adjustment rather than relying upon the WFA (source-specific or default), they may override the Adjustment (dB) (row 48), and enter the new value directly. However, they must provide additional support and documentation supporting this modification.

*** BROADBAND Sources: Cannot use WFA higher than maximum applicable frequency (See GRAY tab for more information on WFA applicable frequencies)**

STEP 3: SOURCE-SPECIFIC INFORMATION

Source Level (RMS SPL)	160
Number of piles within 24-h period	40
Duration to drive a single pile (minutes)	10
Duration of Sound Production within 24-h period (seconds)	24000
10 Log (duration of sound production)	43.80
Propagation (xLogR)	15
Distance from source level measurement (meters)*	10

*Unless otherwise specified, source levels are referenced 1 m from the source.

NOTE: The User Spreadsheet tool provides a means to estimates distances associated with the Technical Guidance's PTS onset thresholds. Mitigation and monitoring requirements associated with a Marine Mammal Protection Act (MMPA) authorization or an Endangered Species Act (ESA) consultation or permit are independent management decisions made in the context of the proposed activity and comprehensive effects analysis, and are beyond the scope of the Technical Guidance and the User Spreadsheet tool.

RESULTANT ISOPLETHS

Hearing Group	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds
SEL_{cum} Threshold	199	198	173	201	219
PTS Isopleth to threshold (meters)	**20.8**	**1.8**	**30.7**	**12.6**	**0.9**

WEIGHTING FUNCTION CALCULATIONS

Weighting Function Parameters	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds
a	1	1.6	1.8	1	2
b	2	2	2	2	2
f_1	0.2	8.8	12	1.9	0.94
f_2	19	110	140	30	25
C	0.13	1.2	1.36	0.75	0.64
Adjustment (dB)†	**-0.05**	**-16.83**	**-23.50**	**-1.29**	**-0.60**

$$W(f) = C + 10\log_{10}\left\{\frac{(f/f_1)^{2a}}{[1+(f/f_1)^2]^a[1+(f/f_2)^2]^b}\right\}$$

A.1: Vibratory Pile Driving (STATIONARY SOURCE: Non-Impulsive, Continuous)

VERSION 2.0: 2018

KEY

	User Provided Information
	NMFS Provided Information (Technical Guidance)
	Resultant Isopleth

STEP 1: GENERAL PROJECT INFORMATION

PROJECT TITLE	BAE Waterfront Infrastructure Maintenance, Repair, and Replacement Project
PROJECT/SOURCE INFORMATION	Caltrans Compendium and BAE SD Ship Repair Project Description

Please include any assumptions

PROJECT CONTACT	Keith Merkel

STEP 2: WEIGHTING FACTOR ADJUSTMENT

		Specify if relying on source-specific WFA, alternative weighting/dB adjustment, or if using default value
Weighting Factor Adjustment (kHz)¥	2.5	

¥ Broadband: 95% frequency contour percentile (kHz) OR Narrowband: frequency (kHz); For appropriate default WFA: See INTRODUCTION tab

† If a user relies on alternative weighting/dB adjustment rather than relying upon the WFA (source-specific or default), they may override the Adjustment (dB) (row 48), and enter the new value directly. However, they must provide additional support and documentation supporting this modification.

*** BROADBAND Sources: Cannot use WFA higher than maximum applicable frequency (See GRAY tab for more information on WFA applicable frequencies)**

STEP 3: SOURCE-SPECIFIC INFORMATION

Source Level (RMS SPL)	147
Number of piles within 24-h period	40
Duration to drive a single pile (minutes)	10
Duration of Sound Production within 24-h period (seconds)	24000
10 Log (duration of sound production)	43.80
Propagation (xLogR)	15
Distance from source level measurement (meters)*	10

*Unless otherwise specified, source levels are referenced 1 m from the source.

NOTE: The User Spreadsheet tool provides a means to estimates distances associated with the Technical Guidance's PTS onset thresholds. Mitigation and monitoring requirements associated with a Marine Mammal Protection Act (MMPA) authorization or an Endangered Species Act (ESA) consultation or permit are independent management decisions made in the context of the proposed activity and comprehensive effects analysis, and are beyond the scope of the Technical Guidance and the User Spreadsheet tool.

RESULTANT ISOPLETHS

Hearing Group	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds
SEL_{cum} Threshold	199	198	173	201	219
PTS Isopleth to threshold (meters)	**2.8**	**0.2**	**4.2**	**1.7**	**0.1**

WEIGHTING FUNCTION CALCULATIONS

Weighting Function Parameters	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds
a	1	1.6	1.8	1	2
b	2	2	2	2	2
f_1	0.2	8.8	12	1.9	0.94
f_2	19	110	140	30	25
C	0.13	1.2	1.36	0.75	0.64
Adjustment (dB)†	**-0.05**	**-16.83**	**-23.50**	**-1.29**	**-0.60**

$$W(f) = C + 10\log_{10}\left\{\frac{(f/f_1)^{2a}}{[1+(f/f_1)^2]^a[1+(f/f_2)^2]^b}\right\}$$

Appendix D-2

BAE Systems Construction – Airborne Noise Levels for Potential Impacts on Marine Mammals

Memorandum

To:	Peter Eichar, District Senior Project Manager
From:	Jonathan Higginson, INCE Senior Manager, Noise Analyst
Date:	June 23, 2020
Re:	**BAE Systems Construction – Airborne Noise Levels for Potential Impacts on Marine Mammals**

Introduction

This memorandum is being prepared to inform the Environmental Impact Report (EIR) for the proposed project and is intended solely to provide the technical background and analysis necessary to determine potential impact distances for in-air acoustic impacts to marine mammals. Mitigation measures required as a result of the findings in this memorandum, if any, will be developed as part of the EIR and described in the Biological Resources section of that document.

Waterside construction activities, such as the impact and vibratory pile driving and removal proposed as part of the project, will generate both underwater (hydroacoustic) noise and airborne (in-air acoustic) noise. Underwater noise may affect both fish and marine mammals; these effects are addressed separately in the project's *Biological Technical Study and EFHA* (Merkel & Associates 2020). In addition, marine mammals may potentially be impacted by airborne noise while they are hauled out onto land (i.e., while they are in air rather than in water). The purpose of this memorandum is to provide calculated in-air noise levels and associated impact distances due to airborne noise from proposed project construction. Potential impact distances are calculated based on current guidance provided by National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) for potential in-air acoustic impacts to marine mammals. This memorandum identifies the current applicable thresholds, describes the methods used in the calculations, and summarizes the results of the analysis.

Applicable Thresholds

The Marine Mammal Protection Act (MMPA) regulates the "take" of marine mammals, including take through exposure to sound. For in-air acoustic impacts to marine mammals there are two levels of potential take. Take with the potential for injury is considered Level A take. Exposure to high sound levels may result in auditory threshold shifts (TS) wherein animals suffer from noise-induced loss of

hearing over a portion or all of the animal's auditory range. The effects may be temporary threshold shifts (TTS) or permanent (PTS). Level B take may result in behavioral disruption but not injury. Current in-air acoustic thresholds for marine mammals are provided by NMFS[1] and are summarized in Table 1. It is noted that thresholds are currently only provided for Level B take (behavioral disruption) and that no threshold is currently established for Level A take (injury). Because injury is a more severe effect than behavioral disruption it follows that Level A take would occur at higher noise levels than those associated with Level B take. Therefore, although no specific threshold has been established for Level A take (injury) it can be concluded that avoidance of Level B take would also avoid Level A take. It is noted that the thresholds in Table 1 are all established using unweighted decibels (dB) (also sometimes referred to as "flat" or "Z" weighted), as opposed to A-weighted decibels (dBA) which are typically used for assessing environmental noise impacts on humans. When a sound is measured using both unweighted decibels and A-weighted decibels, the values are rarely the same. For most environmental sound sources the unweighted (dB) level will be higher than the A-weighted (dBA) level. The difference between the two values depends on the frequency content (spectrum) of the sound.

Table 1. NOAA National Marine Fisheries Service Current In-Air Acoustic Thresholds

Criterion	Criterion Definition	Threshold
Level A	PTS (injury) conservatively based on TTS	None established
Level B	Behavioral disruption for harbor seals	90 dB_{rms}
Level B	Behavioral disruption for non-harbor seal pinnipeds	100 dB_{rms}

PTS = permanent hearing threshold shift
TTS = temporary hearing threshold shift
dB = decibels referenced to 20 micro Pascals (re: 20 µPa)
rms = root mean square

Analysis and Estimated Impact Distances

Noise data published by the California Department of Transportation (Caltrans)[2] and the Federal Transit Administration (FTA)[3] indicate maximum A-weighted noise levels (rms) of approximately 101 dBA at 50 feet from impact pile driving and approximately 95 to 101 dBA at 50 feet from vibratory pile driving. Data is not specifically provided for vibratory pile extraction, but it is assumed that the noise levels for vibratory pile extraction would be the same as those reported for vibratory pile driving because the same equipment is used for both activities. As noted previously, the A-weighted noise level (dBA) is not the same as the unweighted noise level (dB). Therefore, the A-weighted source noise levels need to be adjusted before they can be used to predict impact

[1] https://www.westcoast.fisheries.noaa.gov/protected_species/marine_mammals/threshold_guidance.html

[2] Caltrans. 2020. *Transportation and Construction Vibration Guidance Manual*. Final. CT-HWANP-RT-20-365.01.01. April 2020. Sacramento, CA.

[3] U.S. Department of Transportation/Federal Transit Administration. 2018. *Transit Noise and Vibration Impact Assessment Manual*. Final. FTA Report No. 0123. September 2018. Washington, DC. Prepared by Volpe National Transportation Systems Center. Cambridge, MA.

distances for marine mammals. A review of available pile driving sound spectra (i.e., frequency) data conducted by ICF indicates that unweighted noise levels are up to 6 dB higher for impact pile driving and up to 9.5 dB higher for vibratory pile driving, compared to the A-weighted noise levels. Adjusting the A-weighted noise source levels accordingly results in unweighted noise levels (rms) of approximately 107 dB at 50 feet from impact pile driving and up to 110.5 dB at 50 feet from vibratory pile driving. These unweighted levels were used to calculate potential impact distances from each source assuming a standard attenuation rate of 6 dB per doubling of distance in air. Table 2 summarizes the results of the analysis.

Table 2. Estimated In-Air Potential Impact Distances

Criterion	Criterion Definition	Threshold	Distance from Impact Pile Driving, meters (feet)	Distance from Vibratory Pile Driving or Extraction, meters (feet)
Level B	Behavioral disruption for harbor seals	90 dB_{rms}	108 m (354 ft)	161 m (530 ft)
Level B	Behavioral disruption for non-harbor seal pinnipeds	100 dB_{rms}	34 m (112 ft)	51 m (167 ft)

dB = decibels referenced to 20 micro Pascals (re: 20uPa)
rms = root mean square

Conclusions and Assessment of Impact

Referring to the results in Table 2, it is concluded that airborne noise from impact pile driving would be potentially significant for harbor seals at distances of up to 354 feet and for non-harbor seal pinnipeds at distances of up to 112 feet from the pile being driven. Airborne noise from vibratory pile driving or removal would be potentially significant for harbor seals at distances of up to 530 feet and for non-harbor seal pinnipeds at distances of up to 167 feet from the pile.

Appendix D-3

Sensitive Species Potential to Occur Tables

Appendix D-3
Sensitive Species Potential to Occur Tables

Plant Species

The analysis for sensitive plant species was performed for this project by reviewing the California Natural Diversity Database (CNDDB) and CNPS database, and requesting an official threatened and endangered species list from the U.S. Fish and Wildlife Service's (USFWS) Information, Planning, and Consultation System (IPAC). The CNDDB record search for sensitive terrestrial plant species was conducted for the project site and a 1-mile radius (CDFW 2018). The CNPS sensitive plant species search was conducted for the U.S. Geological Survey's Point Loma, California 7.5-minute quadrangle map. Due to the varying topography occurring within the Point Loma quadrangle map, the search was further refined to only include species with habitat requirements within 0 and 20 feet elevation, which would exclude plants that may occur in habitats that vary greatly from the current and historical conditions at the project site. The USFWS list of threatened and endangered species was generated by creating a polygon for the proposed project area through the IPAC web application tool. This search criteria yields a total of 32 sensitive plant species. Upon review of these resources, it was determined that because the site is urban/developed and lacks any natural terrestrial habitat, no sensitive plant species are likely to occur at the project site. A full description of these species and their potential to occur within the project site are presented in Table 1.

Wildlife Species

A CNDDB record search for special-status terrestrial wildlife species was conducted for the project site and a 1-mile radius (CDFW 2018). The USFWS list of threatened and endangered species was generated by creating a polygon for the project site through the IPAC web application tool. Thirteen special-status wildlife species have been recorded within 1 mile of the project site. A full description of these species and their potential to occur within the project site are presented in Table 2.

Table 1. Potential for Sensitive Plant Species to Occur within the Project Site

Common Name (*Scientific Name*)	Sensitivity Code and Status	Habitat Preference/Requirements	Verified On Site (Yes/No)	Potential to Occur	Rationale
Red sand-verbena (*Abronia maritima*)	CRPR 4.2	Perennial herb. Coastal dunes; 0–100 m (0–328 ft). Blooming period: February–November.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Diego thorn-mint (*Acanthomintha ilicifolia*)	FT, SE, CRPR 1B.1	Annual herb. Prefers friable or broken clay soils in grassy openings in chaparral and coastal sage scrub, valley and foothill grassland, and vernal pools; 10–960 m (33–3,150 ft). Blooming period: April–June.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Nuttall's lotus (*Acmispon prostrates*)	CRPR 1B.1	Annual herb. Coastal dunes and sandy coastal scrub; 0–10 m (0–32 ft). Blooming period: March–July.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Shaw's agave (*Agave shawii* var. *shawii*)	CRPR 2B.1	Perennial leaf succulent. Coastal bluff scrub, coastal scrub; 10–120 m (32–393 ft). Blooming period: September–May.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Diego ambrosia (*Ambrosia pumila*)	FE, CRPR 1B.1	Rhizomatous herb. Sandy loam or clay soils in chaparral, coastal sage scrub, valley and foothill grassland, vernal pools; often in disturbed areas or sometimes alkaline areas. Can occur in creek beds, seasonally dry drainages, and floodplains; 20–415 m (66–1,362 ft). Blooming period: April–October.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Aphanisma (*Aphanisma blitoides*)	CRPR 1B.2	Annual herb. Sandy soils in coastal bluff scrub, coastal dunes, and coastal scrub; 1–305 m (3–1,000 ft). Blooming period: March–June.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Coastal dunes milk-vetch (*Astragalus tener* var. *titi*)	FE, SE, CRPR 1B.1	Annual herb. Often in vernally mesic areas in sandy coastal bluff scrub, coastal dunes, and mesic coastal prairie; 1–50 m (3–164 ft). Blooming period: March–May.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name (*Scientific Name*)	Sensitivity Code and Status	Habitat Preference/Requirements	Verified On Site (Yes/No)	Potential to Occur	Rationale
Coulter's saltbush (*Atriplex coulteri*)	CRPR 1B.2	Perennial herb. Alkaline or clay soils in coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grassland; 3–460 m (9–1,509 ft). Blooming period: March-October.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
South coast saltscale (*Atriplex pacifica*)	CRPR 1B.2	Annual herb. Coastal bluff scrub, coastal dunes, coastal scrub, playas; 0–140 m (0–459 ft). Blooming period: March–October.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Golden-spined cereus (*Bergerocactus emoryi*)	CRPR 2B.2	Perennial stem succulent. Sandy soils in costal scrub, chaparral, and closed-cone coniferous forest, moist ocean breezes may be a key to its habitat requirements; 3–395 m (9–1,295 ft). Blooming period: May–June.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Lewis' evening-primrose (*Camissoniopsis lewisii*)	CRPR 3	Annual herb. Sandy or clay soils in coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland; 0–300 m (0–984 ft). Blooming period: March–June.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Wart-stemmed ceanothus (*Ceanothus verrucosus*)	CRPR 2B.2	Evergreen shrub. Chaparral; 1–380 m (3–1247 ft). Blooming period: December–May.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*)	CRPR 1B.1	Annual herb. Sandy soils in coastal bluff scrub and coastal dunes; 0–100 m (0–328 ft). Blooming period: January–August.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*)	FE, SE, CRPR 1B.2	Hemiparasitic annual herb. Coastal dunes and coastal salt marshes and swamps; 0–30 m (0–98 ft). Blooming period: May–October.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Orcutt's spineflower (*Chorizanthe orcuttiana*)	FE, SE, CRPR 1B.1	Annual herb. Sandy openings in closed-cone coniferous forest, maritime chaparral, and coastal scrub; 3–125 m (9–410 ft). Blooming period: March–May.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name (*Scientific Name*)	Sensitivity Code and Status	Habitat Preference/Requirements	Verified On Site (Yes/No)	Potential to Occur	Rationale
Seaside cistanthe (*Cistanthe maritima*)	CRPR 4.2	Annual herb. Sandy soils in coastal bluff scrub, coastal scrub, and valley and foothill grassland; 5–300 m (16–984 ft). Blooming period: February–August.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Diego sand aster (*Corethrogyne filaginifolia* var. *incana*)	CRPR 1B.1	Perennial herb. Coastal bluff scrub, chaparral, and coastal scrub; 3–115 m (9–377 ft). Blooming period: June–September.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Diego button-celery (*Eryngium aristulatum* var. *parishii*)	FE, SE, CRPR 1B.1	Annual/perennial herb. Mesic soils in coastal scrub, valley and foothill grassland, and vernal pools; 20–620 m (65–2,034 ft). Blooming period: April–June.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
San Diego barrel cactus (*Ferocactus viridescens*)	CRPR 2B.1	Stem succulent. Sandy to rocky areas; chaparral, coastal scrub, valley and foothill grassland, vernal pools; 3–450 m (9–1,476 ft). Blooming period: May–June.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Palmer's frankenia (*Frankenia palmeri*)	CRPR 2B.1	Perennial herb. Coastal dunes, coastal salt marshes and swamps, playas; 0–10 m (0–32 ft). Blooming period: May–July.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Beach goldenaster (*Heterotheca sessiliflora* ssp. *sessiliflora*)	CRPR 1B.1	Perennial herb. Coastal chaparral, coastal dunes, and coastal scrub; 0–1,225 m (0–4,018 ft). Blooming period: March–December.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Vernal barley (*Hordeum intercedens*)	CRPR 3.2	Annual herb. Coastal dunes, coastal scrub, saline flats and depressions in valley and foothill grassland, and vernal pools; 5–1,000 m (16–3,280 ft). Blooming period: March–June	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*)	CRPR 4.2	Perennial rhizomatous herb. Mesic soils in coastal dunes, alkaline seeps in meadows and seeps, and coastal salt marshes and swamps; 3–900 m (9–2,953 ft). Blooming period: May–June	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name (*Scientific Name*)	Sensitivity Code and Status	Habitat Preference/Requirements	Verified On Site (Yes/No)	Potential to Occur	Rationale
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)	CRPR 4.3	Annual herb. Openings in chaparral and sage scrub; below 885 m (2,900 ft). Blooming Period: January–July.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Sea dahlia (*Leptosyne maritima*)	CRPR 2B.2	Perennial herb. Coastal bluff scrub and coastal scrub; 5–150 m (16–492 ft). Blooming period: March–May.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
California spineflower (*Mucronea californica*)	CRPR 4.2	Annual herb. Sandy soils in chaparral, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland; 0–1,400 m (0–4,592 ft). Blooming period: March–August.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Coast woolly-heads (*Nemacaulis denudata* var. *denudata*)	CRPR 1B.2	Annual herb. Coastal dunes; 0–100 m (0–328 ft). Blooming period: April–September.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Slender cottonheads (*Nemacaulis denudata* var. *gracilis*)	CRPR 2B.2	Annual herb. Coastal dunes, desert dunes, and Sonoran desert scrub; -50–400 m (164–1,312 ft). Blooming period: March–May.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Short-lobed broomrape (*Orobanche parishii* ssp. *brachyloba*)	CRPR 4.2	Parasitic perennial herb. Sandy coastal bluff scrub, coastal dunes, and coastal scrub; 3–305 m (9–1,000 ft). Blooming period: April–October.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Brand's star phacelia (*Phacelia stellaris*)	CRPR 1B.1	Annual herb. Coastal dunes, coastal scrub; 1–400 m (3–1,312 ft). Blooming period: March–June	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Oil neststraw (*Stylocline citroleum*)	CRPR 1B.1	Annual herb. Clay soils in chenopod scrub, coastal scrub, and valley and foothill grassland, associated with oilfields; 50–400 m (164–1,312 ft). Blooming period: March–April.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Common Name (*Scientific Name*)	Sensitivity Code and Status	Habitat Preference/Requirements	Verified On Site (Yes/No)	Potential to Occur	Rationale
Estuary seablite (*Suaeda esteroa*)	CRPR 1B.2	Perennial herb. Coastal salt marshes and swamps; 0–5 m (0–16 ft). Blooming period: May–January.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.

Sources: USFWS 2018, CNPS 2018, CDFW 2018.
m = meters; ft = feet

Sensitivity Status Key
Federal: Federal Endangered Species Act (ESA) Threatened or Endangered
State: California Endangered Species Act (CESA) Threatened or Endangered
Federal
FE – listed as endangered under the federal Endangered Species Act.
FT – listed as threatened under the federal Endangered Species Act.
State
SE – listed as endangered under the California Endangered Species Act.

CNPS: California Native Plant Society Rare Plant Rank (CRPR):
1B: Considered rare, threatened, or endangered in California and elsewhere
2: Plants rare, threatened, or endangered in California, but more common elsewhere
3: Plants for which we need more information – review list.
4: Plants of limited distribution a watch list.

Decimal notations: .1 – Seriously endangered in California, .2 – Fairly endangered in California, .3 – Not very endangered in California.

Table 2. Potential for Sensitive Wildlife Species to Occur within the Project Site

Common Name (*Scientific Name*)	Sensitivity Code and Status	Habitat Preference/Requirements	Verified On Site (Yes/No)	Potential to Occur	Rationale
Reptiles					
Coast horned lizard (*Phrynosoma blainvillii*)	CSC	Found in arid and semi-arid climate conditions in chaparral, coastal sage scrub, primarily below 2,000 feet in elevation. Critical factors are the presence of loose soils with a high sand fraction; an abundance of native ants or other insects, especially harvester ants (*Pogonomyrmex* spp.), and the availability of both sunny basking spots and dense cover for refuge.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Green sea turtle (*Chelonia mydas*)	FT	Typically occurs within southern San Diego Bay within or adjacent to the shallow eelgrass beds. Individuals may enter or leave San Diego Bay and can be found between San Diego and Mexico.	No	Yes	Green sea turtles may periodically occur on site as they are found throughout San Diego Bay; however, the project area does not offer ideal habitat requirements for the species to preferentially visit for foraging opportunities.
Birds					
Burrowing owl (*Athene cunicularia*)	CSC	Prairies, grasslands, lowland scrub, agricultural lands, coastal dunes, desert floors, and some artificial, open areas. They require large, open expanses of sparsely vegetated areas on gently rolling or level terrain with an abundance of active small mammal burrows. They use rodent or other burrows for roosting and nesting cover and are also known to use pipes, culverts, and nest boxes where burrows are scarce.	No	None	Site consists of highly developed surroundings and open water. No burrows were detected during the site visit; due to routine landscaping, burrows are unlikely at project site. Resident owls in Coronado are unlikely to forage at project site.

Common Name (*Scientific Name*)	Sensitivity Code and Status	Habitat Preference/Requirements	Verified On Site (Yes/No)	Potential to Occur	Rationale
Swainson's hawk (*Buteo Swainsoni*)	ST	Utilizes open country areas in the western U.S. and Canada for breeding, from low to moderate elevations. Prairies, rangelands, meadows, open areas with scattered trees. Cultivated lands attract this hawk in some areas, where the human disturbance of agriculture causes concentrations of insects and rodents.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Western snowy plover (*Charadrius nivosus* ssp. *nivosus*)	FT	Requires open, relatively flat areas with little or no vegetation, including undisturbed beaches, salt flats, playas, dredge spoils, levees, and river bars. Winter distribution is more coastal, and may include sewage treatment ponds and agricultural wastewater sites.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FT SE	Only a handful of small populations remain in all of California. Losses are tied to obvious loss of nearly all suitable habitat, but other factors may also be involved. Relatively broad, well-shaded riparian forests are utilized, although it tolerates some disturbance. A specialist to some degree on tent caterpillars.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
American peregrine falcon (*Falco peregrines anatum*)	FPS	Occurs along coast; breeds in woodland, forest, and coastal habitats. Riparian areas are important year-round habitats.	No	Breeding: None Foraging: Moderate	Site is urban/developed. Current site conditions lack suitable natural or artificial cliff-like ledges for nesting. Project location has potential for foraging only. Falcon preys upon bird species commonly associated with urban areas.
California brown pelican (*Pelecanus occidentalis californicus*)	FPS	Nesting typically occurs on islands on ground or within shrubs. No nesting occurs in San Diego Bay. Commonly observed foraging throughout San Diego Bay and near coastal areas for schooling fish species such as anchovy, sardine, and mackerel.	No	Breeding: None Foraging: Yes	Pelicans are commonly found throughout San Diego Bay. Foraging potential is high anywhere schooling fish species can be found. Birds also commonly associate with fishing boats as recreational fishermen discard bait.

Common Name (*Scientific Name*)	Sensitivity Code and Status	Habitat Preference/Requirements	Verified On Site (Yes/No)	Potential to Occur	Rationale
Coastal California gnatcatcher (*Polioptila californica californica*)	FT CSC	Occurs within coastal sage scrub along the California coast. Prefers low-lying vegetation dominated by sagebrush, buckwheat, salvia, and prickly-pear cactus. Forages almost exclusively on insects.	No	None	Site is urban/developed. Suitable habitat for this species does not exist in the project area.
California least tern (*Sterna antillarum browni*)	FE SE FPS	Shallow estuaries, lagoons, and long marine shores.	No	Breeding: None Foraging: Yes	Site is urban/developed. Species nests in open areas relatively free of human disturbance on sandy or gravelly substrate, which may exist on some rooftop areas. Foraging occurs over open water for small fish species. Foraging and resting potential along rip-rap within project area.
Least Bell's vireo (*Vireo bellii pusillus*)	FE SE	Riparian thickets either near water or in dry portions of river bottoms; nests along margins of bushes and forages low to the ground; may also be found using mesquite and arrow weed in desert canyons.	No	Nesting: None Foraging: None	Site is urban/developed. Riparian vegetation does not occur within or adjacent to the project area.
Mammals					
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	CSC	Favors rocky desert areas with high cliffs or rock outcrops for roosts; roosts in crevices; reproduces in crevices, caverns, or buildings.	No	Roosting: None Foraging: None	Site is urban/developed. Structures on-site are not suitable for roosting, and area is unlikely for foraging.
Pacific pocket mouse (*Perognathus longimembris pacificus*)	FE	Coastal strand, coastal dunes, river alluvium, and coastal sage scrub, favoring less densely vegetated areas.	No	None	Site is urban/developed. Native vegetation communities are not present in project area.

Source: CDFW 2018

Status:

Federal

FE – listed as endangered under the federal Endangered Species Act.

FT – listed as threatened under the federal Endangered Species Act.

State

SE - listed as endangered under the California Endangered Species Act.
ST – listed as threatened under the California Endangered Species Act.
FPS – fully protected species in California.
CSC – species of special concern in California.

References

California Department of Fish and Wildlife (CDFW). 2018. *California Natural Diversity Database*. August 21, 2018.

California Native Plant Society (CNPS). 2018. *Inventory Of Rare And Endangered Plants* (Online Edition, V8-02). California Native Plant Society. Sacramento, CA. Available: http://www.rareplants.cnps.org/advanced.html Accessed: August 21, 2018.

U.S. Fish and Wildlife Service (USFWS) 2018. Information, Planning, and Consultation System (IPAC).

Appendix E

Hazardous Materials Technical Study

Hazardous Materials Technical Study

BAE Systems Waterfront Improvement Project
2205 East Belt Street
San Diego, California

ICF

525 B Street, Suite 1700 | San Diego, California 92101

January 25, 2019 | Project No. 108665001

Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

Hazardous Materials Technical Study

BAE Systems Waterfront Improvement Project
2205 East Belt Street
San Diego, California

Ms. Elizabeth Doalson
ICF
525 B Street, Suite 1700 | San Diego, California 92101

January 25, 2019 | Project No. 108665001

Lisa Bestard
Senior Environmental Scientist

Stephan A. Beck PG 4375
Manager, Environmental Sciences Division

LB/SB/gg

Distribution: (1) Addressee (via e-mail)

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1 INTRODUCTION

Ninyo & Moore was retained by ICF (the Client) on behalf of the San Diego Unified Port District (the District) to perform a Hazardous Materials Technical Study (HMTS) of BAE Systems (BAE) Waterfront Improvement Project area, located at 2205 East Belt Street, San Diego, California (hereinafter referred to as the site or project area). The following sections discuss the purpose, the involved parties, the scope of services, and the limitations and exceptions associated with the HMTS.

1.1 Purpose

The purpose of this HMTS is to document the presence of properties, which may have been impacted by hazardous materials or wastes, and to document, with respect to the California Environmental Quality Act (CEQA), the significance of impacts of the proposed project, as described in Section 3, with respect to hazardous materials and wastes, and to discuss measures that can be implemented to reduce or mitigate the impacts. The HMTS consisted of a review and summary of publicly available federal, state, and local regulatory databases and historical resources. This report addresses existing environmental conditions at the site.

1.2 Scope of Work

Ninyo & Moore's scope of work for this HMTS included the activities listed below.

- Reviewed physical setting and background information (i.e., topographic maps, geologic maps, etc.) pertaining to the site.
- Reviewed in-house reports pertaining to the site.
- Conducted an environmental database search for the project area and properties adjacent to the project area. The purpose of this review was to document the quantity and/or general nature of sites with unauthorized releases of hazardous materials or wastes to soil and/or groundwater on or adjacent to the project area
- Reviewed online databases including the State Water Resources Control Board (SWRCB) GeoTracker, Department of Toxic Substances Control (DTSC) EnviroStor, and the United States Army Corps of Engineers (USACOE) Formerly Used Defense Sites (FUDS) databases to supplement the environmental database search.
- Reviewed readily available historical sources, to document, in general, areas within the site that may have been historically developed with uses indicative of potential environmental concerns (e.g., waste disposal, industrial, etc.).
- Evaluated the findings with respect Questions A, B, and D of Section 8, Hazards and Hazardous Materials within Appendix G of CEQA.

- Prepared this HMTS report documenting findings and providing opinions and recommendations regarding portions of the project area that may have a higher likelihood of being associated with soil and/or groundwater contamination, and potential impacts from hazardous materials or wastes.

1.3 Limitations and Exceptions

The environmental services described in this report have been conducted in general accordance with current regulatory guidelines and the standard of care exercised by environmental consultants performing similar work in the project area. No warranty, expressed or implied, is made regarding the professional opinions presented in this report.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires any additional information or has questions regarding the content, interpretations presented, or completeness of this document.

Our conclusions, recommendations, and opinions are based on an analysis of the observed project area conditions and the referenced literature. It should be understood that the conditions within the project area could change with time as a result of natural processes or the activities of man at a particular property. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

1.4 Special Terms and Conditions

The following, which is not intended to be all inclusive, represents out-of-scope items with respect to this HMTS, and, therefore, were not addressed: human health risk assessment, underground pipeline risk assessment, wetlands, regulatory compliance, cultural and historic risk, industrial hygiene, health and safety, ecological resources, endangered species, mold, and, air quality. In addition, Ninyo & Moore did not address interpretations of zoning regulations, building code requirements, or property title issues.

1.5 User Reliance

This report may be relied upon by, and is intended exclusively for, the client and its assigns. Any use or reuse of the findings, opinions, and/or conclusions of this report by parties other than the above-referenced client is undertaken at said parties' sole risk.

2 PROJECT SITE LOCATION

The site is addressed 2205 East Belt Street in San Diego, California and includes 11.7 acres of land (landside) and 24.1 acres of water (waterside) in San Diego Bay (the Bay) (Figure 2). The site is bounded on the northeast by East Belt Street followed by railroad tracks and off-site facilities associated with the BAE Shipyards operations, on the southeast by the National Steel and Shipbuilding Company (NASSCO) Shipyard, on the west by San Diego Bay, and on the northwest by R.E. Staite Engineering (R.E. Staite), a marine and landside construction general contractor (Figure 2). The project area consists of the BAE San Diego Ship Repair Yard, which is comprised of three working piers (Piers 1, 3, and 4), five wet berths, and two floating drydocks (Pride of San Diego and Pride of California), that are used to modernize, repair, and overhaul marine vessels and multiple landside buildings utilized for offices, repair/machine shops, storage, and maintenance with associated parking areas (Figure 2).

3 PROJECT DESCRIPTION

The proposed Waterfront Improvement Project includes the following 15 project elements intended to improve the efficiency and functionality of the ship yard. The location of each element is depicted on the Project Elements figure, prepared by ICF, which is attached as Appendix A.

1. Pride of San Diego Drydock Dredging and Moorage Replacement: Removal and off-site disposal of approximate 92,800 cubic yards (cy) of dredged sediments to a depth of approximately -80 feet mean lower low water (MLLW).

2. Pride of San Diego Drydock Wharf Replacement and Realignment: Demolition of the existing wharf and piles, installation of new concrete piles and wharf, and installing additional improvements at the end of the drydock (i.e., apron, access ramp, and support platform).

3. Fender System Repair and Replacement: Removal and replacement of existing steel fenders.

4. Pier 3 South Nearshore Dredging: Removal and off-site disposal of approximately 15,000 cy of dredged sediment to depths ranging from -17 to -35 feet MLLW, plus 2 feet of over-depth dredging.

5. Pier 3 Mooring Dolphin: Installation of an additional mooring dolphin, which includes installing new piles.

6. Pier 3 North Lunchroom Wharf Replacement and Realignment: Removal and replacement of the existing wharf and piles.

7. Quay Wall Modifications: Removal and off-site disposal of approximately 300 cy of rock and 500 cy of sediment by dredging and installation of 50 linear feet of submerged sheet pile.

8. Port Security Barrier Replacement: Remove and replace the existing floating security boom.

9. Small Boat Mooring Float Replacement: Remove and replace the existing mooring float, including piles.

10. Central Tool Room Demolition and Reconstruction: Demolish the existing structure at the foot of Pier 3 and construct a replacement structure on the wharf as part of the Pier 3 North Lunchroom Wharf Replacement and Realignment and replace the existing restroom facilities.

11. New Production Building: Demolish the existing production building and construct a new building in the same area.

12. Administration Office Building: Remove existing portable office trailers and construct a new administration building in the same area.

13. Pier 1 Restroom Renovation and/or Demolition: Demolition and or retrofitting of the existing restroom facilities.

14. Main Electrical Utility Service Update: Relocate the existing electrical main to Building 65 along East Belt Street.

15. Sanitary Sewer and Potable Water Utility Services: Replace the existing sewer and water feeds.

For the purpose of this report, Ninyo & Moore assumes the landside construction activities may include shallow subsurface excavation and grading for utilities, footings, and foundations.

4 PHYSICAL SETTING

The following table summarizes topographic, geologic, and hydrogeologic conditions in the site vicinity.

Table 1 – Physical Setting

Topography	A	The site is situated at an elevation of 10 feet above mean sea level (MSL). The topography at the site and vicinity is relatively flat and slopes gently to the southwest toward the Bay.
Site Geology	B, C	The landside portion of the site is underlain by Holocene-aged artificial fill. Belt Street, adjacent to the north of the site, is the general location of the historical shoreline of the Bay. In the 1930s, the area southwest of Belt Street was reportedly created by placing hydraulic dredged fill from the Bay. The fill was reportedly described by others as “medium to dark gray, loose to dense silty sand with occasional layers of organic rich material, lean sandy clay, and shell fragments (ENV, 2004).” The waterside portions of the site consist of late-Holocene undivided marine deposits in an offshore region.
Surface Water	D	Approximately 24.1-acres of the site is located within the Bay, which has existing beneficial uses for coastal waters for industrial service supply; navigation; contact and non-contact recreation; commercial fishing; estuarine, marine, and wildlife habitat; preservation of biological habitats of special significance; migration of aquatic organisms; rare, threatened, or endangered species; spawning, reproduction, and/or early development; and shellfish harvesting.

Table 1 – Physical Setting		
Groundwater	D, E	The site is located within San Diego Mesa Hydrologic Area (HA) of the Pueblo San Diego Hydrologic Unit. There are currently no existing beneficial uses of groundwater identified by the Basin Plan and groundwater in the HA been excepted from municipal supply Based on information obtained by Ninyo & Moore during a previous subsurface investigation on the northern landside portion of the site, the depth to water ranged from 8.4 to 10.1 feet below ground surface (Ninyo & Moore, 2011). Groundwater flow direction at the site is not known; however, based on the physical setting of the site and vicinity, is anticipated to flow toward the Bay and is anticipated to be tidally influenced. The groundwater level and flow direction may vary due to hydrogeologic properties, such as soil porosity and permeability, groundwater extraction, recharge by irrigation and rainfall, tides, and other factors.

References:
A – United States Geological Survey (USGS), Point Loma Quadrangle, California – San Diego Co., 7.5-minute quadrangle map (USGS, 2012)
B – Kennedy, Michael P. and Tan, Siang S., 2008, Geologic Map of the San Diego 30' x 60' Quadrangle, San Diego County, California, Scale 1:100,000.
C – ENV America Incorporated (ENV), Site Assessment Report, Landside Tidelands Lease Area, Silver Gate Power Plan, San Diego, California (ENV, 2004)
D – Regional Water Quality Control Board (RWQCB), Water Quality Control Plan for the San Diego Basin (RWQCB, 2016)
E – Ninyo & Moore, Subsurface Investigation, San Diego Gas & Electric Tidelands Area, Belt Street and San Diego Bay, San Diego, California (Ninyo & Moore, 2011)

5 RECORDS REVIEW

The following sections summarize records reviewed for the site.

5.1 Standard Environmental Record Source - Environmental Database Search

A computerized, environmental information database search was performed by Environmental Data Resources, Inc. (EDR) on December 14, 2018 (Appendix B). The standard databases searched and summarized were consistent with those described in the ASTM International (ASTM) Standard for Phase I Environmental Site Assessments (ESAs). A search radius of 1/8-mile was used to identify properties within and adjacent to the project area. The review was conducted in order to assess the significance of properties within the project area and adjacent properties that have been documented as having experienced significant unauthorized releases of hazardous substances or other events with potentially adverse environmental effects.

5.1.1 Geocoded (Mapped) Listings

The site was listed under various names, including, but not limited to: BAE Shipyard, Frazier Boiler Service, NASSCO, Lockheed Martin Global Training & Logistics, California Marine Cleaning, Southwest Marine, Chevron USA Inc, Bumble Bee Seafoods, Austal USA, Shipyard Sediment Site – North Shipyard, Corrpro Companies Inc., and AMSEC LLC.

The site was listed on the environmental databases searched 150 times. The following table lists the databases on which the site appeared, a brief summary of databases, the number of times the site was listed on the database, and if any of the listing were evaluated to be of a potential environmental concern.

Table 2 – Summary of Site Environmental Database Listings

Database Name	Database Summary	Number of Listings	Listings of Potential Concern (Yes/No)
FEDERAL DATABASES			
SEMS-ARCHIVE (Superfund Enterprise Management System Archive)	Database, formerly known as CERCLIS-NFRAP, tracks sites that have no further interest under the Federal Superfund Program. Indicates that assessment has been completed and no further steps will be taken to list the site on the National Priorities List (NPL). It does not necessarily indicate that there is no hazard associated with the site, but that the location is not determined to be a potential NPL site.	1	No
RCRA – LQG (Large Quantity Generator)	The database includes sites that generate, transport, store, treat, and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) in amounts over 1,000 kilograms (kg) for hazardous waste or 1 kg for acutely hazardous waste per month.	3	No
RCRA – SQG (Small Quantity Generator)	The database includes sites that generate, transport, store, treat, and/or dispose of hazardous waste as defined by RCRA in amounts between 100 and 1,000 kg per month.	2	No
ERNS (Emergency Response Notification System)	Records and stores information on reported releases of oil and hazardous substance.	55	Yes
STATE/TRIBAL DATABASES			
San Diego Co. SAM (Site Assessment and Mitigation)	Listings containing underground storage tank (UST) release cases pertaining to properties contaminated with hazardous substances that are actively under review by the SAM program	1	Yes
LUST (Geotracker's Leaking Underground Fuel Tank Report)	SWRCB database that lists sites that impacted, or have the potential to impact, water quality in California, with emphasis on groundwater associated with leaking underground storage tanks (LUST).	2	Yes
CPS -SLIC (Cleanup Program Sites - Spills, Leaks, Investigation and Cleanup)	Cleanup program sites included on the SWRCB's Geotracker data base, which lists sites that impact, or have the potential to impact water quality, with emphasis on groundwater	2	Yes
UST (registered underground storage tanks)	Lists facilities with active USTs.	1	No
AST (registered aboveground storage tanks [ASTs])	Lists facilities with active aboveground petroleum storage tanks.	2	No

Table 2 – Summary of Site Environmental Database Listings			
Database Name	**Database Summary**	**Number of Listings**	**Listings of Potential Concern (Yes/No)**
ADDITIONAL ENVIRONMENTAL RECORDS			
San Diego Co. HMMD (Hazardous Materials Management Division)	Contains information regarding business with a hazardous materials permit, including inspection dates, violations, hazardous wastes generated/stored/disposed, and USTs. Also includes summary of environmental contamination cases.	3	No
HIST UST (Historical UST)	An historical listing of facilities with USTs.	2	No
CHMIRS (California Hazardous Material Incident Report System)	Contains information on reported hazardous materials incidents (accidental releases or spills).	42	Yes
ICIS (Integrated Compliance Information System)	Provides information regarding the enforcement and compliance with the National Pollutant Discharge Elimination System (NPDES), including storm water.	2	Yes
FINDS (Facility Index System/ Facility Registry System)	Contains information and points to other sources that contain more detailed information on a facility.	6	Yes (1 listing)
ECHO (Enforcement & Compliance History Information)	Provides compliance and enforcement information for regulated facilities.	3	Yes (1 listing)
EMI (Emissions Inventory Data)	Toxics and criteria pollutant emissions data collected by the Air Resources Board and local air pollution control agencies.	1	No
ENF (Enforcement Action Listing)	Lists SWRCB enforcement actions.	1	Yes
HAZNET	Includes information extracted from copies of hazardous waste manifests received by the DTSC associated with the disposal of hazardous waste.	15	No
HIST CORTESE (Hazardous Waste & Substances Site List)	Lists sites designated by the SWRCB as LUSTs, by the California Department of Resources Recycling and Recovery (CalRecycle) as a solid waste landfill/disposal site, or by DTSC as a CALSITE. This database is no longer updated by the regulatory agencies.	1	No
NPDES (National Pollutant Discharge Elimination System)	A listing of NPDES permits, including storm water.	2	No
Notify 65	Listings of Proposition 65 incidents. This database is no longer updated by the reporting agency.	1	No
CIWQS (California Integrated Water Quality System)	Tracks information about places of environmental interest, manages permits/other orders, tracks inspections, and manages violations/enforcement activities.	2	No

The following table includes additional information regarding database listings for the site that were interpreted to be a potential environmental concern based upon a review of the database report. To supplement the information in the EDR report, the SWRCB GeoTracker website and County of San Diego Department of Environmental Health (DEH) online records were reviewed, as necessary. Copies of select documents reviewed are provided Appendix C.

Table 3 – Site Listings of Potential Concern

Facility Name / Address	Database	Summary
2205 East Belt Street	ERNS	The ERNS database contained 55 listings for the site address. The listings were associated with reports of releases of hazardous materials to the Bay. There were no listings for releases to land. The majority of the releases were associated with accidental releases of minor amounts fuels, oils, paints, bleach, and sand-blast materials to the Bay associated with ship maintenance or repair activities or unknown "oily sheens." The majority of releases were reported to have either been contained using booms and cleaned up using absorbents or to have been unrecoverable and allowed to naturally dissipate. Three listings (March 13 and August 23, 2013 and April 10, 2014) reference the source of an oily sheen on the Bay as being contaminated soil from a construction project on the landside The August 2013 listing specifically notes the work was being performed on the Pier 4 bulkhead; however, the other listings did not include the location of the construction work. If subsurface excavation activities are proposed along the bulkheads, there is the potential to encounter fuel-impacted soil and/or groundwater. One listing from April 30, 2013, mentions the source of the oily sheen as creosote piles. If creosote piles are proposed for demolition, they will require special handling and disposal and it is possible additional precautions may be needed to cleanup and/or minimize the spread of an oily sheen during demolition activities.
	CHMIRS	The CHMIRS database contained 42 listings for the site address. The listings were associated with reports of releases of hazardous materials to the Bay, most of which are duplicate listings from the ERNS database. There were no listings for releases to land. The majority of the releases were associated with accidental releases of minor amounts fuels, oils, paints, bleach, and sand-blast materials to the Bay associated with ship maintenance or repair activities or unknown "oily sheens." The majority of releases were reported to have either been contained using booms and cleanup using absorbents or to have been unrecoverable and allowed to naturally dissipate. The August 23, 2013 and April 10, 2014 releases detailed in the ERNS listings above were also listed on this database with similar notations regarding the source of the oily sheen as contaminated soil on the landside.

Table 3 – Site Listings of Potential Concern		
Facility Name / Address	**Database**	**Summary**
Southwest Marine Inc 1427 W Sampson Street	San Diego Co. SAM	The listing is associated with one unauthorized release case (H09689-003) opened on September 2002. The case status is listed as "Remedial Investigation." Additional records were reviewed on the County of San Diego's website, which lists the address as 2205 East Belt Street. The County of San Diego referred the case to the RWQCB on October 16, 2002; however, information regarding this case was not available on the GeoTracker database. The DEH records included an "Additional Soil and Groundwater Investigation" report, prepared by EnecoTech Southwest, Inc., dated November 15, 2002. The report states that petroleum-impacted soil was encountered during installation of an electrical conduit in July 2002. The figures indicate that the area is located between the "Sand Blast Building" and the Bay, which is generally in the southwest portion of the site along the bulkhead between Piers 3 and 4 (Figure 2). Initial soil samples indicated total petroleum hydrocarbons (TPH) in the diesel/oil range of up to 5,200 milligrams per kilogram (mg/kg). In September and October 2002, 23 borings were advanced to assess soil and groundwater conditions in the area. The report indicates an area of diesel impacted soil, approximately 265 feet (north to south) by 165 feet (east to west), is present with concentrations of TPH up to 15,000 mg/kg. The diesel concentrations were generally present between 5 and 10 feet below ground surface (bgs), with the highest concentrations detected at depths of 8 to 9 feet bgs, which generally corresponds to the depth to groundwater/capillary fringe zone. An area of gasoline impacted soil, approximately 125 feet (north to south) by 55 feet (east to west), is present with concentrations of up to 2,200 mg/kg. Benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tertiary butyl ether (MTBE) were detected in one soil sample at maximum concentrations of 3.9, 4.4. 18, 19, and 6.0 mg/kg, respectively. A gasoline- and diesel-impacted groundwater plume was identified spanning an area of approximately 265 (north to south) and 125 feet (east to west) with concentrations of gasoline up to 6,000 micrograms per liter (µg/l). BTEX and MTBE were detected at maximum concentrations of 36, 19, 38, 39, and 450 µg/l, respectively. Select portions the EnecoTech report, including figures, are provided in Appendix C. Based on this additional information, subsurface excavation activities in the area will likely encountered petroleum hydrocarbon-impacted soil and groundwater. In addition, the location of this release may correspond to the location of the landside soil contamination noted in the ERNS/CHMIRS listings described above.

Table 3 – Site Listings of Potential Concern

Facility Name / Address	Database	Summary
Southwest Marine Inc 2205 E Belt Street and Foot of Sampson Street	LUST	These two listings are associated with one closed unauthorized release case (H09689-002) for the release of diesel fuel to soil. Documents on the GeoTracker database indicate that the case was opened as a result of soil sampling performed during the closure in-place of a 10,000-gallon diesel UST when fuel-impacted soil was observed in the area of a former fuel dispenser. The UST and piping were reported to have been cleaned and filled with slurry. Soil and groundwater samples were collected in the vicinity of the former dispenser. It was estimated that less than 10 cy of hydrocarbon-impacted soil is present at depths of 5 to 13 feet bgs in the vicinity of the former dispenser. TPH in the diesel and oil ranges was detected at maximum concentrations of 44,302 and 34,373 mg/kg, respectively; however, volatile organic compounds (VOCs) were not detected. The case was issued closure on May 13, 1998 on the basis that under the site usage at that time (i.e., industrial), the level of contaminants did not pose a threat to human health or the environment. Documents on the DEH's database indicate that the UST was located along the southern side of the Sicard Street extension along the site boundary with NASSCO and the dispenser was located along the bulkhead between Piers 3 and 4 with the piping connecting the two (Figure 2; Appendix C). Subsurface excavation work in the area may encounter the slurry-filled UST, slurry-filled piping, and/or fuel-impacted soil that may require special handling and/or disposal.
	CPS-SLIC	This listing is associated with two cleanup program site listings. The first cleanup program site is associated with an unauthorized release case (H09689-001) under the jurisdiction of the DEH. Records reviewed on the DEH website indicate that the release case is associated with management of sediments dredged from along Pier 1. The project proposed to stockpile the sediments on the landside and requested DEH concurrence on the handling of materials. Approximately 13,280 cy of sediments were stockpiled onsite in 1992/1993, dewatered, and either disposed of or reused off site. The case is listed as closed as of 1993. The second listing is a duplicate listing of the BAE Shipyard Sediment Site, which is discussed under the BAE CPS-SLIC listing below.

Table 3 – Site Listings of Potential Concern

Facility Name / Address	Database	Summary
BAE Systems San Diego Ship Repair 2205 East Belt Street	CPS-SLIC FINDS	These listings are associated with San Diego Bay Shipyard Sediment Cleanup for the NASSCO and BAE Leaseholds. The portions of the sediment cleanup area that are located on the site are referred to as the North Shipyard Cleanup. Elevated levels of metals and other pollutants above Bay background concentrations were identified in marine sediments along the eastern shore of the Bay in the area of the site, which were at a level to cause contamination or nuisance in the Bay that adversely impacted aquatic life, aquatic dependent wildlife, human health, and Bay beneficial uses. The RWQCB issued a Cleanup and Abatement Order (CAO) R9-2012-0024 that ordered the cleanup of the impacted sediments to established cleanup levels. According to documents available on the GeoTracker database, sediments exceeding established cleanup levels were removed except when not feasible (i.e., due to risk of undermining slopes or existing structures). Approximately 114,085 cy of impacted sediments were removed and disposed of off site. Impacted sediments that it was not feasible to remove were covered with sand or gravelly sand. Remedial activities were completed on April 15, 2016. The RWQCB concurred with the completion of the cleanup activities and the site is now performing post-remedial monitoring to evaluate the effectiveness of the remediation. Impacted sediments that were not feasible to be removed remain in-place below a sand/gravelly sand cap. In addition, clean up levels for impacted sediments allowed for concentrations of metals, polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and tributyl tin that if removed from the site may require special handling and/or disposal. Based on this, sediments dredged from the Bay may contain levels of contaminants that require special handling and/or disposal. Additional discussion is provided in Section 6.2.2.
	ENF	The listing includes numerous violations and enforcement actions related to their NPDES permit from 1989 through 2015. Potential impacts to Bay sediments from storm water discharges are addressed in the CPS-SLIC/FINDS listing above.
Lockheed Martin Missiles and Fire Control ISEAFS 2205 E Belt Street	ICIS	The listing indicates that the facility received 14 informal and formal enforcement actions associated with their NPDES permit. Information regarding the dates and details of the violations were not available.
	ECHO	The listing indicates that the facility was in non-compliance with the Clean Water Act in seven of the last 12 quarters (from October 2015 of December 2018) associated with their NPDES permit. However, the listing indicates that there have been no quarters with a significant violation. Additional information was not available
Pacific Ship (BAE Systems 2205 East Belt	ICIS	This listing includes one formal enforcement action; however, additional details were not available.

Note:
A complete description of the database is provided in the EDR Report (Appendix B).

Off-site properties within 1/8-mile of the site appeared on various regulatory agency databases. Off-site properties/facilities listed in the database report were evaluated as to their potential to impact soil and/or groundwater at the site. To supplement the information in the EDR report, the SWRCB GeoTracker website, DTSC's Envirostor website, and DEH online records were reviewed, as necessary. The following properties/facilities were interpreted to represent a potential environmental concern to the site, based on the proximity to the site and the nature of the database on which they listed, and were further evaluated.

Table 4 – Off-Site Facilities of Potential Concern

Facility Name / Address	Distance/ Direction from Site	Database	Summary
Harbor Boat and Tug/ ISP Alginates/ R.E. Staite Engineering/ Kelco Division of Merck & Co., Inc./ CP Kelco 2145 East Belt Street	Adjacent NNW	Envirostor LUST CPS-SLIC AST SWEEPS UST HIST UST SEMS Archive RCRA – LQG San Diego Co. SAM & HMMD UST NY Manifest EMI Hist Cortese	The facility is listed associated with 10 closed unauthorized release cases (H02377-001 through -010). Most of the cases appear to be associated with the releases of fuels and/or oils to soil. However, the case closure summary for H02377-009 indicates that they reviewed Phase I and Phase II ESA reports that identified 30 areas of concern (AOCs) where contaminants had been detected or where there was the potential for contamination from past or current site usage. The DEH also identified chlorinated solves as a potential issue. The AOCs identified the following contaminants of concern: petroleum hydrocarbons (diesel and oil), PAHs, PCBs, VOCs, calcium chloride, formaldehyde, hydrochloric acid, ammonia, sulfuric acid, sodium hypochlorite, N,N-Dimnethyl-formamide, methanol, and chlorinated solvents. The closure summary indicates that the DEH concurred with no further action at 26 of the AOCs and deferred investigation at the four AOCs that were not accessible due to current operations/ infrastructure. The summary noted that chlorinated solvents were detected in groundwater in several areas of the site; however, they highest detected concentrations were on the north side (upgradient side) of the property and the facility does not have a history of significant use of chlorinated solvents. Therefore, the DEH concluded that the solvents were likely a release from an upgradient property. The groundwater flow direction was reported to be to the south (i.e., toward the site) Based on this information, the location of the facility upgradient from the site, and the continued operation for industrial uses, there is the potential that this facility has impacted soil, groundwater, or soil vapor on the site.

Table 4 – Off-Site Facilities of Potential Concern			
Facility Name / Address	**Distance/ Direction from Site**	**Database**	**Summary**
Silver Gate Power Plant 1348 Sampson Street	Adjacent N	HIST UST CIWQS FINDS RCRA-LQG LUST SWEEPS UST HIST CORTESE CPS-SLIC San Diego Co. HMMD,SAM & LOP	The facility is associated with one closed (H13942-001) and one open (H13942-002) unauthorized release case. The closed case was associated with the release of diesel to soil in 1986. Documents reviewed on the DEH's website indicate that a release of fuel oil occurred due a pipeline leak. Approximately 220 cy of impacted soil was removed from the site and approximately 0.5 cy of soil with TPH in excess of 2,500 mg/kg remains in place. The case was issued closure in 1988. The open case is listed with a status of "assessment and interim remedial action" for releases of gasoline and solvents to soil and surface water. The site history portion on the GeoTracker database states that three, 220,000-gallon concrete USTs were closed in place in 2006 and that additional assessment is needed before case closure can be considered. The UST Closure Report, prepared by TN&A, dated November 13, 2006, states that 20 soil borings were advanced adjacent to and through the USTs. The report states that surface soil impacted with metals, PCBs, and petroleum hydrocarbons remains in areas surrounding the USTs and would be remediated during future redevelopment activities, which were performed in 2007 when the power plant was dismantled. It was estimated that approximately 250 cy of petroleum impacted soil remains on site at depths of 20-25 feet bgs, which corresponds to the water table depth. Petroleum hydrocarbons and VOCs, including trichloroethene (TCE), were detected in groundwater at low concentrations and a petroleum sheen was observed in one location. However, it was concluded that the TCE plume originated from an off-site upgradient source. Based on this information, and the distance of the USTs from the site, there is a low likelihood that this facility has impacted the environmental integrity of the site at this time. However, cooling tunnels previously utilized by this facility are located beneath the norther portion of the site and are discussed further in Section 6.2.1.

Table 4 – Off-Site Facilities of Potential Concern			
Facility Name / Address	**Distance/ Direction from Site**	**Database**	**Summary**
ARCO Terminal/ Tesoro Logistics San Diego Terminal 2295 Harbor Drive	580 feet ENE	LUST AST UST TRIS RCRA-LQG FINDS ECHO HIST AUTO FUELS Program SWEEPS UST ICIS US AIRS FINDS San Diego Co. SAM, HMMD, & LOP CPS-SLIC HIST UST EMI HAZNET HIST CORTESE NPDES CIWQS	The site is associated with five unauthorized release cases (H02375-001 through -005) that have been administratively consolidated to be addressed under one open case (H02375-003). A letter from the RWQCB on the Geotracker database indicates that the RWQCB intends to close the open case with a status of no further action. The most recent report available with groundwater plume maps is dated 2016 and indicates that flow direction is generally to the south and that the monitoring well installed in Belt Street adjacent to the site indicates that low concentrations of benzene (0.59 µg/l) and MTBE (39 µg/l) were present. Based on the low concentrations in groundwater near the site, the location of the site cross-gradient from the facility, and the intent of the RWQCB to close the case, there is a low likelihood that the facility has impacted the environmental integrity of the site at this time.
Notes: A complete description of each database is provided in the EDR Report (Appendix B).			

Based on the information summarized in the above table, the property adjacent to the NNW at 2145 East Belt Street, currently occupied by R.E. Staite, may have resulted in impacts to soil, groundwater, and/or soil vapor at the site. In addition, it appears that there is a chlorinated solvent plume in the general area of the site that has not been specifically attributed to source, but has been detected at facilities upgradient of the site; therefore, there is the potential that the solvent plume may also be present on the site.

5.1.2 Non-Geocoded (Unmapped) Listings

This portion of the regulatory database report includes properties for which regulatory agencies did not report sufficient address information to be plotted by EDR. The two listings were reviewed to evaluate their potential impact to the site, based on their interpreted distance/direction from the site, and/or the nature of the database in which they were listed. One listing was associated with the site, but was a duplicate of listing already evaluated in Table 3. It is our opinion that there is a low likelihood that the other non-geocoded listing represents an environmental concern to the site at the current time.

5.1.3 Online Regulatory Databases

Online regulatory databases were reviewed by Ninyo & Moore for the site to supplement the environmental database search conducted by EDR. The following is a summary of pertinent information.

Table 5 – Online Regulatory Databases

Online Database/Website	Findings
DTSC EnviroStor	The site was not listed. However, two adjacent properties were listed. The R.E. Staite facility located adjacent to the north-northwest at 2145 Belt Street was listed as Kelco and Nutrasweet Kelco Co. The listings state that the case was referred to the local agency as an inactive tiered permit. No additional information was provided; however, environmental records associated with this property were reviewed and discussed in Table 4. The Chevron Harbor Terminal – Lower Tank Farm located adjacent to the southeast at 2295 Belt Street was listed as referred to the local agency. Additional information was not provided.
SWRCB GeoTracker	The site and several adjacent properties were listed and are summarized in Tables 3 and 4.
CalRecycle	The site and adjacent properties are not listed.
United States Pipeline and Hazardous Materials Safety Administration, National Pipeline Mapping System (NPMS) Map Viewer	The database was unavailable due to a shutdown of the Federal Government in January 2019.
USACOE FUDS, Geographic Information System	FUDS listings are not depicted on or adjacent to the site.

6 HISTORICAL USE INFORMATION

Ninyo & Moore conducted a historical record search for the site. This included a review of historical fire insurance maps, historical aerial photographs, topographic maps, and previous environmental reports. The following sections summarize information obtained from the historical sources utilized for this assessment.

6.1 Sanborn® Fire Insurance Maps, Historical Aerial Photographs, Topographic Maps, and Previous Historical Review

Sanborn® Fire Insurance Rate Maps were obtained from EDR for select years from 1921 to 1971. Aerial photographs of the site and surrounding areas from selected years from 1928 to 2016 were provided by EDR. Historical topographic maps were obtained from EDR for select years from 1904 to 2012. Copies of available and pertinent aerial photographs and Sanborn® maps are provided in Appendix C.

The earliest historical information available was a topographic map from 1904. The site was depicted as part of the Bay and the associated tidelands with a few piers that extend into the Bay. According to the Sanborn® map dated 1921, a large pier and wharf on site was occupied by the "San Diego Marine Construction Co.," that consisted of a boat building, office, dwellings, and a paint and storage building. A few other small piers extended into the Bay that were labelled as dwellings. Adjacent to the east of the site are Atchison Topeka & Santa Fe (AT&SF) Railroad tracks. The 1942/1944 topographic map depicts a portion of the site that was formerly part of the Bay as filled land and the 1949 aerial photograph indicates that the landside portions of the site were generally filled as at present with multiple buildings and piers/wharfs present on the site and a large warehouse-type building on the south end of the site.

The 1950 Sanborn® map depicts the site buildings as occupied by the "San Diego Marine Construction Co." and labelled as wood working, machine shop, storage & paint, warehouse, offices, and welding. On the south end of the southern warehouse building is depicted an in-ground 6,000-gallon fuel oil storage tank. In addition, a pier on the south end of the site is labelled as the "Richfield Oil Co. wharf" with oil storage on the wharf. Adjacent to the south of the site the property is occupied by the "Standard Oil Co. of Calif." warehouse. East of the site, Belt Street is depicted followed by the AT&SF Railroad and several ASTs labelled as "Ritchfield Oil Corp." An oil & grease warehouse is also depicted on the southeast corner of the Sampson Street and Belt Street with six ASTs pictured.

The 1956 Sanborn® map depicts two "steel oil tanks in concrete" with a concrete wall along the southern bulkhead at Sicard Street. By 1962, the Sanborn® map indicates that the warehouse on the southern end of the site is occupied by "Southern Calif. Freight Lines." On the 1975 photograph, the site adjacent to the southeast at the corner of Sicard Street and Belt Street depicts seven ASTs and the 1979 photograph shows eight ASTs in the area; however, by 2005 the ASTs are no longer present. The site was generally developed as at present from the late-1980s to the early 1990s.

6.2 Previous Reports and Environmental Background

Previous reports for the site prepared by Ninyo & Moore and reports available online were reviewed for both the landside and waterside portions of the site.

6.2.1 Landside

An “Additional Soil and Groundwater Investigation Southwest Marine,” prepared by EnecoTech Southwest, Inc., dated November 15, 2002 was available on the DEH’s online records database. The report summarizes site assessment activities performed in 2002 in the southern portion of the site between Buildings 10 and 40, which was noted in the report to be in the vicinity of the hazardous materials storage area at that time. In addition, the location appears to correspond to the location of steel oil ASTs noted on the Sanborn® maps from 1956 through 1971 (the last available map) near the bulkhead between Piers 3 and 4. Petroleum hydrocarbons in the diesel range were detected at concentrations of up to 15,000 mg/kg in soil and 6,000 µg/l in groundwater. Petroleum hydrocarbons in the gasoline range were detected at a maximum concentration of 2,200 mg/kg in soil and 270 µg/l in groundwater. BTEX and MTBE were also detected in soil at maximum concentration 3.9, 4.4, 18, 19, and 6 mg/kg in soil and 36, 19, 38, 39, and 450 µg/l in groundwater. The soil impacts generally corresponded to the depth to groundwater/capillary fringe zone of 5 to 10 feet bgs. The DEH opened an unauthorized release case associated with the findings (H09689-003), but the case was referred to RWQCB. A search was made of the RWQCB’s online records; however, there were no records on file associated with that case number and no additional records were on file in the County of San Diego’s online records. Based on this information, subsurface activities in the area will likely encountered soil and groundwater impacted with petroleum hydrocarbons that may require special handling and/or disposal.

ENV prepared a site assessment report associated with former waste water ponds from the Silver Gate Power Plant that were historically located on the northern portion of the site. The portion of the site was formerly leased by San Diego Gas & Electric (SDG&E) and utilized for operations associated with the power plant located east of the site. Two of the ponds were used as settling/evaporation ponds for wastewater (Ponds A and B) and two ponds were used as oil/water separation ponds (Ponds C and D). Soil and groundwater samples were collected from Ponds A and B only because the discovery of Ponds C and D was not made until after the field work had been completed for Ponds A and B. Petroleum hydrocarbons in the gasoline, diesel, and heavy ranges were detected at concentrations up to 5,360 mg/kg at depths ranging from 2 to 9 feet bgs. VOCs, semi-volatile organic compounds (SVOCs), PCBs, and elevated concentrations of chromium and lead were also detected in soil. Petroleum hydrocarbons in the gasoline range and chlorinated hydrocarbons were detected in groundwater samples.

Ninyo & Moore performed additional site assessment activities in the former SDG&E leasehold portion of the site to evaluate potential soil and groundwater impacts from historical wastewater ponds on the site as well as sediments from within cooling water tunnels located beneath the site that were utilized by the former Silver Gate Power plant. Petroleum hydrocarbons, VOCs, PAHs, PCBs, and metals were detected in soil samples. Petroleum hydrocarbon, VOCs, fluoranthene, and metals were detected in groundwater samples. Sediment samples contained petroleum hydrocarbons, benzene, PAHs, PCBs, and metals. Based on this information, subsurface excavation activities in the former SDG&E leasehold area could encounter the buried cooling water tunnels and associated impacted sediments and well as impacted soil and groundwater that may require special handling and/or disposal.

6.2.2 Waterside

The SWRCB's GeoTracker database includes numerous documents associated with CAO R9-2012-0024 that was issued for the waterside portions of the site. The CAO was issued to order the cleanup of impacted sediments within the NASSCO and BAE Leaseholds that extend from the eastern shore of San Diego Bay from the foot of the Sampson Street Extension to the northwest to Chollas Creek, and to the southeast out to the main shipping channel to the west, which was collectively referred to as the Shipyard Sediment Site. The portion of the Shipyard Sediment Site that is within the project area is referred to as the North Shipyard Cleanup. The Southern Shipyard Cleanup is located off site adjacent to the south. The CAO required cleanup of impacted sediments that contained contaminants of concern above Bay background sediment levels. Cleanup levels were established for primary COCs of copper (121 mg/kg); mercury (0.57 mg/kg); HPAH, which was defined as the sum of fluoranthene, perylene, benzo(a)anthracene, chrysene, benzo(a)pyrene, and dibenzo(a,h)anthracene, (663 micrograms per kilogram [µg/kg]); PCBs (defined as 41 select congeners; 84 µg/kg), and tributyltin (22 µg/kg). Cleanup levels for secondary COCs were established for arsenic (7.5 mg/kg); cadmium (0.33 mg/kg), lead (53 mg/kg), and zinc (192 mg/kg).

According to the "North Shipyard Remedial Action Plan Implementation Report," prepared by Anchor QEA, Inc., dated July 2016, sediments exceeding the established cleanup levels were removed except when it was not feasible (i.e., due to risk of undermining slopes or existing structures). Approximately 114,085 cy of impacted sediments were removed and disposed offsite and areas where impacted sediments could not be removed were covered with a sand/gravel cap. Remedial activities were completed on April 15, 2016 and the site

was moved into post-remedial monitoring to evaluate the effectiveness of the remedial action. Although, the RWQCB concurred that the cleanup was performed to their satisfaction, it allowed for sediments with concentrations in excess of the cleanup levels to be left in-place and the established cleanup levels in the CAOs were at a level that may classify the sediments as a regulated waste and/or require special handling and/or disposal if dredged.

7 FINDINGS AND OPINIONS

Based on the results of this HMTS, the following findings and opinions are provided:

- The site is 2205 East Belt Street in San Diego, California. The site includes 11.7 acres on the landside and 24.1 acres on the waterside in the Bay. The site is bounded to the northeast by East Belt Street followed by railroad tracks and off-site BAE operations, to the southeast by NASSCO Shipyard, on the west by the Bay, and on the northwest by R.E. Staite.

- Historical records indicate that the site was part of the Bay with piers and wharfs extending into the Bay until the landside portions of the site were filled in the 1930s/1940s. The site was occupied by several industrial operations, including the “San Diego Marine Construction Co.,” “Ritchfield Oil Corp.” and “Standard Oil Co. of Calif.” Historical items of concern on the site noted on the historical records include a 6,000-gallon fuel oil storage tank on the southern end of the site, an oil storage wharf on the southern end of the bulkhead, and two steel oil tanks along the southern bulkhead at the Sicard Street extension. Surrounding properties were generally developed with various industrial uses, including bulk fuel storage.

- The site was listed 150 times on numerous environmental databases under a variety of names California Marine Cleaning, Southwest Marine, Chevron USA Inc, Bumble Bee Seafoods, Austal USA, Shipyard Sediment Site – North Shipyard, Corrpro Companies Inc., and AMSEC LLC. The listings that were interpreted to be a concern to the site included:

  - Numerous listings that referenced spills to the Bay of oils, paints, fuels, bleach, etc., oily sheens on the Bay surface associated with contaminated soil from the landside and from creosote piles that may have resulted in impacts to the Bay sediments and at Bay shoreline/bulkhead.

  - An unauthorized release at the southern bulkhead area between Piers 3 and 4 that documented soil and groundwater impacted by petroleum hydrocarbons as gasoline and diesel, and volatile organics. Documentation that the release was adequately assessed and or remediated was not found in the records searched.

  - A 10,000-gallon UST and associated piping were filled with slurry and closed in place. The UST is located on the southern border of the site with NASSCO at the Sicard Street extension and connected via piping to the dispenser located at the bulkhead between Piers 3 and 4. Approximately 10 cy of soil impacted with petroleum hydrocarbons in the diesel and oil ranges was left in place in the vicinity of the dispenser. Subsurface excavation work in the areas may encounter the slurry-filled UST/piping and/or fuel-impacted soil that may require special handling and/or disposal.

- The site is part of a CAO associated with impacted sediments from former industrial operations on the landside that resulted in sediments with elevated levels of metals, HPAHS, and PCBs. Impacted sediments were removed when feasible and covered with a sand/gravel cap when not feasible. The cleanup was completed in April 2016; however, cleanup levels exceed concentrations that may classify sediments as a regulated waste and sediments in excess of cleanup levels were allowed to remain in place. Therefore, sediments impacted with metals, HPAHs, and PCBs remain on site and may require special handling and/or disposal if dredged.

- Several listings indicated violations of the site's storm water permit for the discharge of storm water to the Bay in excess of allowable limits, which may have resulted in impacts to the Bay sediments at the site for discharges that occurred after the completion of the sediment cleanup.

- Based on the long history of industrial uses at the site, there is a high likelihood that contaminated soil and/or groundwater may be present throughout the site.

- Based on the age of the buildings and other structures at the site, there is a high likelihood that lead-based paint (LBP) and/or asbestos-containing materials (ACM) are present on site. In addition, wooden components in piers, wharfs, or bulkheads may have been treated with creosote. Special handling and/or disposal may be required for LBP, ACM, or creosote-treated wood.

- Several off-site properties were listed on the environmental database report and the following listings were noted to be of potential concern:

  - The property adjacent to the northwest of the site, currently occupied by R.E. Staite, is associated with multiple unauthorized release cases that have resulted in impacts to soil, soil vapor, and/or groundwater from petroleum hydrocarbons (diesel and oil), polynuclear aromatic hydrocarbons, PCBs, VOCs, calcium chloride, formaldehyde, hydrochloric acid, ammonia, sulfuric acid, sodium hypochlorite, N,N-Dimnethylformamide, methanol, and chlorinated solvents. Groundwater impacts from chlorinated solvents were documented at the facility. The regulatory agency closed the cases either because the AOCs were not accessible for assessment due to current site operations or because the impacts were compatible with current use of the site for industrial uses. Based upon this information, the operations at this facility may have impacted soil, groundwater and/or vapor on the portions of the site adjacent to the facility.

  - Based on a review of documents associated with several properties in the site vicinity, there appears to be a chlorinated solvent plume in the general site vicinity that has not been specifically attributed to a particular source, but has been detected upgradient of the site. Therefore, there is a high likelihood that groundwater beneath the site has been impacted by chlorinated solvents.

- Historical reports reviewed for the site indicated that soil and groundwater in the northern portions of the landside within the former SDG&E leasehold have been impacted by petroleum hydrocarbons, PCBs, VOCs, and metals from former usage of the area for wastewater storage ponds associated with the former Silver Gate Power Plant. In addition, cooling tunnels formerly used by the power plant are located below ground in the area, which contain sediments impacted with petroleum hydrocarbons, benzene, PAHs, PCBs, and metals. Subsurface construction activities in the area may encounter the buried cooling tunnels/impacted sediments and/or impacted soil/groundwater that would require special handling/disposal.

8 PROJECT IMPACT ANALYSIS – HAZARDS AND HAZARDOUS MATERIALS

The following impact analysis evaluates the effects from hazards and hazardous materials that may result with the implementation of the Proposed Project. The findings of this HMTS were used to evaluate potential impacts relative to hazards and hazardous materials.

8.1 CEQA Significance of Impacts

The findings of this study were evaluated with respect to the following questions from Section 8, "Hazards and Hazardous Materials" within Appendix G of the CEQA Guidelines.

Table 6 – CEQA Tresholds of Significance

Threshold	Criteria
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?
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 it create a significant hazard to the public or the environment?

8.2 Evaluation of Project Impacts

The following questions were evaluated based on our findings from the HMTS and our understanding of the Proposed Project.

A. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Hazardous materials are currently used/stored and hazardous wastes are generated in association with the site activities. Hazardous materials that are transported, used, and or disposed of are under regulatory oversight and the quantities are not expected to increase significantly. The site has documented impacts to soil, groundwater, and sediments. If contaminated soil, groundwater, and/or sediments are disturbed during project activities, a significant hazard could be created; however, implementation of mitigation measures (Section 8.3) would reduce the hazard to less than significant.

B. Would the project 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?

Since hazardous materials and wastes are located at the site, there is a potential that upset and accident conditions related to hazardous materials or wastes would be associated with future project activities. However, implementation of mitigation measures (Section 8.3) would reduce the hazard to less than significant.

D. Would the project 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?

Hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code - The DTSC has designated two facilities in the state of California that fall under this category. These two facilities are located outside of San Diego County.

Land designated as "hazardous waste property" or "border zone property" - The DTSC has not designated any hazardous waste or border zone properties pursuant to the provisions cited in the Health and Safety Code.

Properties with hazardous waste disposals on public land - The DTSC does not maintain separate records of reports that relate to public lands/properties.

Hazardous substance release sites selected for (and subject to) a response action – The site is associated with one unauthorized release case on the landside that is listed in one database as under remedial investigation; however, additional documentation regarding the remedial investigation or if a cleanup was required by the regulatory agency was not found in the records searched. In addition, the site is subject to a CAO issued by the RWQCB for sediments on the waterside. The cleanup was reported completed as of April 2016 and the site is currently under post-remediation monitoring to evaluate the effectiveness of the cleanup. Since impacted soils, groundwater, and/or sediments remain on site, there is the potential that they may be disturbed during project activities. However, implementation of mitigation measures (Section 9.3) would reduce these hazards to less than significant.

Sites included in the Abandoned Site Assessment Program - The Abandoned Site Assessment Program was intended to include properties in "rural unsurveyed counties." The program concluded in the early 1990s, and properties in the program were transferred to the Cal-Sites database, which has been incorporated into the DTSC's current EnviroStor database. However, the EnviroStor database does not indicate whether a specific site was at one time included in the Abandoned Site Assessment Program and does not have a separate category for abandoned sites. The site was not listed on the EnviroStor database.

Sites with public drinking water wells that contain detectable levels of organic contaminants and that are subject to water analysis pursuant to Section 116395 of the Health and Safety Code - Based on laws, regulations, and security policies adopted after September 11, 2001, the Department of Health Services no longer makes publicly available the locations of public drinking water wells due to concerns about illegal actions that could endanger public health and safety.

Sites with USTs for which an unauthorized release report is filed - The SWRCB provides this information in its GeoTracker online database. The site is associated with one LUST listing associated with a release of fuel from a dispenser that was connected to a 10,000-gallon UST that was closed in place. Impacted soil was documented to have been left in place; therefore, there is the potential that the impacted soil may be disturbed during project activities. However, implementation of mitigation measures (Section 8.3) would reduce the hazard to less than significant.

Solid waste disposal facilities from which there is a migration of hazardous waste - The SWRCB maintains a list of facilities with waste constituents above hazardous levels outside the waste management unit. No such facilities were identified within San Diego County.

Sites with cease and desist orders and/or cleanup and abatement orders that concern the discharge of wastes that are hazardous materials - The SWRCB list of properties with active cease and desist orders or cleanup and abatement orders did not list the site.

Based on the information provided above, the project is located on a site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5**.** Implementation of mitigation measures (Section 8.3) would reduce the hazard to less than significant.

8.3 Mitigation Measures

The following mitigation framework measures relating to hazardous materials/wastes are provided.

- Subsurface disturbance activities should include implementation of a soil, groundwater, and/or sediment management plan to address the possibility of encountering areas of potential environmental concern. The plan should be prepared by a qualified environmental consultant and should be implemented during subsurface disturbance activities by the contractor under the oversight of an environmental professional on behalf of the project proponent. The plan should address notifications, monitoring, handling, stockpiling, characterization, reuse, export, and disposal protocols.

- For areas with documented or suspected impacts to soil, groundwater, and/or sediments, appropriate worker and community health and safety measures (e.g., dust control, air monitoring, stockpile management) should be implemented during soil disturbance activities.

- In areas with documented releases, soil, groundwater, and/or sediment generated during construction activities may be considered a waste, and may require characterization (e.g., analytical testing) prior to reuse, export, or disposal.

- If previously undocumented contamination is discovered, notification to regulatory agencies and proper soil/groundwater management may be required, particularly if there is the potential to affect public health, safety, and/or the environment.

- Prior to demolition or renovation activities, a hazardous building materials survey should be performed on structures within the boundaries of the project areas under the direct supervision of a State of California certified asbestos consultant and certified lead inspector/assessor. Prior to demolition or renovation work, which would disturb identified ACMs, LBP, creosote-treated wood, or other hazardous materials, a licensed abatement removal contractor should remove and properly dispose of the hazardous material(s) in accordance with applicable local, state and federal regulations.

9 REFERENCES

Anchor QEA, LLC, 2016, North Shipyard Remedial Action Plan Implementation Report, San Diego Shipyard Sediment Site – North Shipyard: dated July.

Army Corps of Engineers, 2019, Formerly Used Defense Sites Geographic Information System website, https://rsgis.crrel.usace.army.mil/publicfuds: accessed in January.

California Department of Toxic Substances Control, 2019, EnviroStor Website: http://www.envirostor.dtsc.ca.gov/public/: accessed in January.

California Integrated Waste Management Board, 2019, Solid Waste Information System database, http://www.ciwmb.ca.gov/SWIS: accessed in January.

EnecoTech Southwest, Inc., 2002, Additional Soil and Groundwater Investigations Southwest Marine, 22015 East Belt, Foot of Sampson, San Diego, California, Permit #W100736; A.P.N. #760-022-06; EST #H09689: dated November 15.

ENV America, 2004, Site Assessment Report, Landside Tidelands Lease Area, Silver Gate Power Plant, San Diego, California: dated July 14.

Environmental Data Resources Inc., 2018, Certified Sanborn Map Report, BAE Systems Waterfront Improvement Project, 2205 East Belt Street, San Diego, California: dated December 14.

Environmental Data Resources Inc., 2018, The EDR Aerial Photograph Decade Package, BAE Systems Waterfront Improvement Project, 2205 East Belt Street, San Diego, California: dated December 17.

Environmental Data Resources Inc., 2018, EDR Historical Topo Map Report, BAE Systems Waterfront Improvement Project, 2205 East Belt Street, San Diego, California: dated December 14.

Environmental Data Resources Inc., 2018, The EDR Radius Map Report with GeoCheck, BAE Systems Waterfront Improvement Project, 2205 East Belt Street, San Diego, California: dated December 14.

Kennedy, Michael P. and Tan, Siang S., 2008, Geologic Map of the San Diego 30' x 60' Quadrangle, San Diego County, California, Scale 1:100,000.

Ninyo & Moore, 2011, Subsurface Investigation, San Diego Gas & Electric Tidelands Area, Belt Street and San Diego Bay, San Diego, California: dated May 24.

Regional Water Quality Control Board, 2012, Cleanup and Abatement Order No. R9-2012-0024, National Steel and Shipbuilding Company, BAE Systems San Diego Ship Repair, Inc., City of San Diego, Campbell Industries, San Diego Gas and Electric, United States Navy, San Diego Unified Port District, Shipyard Sediment Site, San Diego Bay, San Diego, California: dated March 14.

Regional Water Quality Control Board, 2016, Water Quality Control Plan for the San Diego Basin (9): dated September 8, 1994 with updated through May 17.

State Water Resources Control Board, 2019, Geotracker Online Database: http://geotracker.swrcb.ca.gov: accessed in January.

United States Geological Survey, 2012, Point Loma, California: 7.5-minute series (topographic), Scale 1:24,000.

FIGURES

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE. | SOURCE: ESRI WORLD TOPO, 2017

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FIGURE 1

SITE LOCATION

BAE SYSTEMS WATERFRONT IMPROVEMENT PROJECT
2205 EAST BELT STREET, SAN DIEGO, CALIFORNIA

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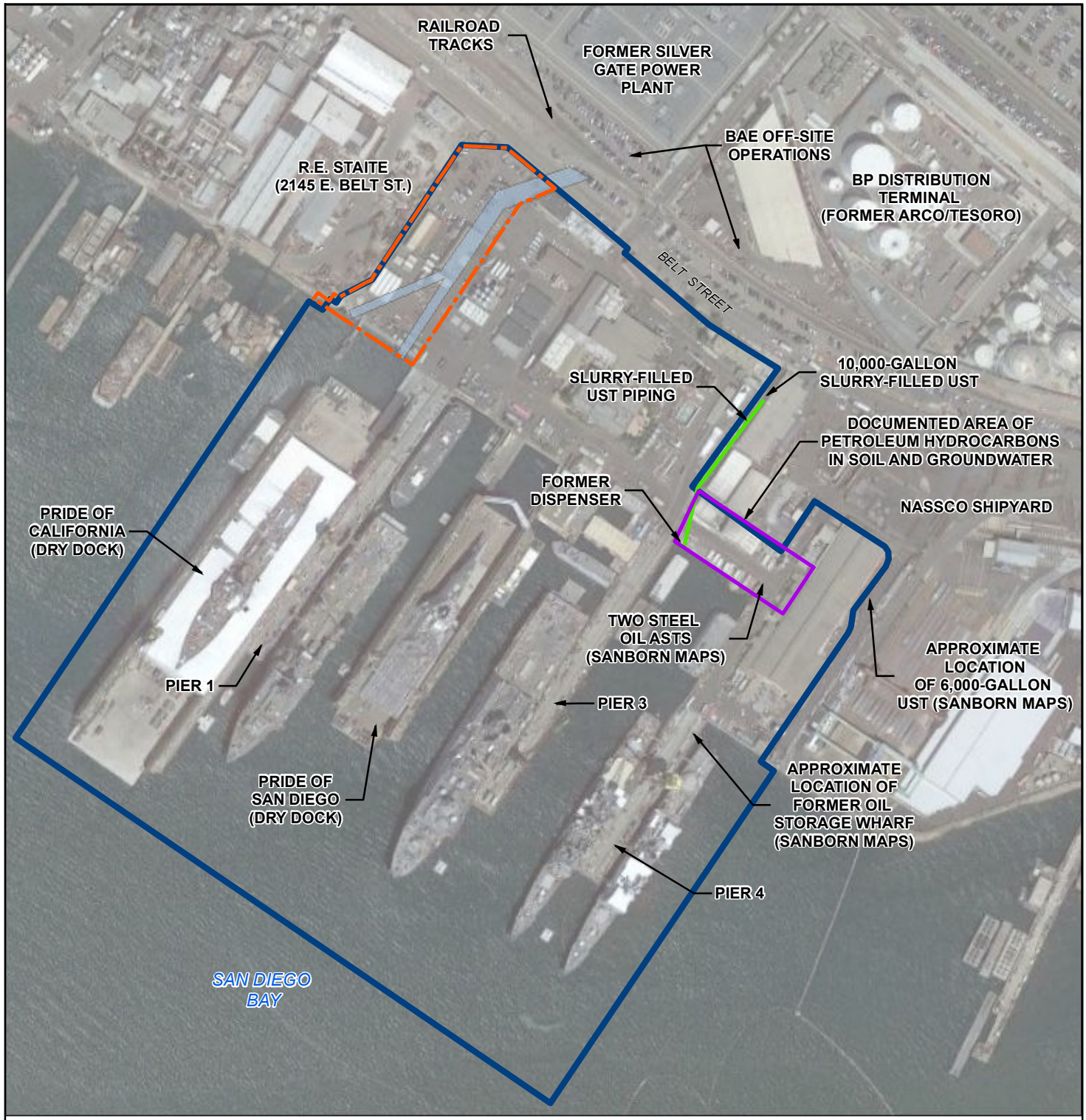
Ninyo & Moore
Geotechnical & Environmental Sciences Consultants



LEGEND

- SITE BOUNDARY
- SDG&E LEASEHOLD
- COOLING TUNNELS

N

FEET

0 300 600

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE. | SOURCE: GOOGLE EARTH, 2017

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FIGURE 2

SITE AND VICINITY

BAE SYSTEMS WATERFRONT IMPROVEMENT PROJECT
2205 EAST BELT STREET, SAN DIEGO, CALIFORNIA

108665001 | 1/19

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Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

5710 Ruffin Road | San Diego, California 92123 | p. 858.576.1000

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www.ninyoandmoore.com

Appendix F

BAE Systems Waterfront Improvement Project – Environmental Noise Report

BAE Systems Waterfront Improvement Project – Environmental Noise Report

Prepared for:

San Diego Unified Port District
3165 Pacific Highway
San Diego, CA 92101
Contact: Peter Eichar
(619) 686-6284

Prepared by:

ICF
49 Discovery, Suite 250
Irvine, CA 92618
Contact: Jonathan Higginson, INCE
(949) 333-6619

June 2020

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Tables and Figures

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Acronyms and Abbreviations

µPa	microPascals
BAE Systems	BAE Systems San Diego Ship Repair Inc.
Caltrans	California Department of Transportation
CCC	California Coastal Commission
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dB	decibel
dBA	A-weighted decibels
District	Unified Port District of San Diego
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
in/s	inches per second
L_{eq}	equivalent sound level
L_{max}	Maximum Sound Level
L_{min}	Minimum Sound Level
L_V	Vibration Velocity Level
L_{xx}	Percentile-Exceeded Sound Level
PPV	Peak Particle Velocity
project site	BAE Systems San Diego Ship Repair Yard
RCNM	Roadway Construction Noise Model
rms	root mean square
SLC	State Lands Commission
SLM	sound level meters
TUOP	Tidelands Use and Occupancy Permit
VdB	vibration decibels

Chapter 1
Introduction

This technical report has been prepared to support the Environmental Impact Report (EIR) and provide information regarding potential effects of noise and groundborne vibration associated with the proposed BAE Systems Waterfront Improvement Project (proposed project), located at 2205 East Belt Street, San Diego, California. The noise study described herein evaluates the potential short- and long-term noise and groundborne vibration impacts associated with proposed project development. The report describes the environmental setting for the proposed project, including the existing noise environment, as well as applicable laws and regulations and documents the assumptions, methodologies, and findings used to evaluate the impacts.

1.1 Project Overview

A complete Project Description is provided in Appendix D of this technical report. An overview of the project elements is provided below.

BAE Systems San Diego Ship Repair Inc. (BAE Systems), is a ship repair company in the San Diego area, primarily serving non-nuclear U.S. Navy vessels, as well as commercial customers. BAE Systems currently leases 9.8 acres of land and 16.6 acres of water from the Unified Port District of San Diego (District). This lease is scheduled to expire in 2034. In addition, BAE Systems currently occupies a parcel pursuant to a now-expired 5-year Tidelands Use and Occupancy Permit (TUOP) from the District to lease an additional 2.0 acres of land and 4.0 acres of water. As a result, BAE Systems leases approximately 11.8 acres of land area and approximately 20.6 acres of water area from the District. In addition to these leased and permitted areas, BAE Systems leases 3.5 acres of submerged from the District. These submerged lands were originally leased from the California State Lands Commission (SLC). However, effective January 1, 2020, this area was transferred to the District's jurisdiction per Senate Bill (SB) 507, which granted and conveyed in trust to the District all right title, and interest in certain tidelands and submerged lands, as enumerated in SB 507. BAE Systems' lease with the SLC was transferred to the District. The total acreage occupied by BAE Systems (including the TUOP parcel) pursuant to agreements with the District comprise the BAE Systems San Diego Ship Repair Yard (project site).

The project site consists of three working piers, five wet berths, and two floating drydocks, all of which are used to modernize, repair, and overhaul various marine vessels. The smaller of the two drydocks, the Pride of San Diego, has been on site since 1984. In 2017, the larger drydock, Pride of California, was commissioned to meet the growing needs of BAE Systems' customers.

The purpose of the proposed project is to maintain and improve facilities for the berthing needs of current and future U.S. Naval assets and other customers. As part of the U.S. Navy's "Pivot West" strategy, it is anticipated that more Navy vessels will be home-ported in San Diego. As a result, BAE Systems requires the ability to flexibly locate various ships within the facility as well as ensure safe and efficient facility utilization for the moorage of vessels, including during extreme weather conditions.

The proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase efficiency of operations at the ship repair yard. While these improvements would allow newer and different classes of vessels to be moored and repaired on site, the proposed improvements are not expected to increase the number of vessels serviced because no new berthing space would be provided. Furthermore, the mooring of newer, larger vessels would reduce the number of other vessels that could be concurrently moored at the ship repair yard..

The proposed project consists of the following 15 project elements designed to improve efficiency and functionality of the existing BAE Systems San Diego Ship Repair Yard.

1. Pride of San Diego Drydock Dredging and Moorage
2. Pride of San Diego Drydock Wharf Replacement and Realignment
3. Fender System Repair and Replacement
4. Pier 3 South Nearshore Dredging
5. Pier 3 Mooring Dolphin
6. Pier 3 North Lunchroom Wharf Replacement and Realignment
7. Quay Wall Modifications
8. Port Security Barrier Replacement
9. Small Boat Mooring Float Replacement
10. Central Tool Room Demolition and Reconstruction
11. New Production Building
12. Administrative Office Building
13. Pier 1 Restroom Renovation and/or Demolition
14. Main Electrical Utility Service Update
15. Sanitary Sewer and Potable Water Utility Services

The majority of the proposed work would take place within the District's jurisdiction (i.e., Project Elements 2, 3, 4, 6, 7 and, 9–15). Project Elements 1, 5, and 8 are within the District's leasing jurisdiction and the California Coastal Commission's (CCC) permitting jurisdiction, per SB 507 and the California Coastal Act. BAE Systems will apply directly to the CCC for authorization and entitlements for Project Elements 1, 5, and 8; however, this study analyzes the entire proposed project. Figure 1-1 shows the project location, Figure 1-2 illustrates the project site boundaries, and Figure 1-3 provides an overall site plan identifying the location of each project element by number.

Figure 1-1. Project Location

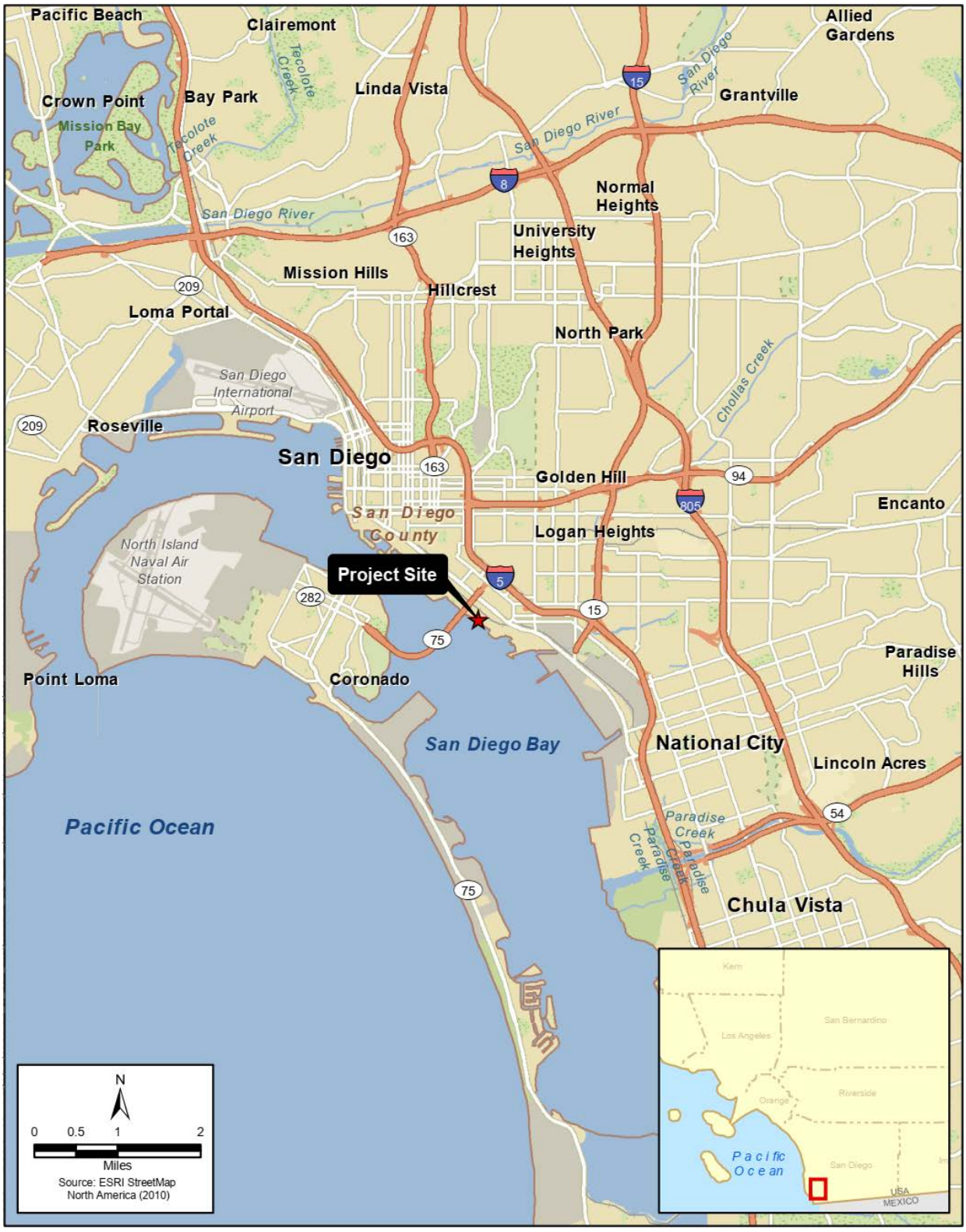


Figure 1-2. Project Site Boundaries

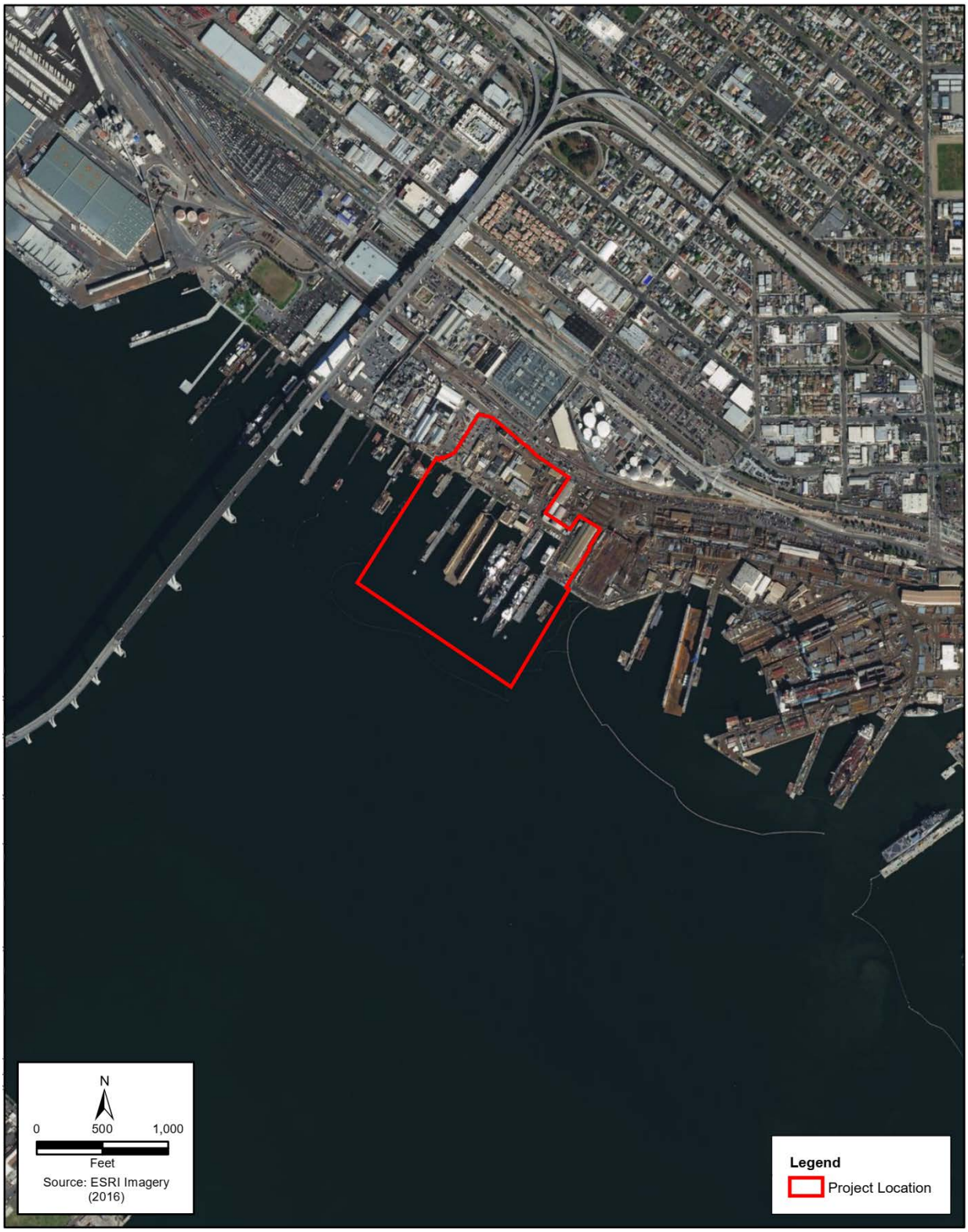
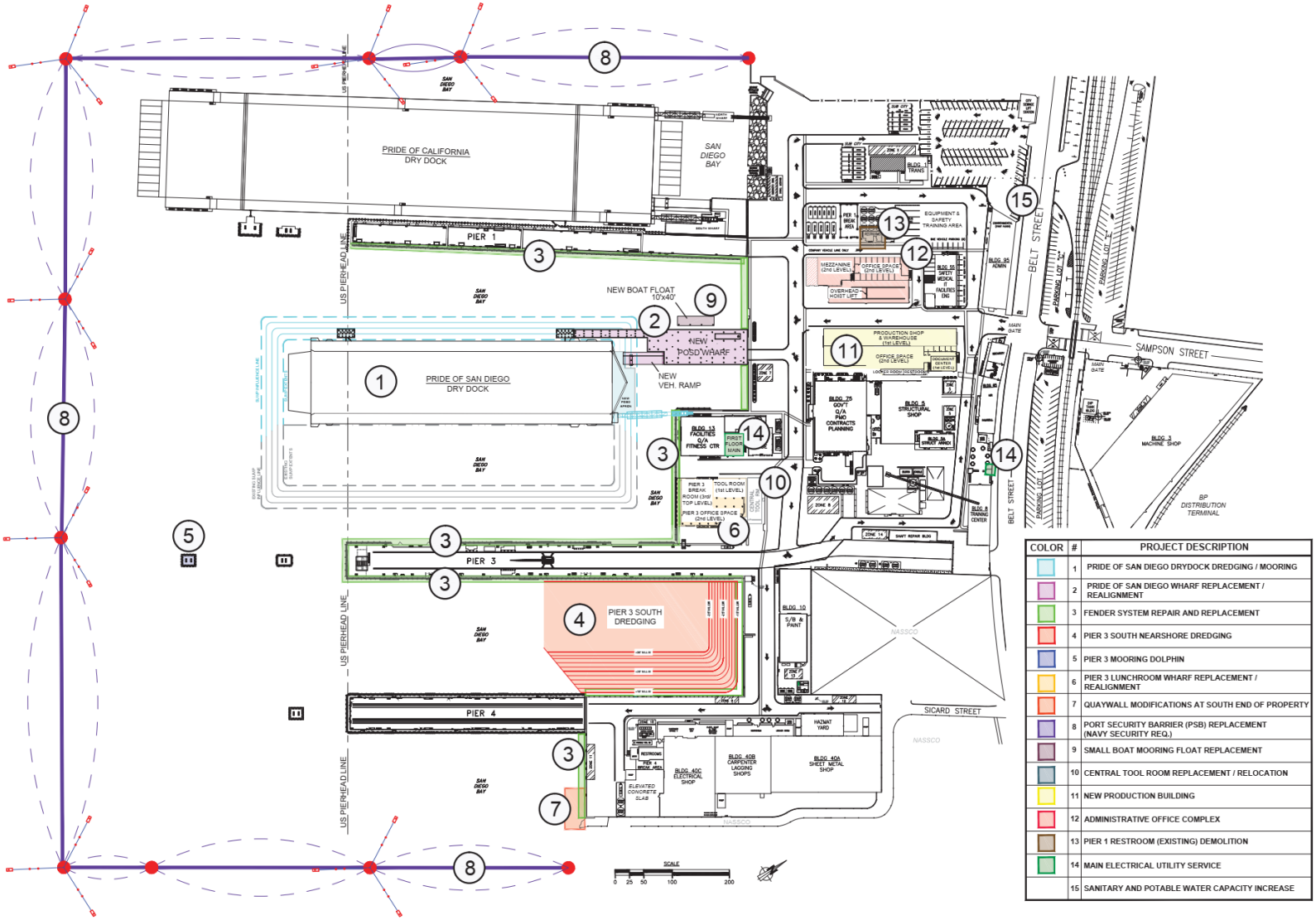


Figure 1-3. Site Plan and Project Elements



COLOR	#	PROJECT DESCRIPTION
	1	PRIDE OF SAN DIEGO DRYDOCK DREDGING / MOORING
	2	PRIDE OF SAN DIEGO WHARF REPLACEMENT / REALIGNMENT
	3	FENDER SYSTEM REPAIR AND REPLACEMENT
	4	PIER 3 SOUTH NEARSHORE DREDGING
	5	PIER 3 MOORING DOLPHIN
	6	PIER 3 LUNCHROOM WHARF REPLACEMENT / REALIGNMENT
	7	QUAYWALL MODIFICATIONS AT SOUTH END OF PROPERTY
	8	PORT SECURITY BARRIER (PSB) REPLACEMENT (NAVY SECURITY REQ.)
	9	SMALL BOAT MOORING FLOAT REPLACEMENT
	10	CENTRAL TOOL ROOM REPLACEMENT / RELOCATION
	11	NEW PRODUCTION BUILDING
	12	ADMINISTRATIVE OFFICE COMPLEX
	13	PIER 1 RESTROOM (EXISTING) DEMOLITION
	14	MAIN ELECTRICAL UTILITY SERVICE
	15	SANITARY AND POTABLE WATER CAPACITY INCREASE

Chapter 2
Fundamentals of Environmental Noise

Noise is commonly defined as unwanted sound. Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is often defined as sound that is objectionable because it is disturbing or annoying.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and the obstructions or atmospheric factors, which affect the propagation path to the receptor, determine the sound level and the characteristics of the noise perceived by the receptor.

The following sections provide an explanation of key concepts and acoustical terms used in the analysis of environmental and community noise.

2.1 Frequency, Amplitude, and Decibels

Continuous sound can be described by *frequency* (pitch) and *amplitude* (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz, or thousands of Hz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

The amplitude of pressure waves generated by a sound source determines the loudness of that source. The amplitude of a sound is typically described in terms of the *sound pressure level*, which refers to the root-mean-square pressure of a sound wave, and measured in units called microPascals (µPa). One µPa is approximately one hundred-billionth (0.00000000001) of normal atmospheric pressure. Sound pressure levels for different kinds of noise environments can range from less than 100 to more than 100,000,000 µPa. Because of this large range of values, sound is rarely expressed in terms of µPa. Instead, a logarithmic scale is used to describe the sound pressure level (also referred to as simply the sound level) in terms of decibels, abbreviated dB. Specifically, the decibel describes the ratio of the actual sound pressure to a reference pressure and is calculated as follows:

$$SPL = 20 \times \log_{10}\left(\frac{X}{20\mu Pa}\right)$$

where X is the actual sound pressure and 20 µPa is the standard reference pressure level for acoustical measurements in air. The threshold of hearing for young people is about 0 dB, which corresponds to 20 µPa.

2.1.1 Decibel Calculations

Because decibels represent noise levels using a logarithmic scale, sound pressure levels cannot be added, subtracted, or averaged through ordinary arithmetic. On the dB scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each

producing sound of the same loudness, their combined sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one bulldozer produces a sound pressure level of 80 dB, two bulldozers would not produce a combined sound level of 160 dB. Rather, they would combine to produce 83 dB. The cumulative sound level of any number of sources can be determined using decibel addition. The same decibel addition is used for A-weighted decibels described below.

Similarly, the arithmetic mean (average) of a series of noise levels does not accurately represent the overall average noise level. Instead, the values must be averaged using a linear scale before converting the result back into a logarithmic (dB) noise level. This method is typically referred to as calculating the "energy average" of the noise levels.

2.2 Perception of Noise and A-Weighting

The dB scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the sound pressure level in that range. In general, people are most sensitive to the frequency range of 1,000 to 8,000 Hz and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels in various frequency bands are adjusted (or "weighted"), depending on the human sensitivity to those frequencies. The resulting sound pressure level is expressed in A-weighted decibels, abbreviated dBA.

The A-weighting scale approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments regarding the relative loudness or annoyance of a sound, their judgments correlate well with the A-weighted sound levels of those sounds. Table 2-1 describes typical A-weighted sound levels for various noise sources.

Table 2-1. Typical Noise Levels in the Environment

Common Outdoor Noise Source	Sound Level (dBA)	Common Indoor Noise Source
	— 110 —	Rock band
Jet flying at 1,000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower at 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher in next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: California Department of Transportation 2013a.
dBA = A-weighted decibels.

2.3 Noise Descriptors

Because sound levels can vary markedly over a short period of time, various descriptors or noise "metrics" have been developed to quantify environmental and community noise. These metrics generally describe either the average character of the noise or the statistical behavior of the variations in the noise level. Some of the most common metrics used to describe environmental noise, including those metrics used in this report, are described below.

Equivalent Sound Level (L_{eq}) is the most common metric used to describe short-term average noise levels. Many noise sources produce levels that fluctuate over time; examples include mechanical equipment that cycles on and off or construction work, which can vary sporadically. The L_{eq} describes the average acoustical energy content of noise for an identified period of time, commonly 1 hour. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustical energy over the duration of the

exposure. For many noise sources, the L_{eq} will vary, depending on the time of day. A prime example is traffic noise, which rises and falls, depending on the amount of traffic on a given street or freeway.

Maximum Sound Level (L_{max}) and **Minimum Sound Level (L_{min})** refer to the maximum and minimum sound levels, respectively, that occur during the noise measurement period. More specifically, they describe the root-mean-square sound levels that correspond to the loudest and quietest 1-second intervals that occur during the measurement.

Percentile-Exceeded Sound Level (L_{xx}) describes the sound level exceeded for a given percentage of a specified period. For example, the L_{50} is the sound level exceeded 50% of the time (such as 30 minutes per hour), and L_{25} is the sound level exceeded 25% of the time (such as 15 minutes per hour). Many municipalities use L_{xx} metrics in their noise ordinances to define permissible noise limits, allowing different noise levels depending on the duration of the noise within a particular hour.

Community Noise Equivalent Level (CNEL) is a measure of the 24-hour average A-weighted noise level that is also time-weighted to "penalize" noise that occurs during the evening and nighttime hours when noise is generally recognized to be more disturbing (because people are trying to rest, relax, and sleep during these times). 5 dBA is added to the L_{eq} during the evening hours of 7 p.m. to 10 p.m.[1], and 10 dBA is added to the L_{eq} during the nighttime hours of 10 p.m. to 7 a.m.[2] and the energy average is then taken for the whole 24-hour day.

Day-Night Sound Level (L_{dn}) is very similar to the CNEL described above. L_{dn} is also a time-weighted average of the 24-hour A-weighted noise level. The only difference is that no "penalty" is applied to the evening hours of 7 p.m. to 10 p.m. 10 dBA is added to the L_{eq} during the nighttime hours of 10 p.m. to 7 a.m.[2] and the energy average is then taken for the whole 24-hour day

It is noted that various federal, state, and local agencies have adopted CNEL or L_{dn} as the measure of community noise. While not identical, CNEL and L_{dn} are normally within 1 dBA of each other when measured in typical community environments, and many noise standards/regulations use the two interchangeably.

2.4 Sound Propagation

When sound propagates over a distance, it changes in both level and frequency content. The manner in which noise is reduced with distance depends on the following important factors.

Geometric Spreading. Sound from a single source (i.e., a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates (or drops off) at a rate of 6 dBA for each doubling of distance. Highway noise is not a single stationary point source of sound. The movement of vehicles on a highway makes the source of the sound appear to emanate from a line (i.e., a "line" source) rather than from a point. This results in cylindrical spreading rather than the spherical spreading resulting from a point

[1] A 5 dB noise increase is generally considered to be a readily perceptible change in the noise level for a listener.

[2] A 10 dB noise increase is generally perceived as a doubling of the noise level for a listener.

source. The change in sound level (i.e., attenuation or decrease) from a line source is 3 dBA per doubling of distance.

Ground Absorption. Usually the noise path between the source and the observer is very close to the ground. The excess noise attenuation from ground absorption occurs due to acoustic energy losses on sound wave reflection. For acoustically absorptive or "soft" sites (i.e., sites with an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dBA per doubling of distance is normally assumed. When added to the geometric spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dBA per doubling of distance for a line source and 7.5 dBA per doubling of distance for a point source.

Atmospheric Effects. Research by the California Department of Transportation (Caltrans 2013) and others has shown that atmospheric conditions can have a major effect on noise levels. Factors include wind, air temperature (including vertical temperature gradients), humidity, and turbulence. Receptors downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas receptors upwind can have lower noise levels. Increased sound levels can also occur over relatively large distances because of temperature inversion conditions (i.e., increasing air temperature with elevation).

Shielding by Natural or Human-Made Features. A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by this shielding depends on the size of the object, proximity to the noise source and receptor, surface weight, solidity, and the frequency content of the noise source. Natural terrain features (such as hills and dense woods) and human-made features (such as buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receptor with the specific purpose of reducing noise. In addition to the noise that diffracts over the top of a barrier, noise will also diffract around the ends of the barrier leading to "flanking" noise that can reduce the overall efficacy of the barrier. Assuming it is long enough to minimize the effects of flanking noise, a barrier that breaks the line of sight between a source and a receptor will typically result in at least 5 dB of noise reduction. A taller barrier may provide as much as 20 dB of noise reduction.

2.5 Human Response to Noise

Noise-sensitive receptors (also called "receivers") are locations where people reside or where the presence of unwanted sound may adversely affect the use of the land (see Section 2.6, *Noise-sensitive Land Uses*, below). Noise can have a range of effects on people including hearing damage, sleep interference, speech interference, performance interference, physiological responses, and annoyance. Each of these is briefly described below:

Hearing Damage. A person exposed to high noise levels can suffer either gradual or traumatic hearing damage. Gradual hearing loss occurs with repeated exposure to excessive noise levels and is most commonly associated with occupational noise exposures in heavy industry or other very noisy work environments. Traumatic hearing loss is caused by sudden exposure to an extremely high noise level, such as a gunshot or explosion at very close range. The potential for noise-induced hearing loss is not generally a concern in typical community noise environments.

Noise levels in neighborhoods, even in very noisy airport environs, are not sufficiently loud as to cause hearing loss.

Sleep Interference. Exposure to excessive noise levels at night has been shown to cause sleep disturbance. Sleep disturbance refers not only to awakening from sleep, but also to effects on the quality of sleep such as altering the pattern and stages of sleep. World Health Organization (WHO) guidelines recommend noise limits of 30 dBA L_{eq} (8-hour average) for continuous noise and 45 dBA L_{max} for single sound events inside bedrooms at night to minimize sleep disturbance(WHO 1999).

Speech Interference. Speech interference can be a problem in any situation where clear communication is desired, but is often of particular concern in learning environments (such as schools) or situations where poor communication could jeopardize safety. Normal conversational speech inside homes is typically in the range of 50 to 65 dBA (EPA 1977) and any noise in this range or louder may interfere with speech. As background noise levels rise, the intelligibility of speech decreases and the listener will fail to recognize an increasing percentage of the words spoken. A speaker may raise his or her voice in an attempt to compensate for higher background noise levels, but this in turn can lead to vocal fatigue for the speaker.

Performance Interference. Excessive noise has been found to have various detrimental effects on human performance, including information processing, concentration, accuracy, reaction times, and academic performance. Intrusive noise from individual events can also cause distraction. These effects are of obvious concern for learning and work environments.

Physiological Responses. Acute noise has been shown to cause measurable physiological responses in humans, including changes in stress hormone levels, pulse rate, and blood pressure. The extent is to which these responses cause harm or are signs of harm is not clearly defined, but it has been postulated that they could contribute to stress-related diseases, such as hypertension, anxiety, and heart disease. However, research indicates links between environmental noise and permanent health effects are generally weak and inconsistent. Statistically significant health risks have been found for extended exposure to very high noise level, such as for workers exposed to high levels of industrial noise for 5 to 30 years (WHO 1999).

Annoyance. The subjective effects of annoyance, nuisance, and dissatisfaction are possibly the most difficult to quantify and no completely satisfactory method exists to measure these effects. This difficulty arises primarily from differences in individual sensitivity and habituation to sound, which can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing acuity. An important tool in estimating the likelihood of annoyance due to a new sound is by comparing it to the existing baseline or "ambient" environment to which that person has adapted. In general, the more the level or tonal (frequency) variations of a sound exceed the previously existing ambient sound level or tonal quality, the less acceptable the new sound will be, as judged by the exposed individual.

In most cases, effects from sounds typically found in the natural environment would be limited to annoyance or interference. Physiological effects and hearing loss would be more commonly associated with manmade noise, such as in an industrial or an occupational setting.

Studies have shown that under controlled conditions in an acoustics laboratory, a healthy human ear is able to discern changes in sound levels of 1 dBA. In the normal environment, the healthy

human ear can detect changes of about 2 dBA; however, it is widely accepted that a doubling of sound energy, which results in a change of 3 dBA in the normal environment, is considered just noticeable to most people. A change of 5 dBA is readily perceptible, and a change of 10 dBA is perceived as being twice as loud. Accordingly, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) resulting in a 3 dBA increase in sound would generally be barely detectable.

2.6 Noise-Sensitive Land Uses

Noise-sensitive land uses typically include, but are not necessarily limited to, residential uses, hospitals, nursing facilities, intermediate care facilities, child educational facilities, libraries, museums, and child care facilities (City of San Diego 2015). Based on their transient residential nature, hotels are considered to be noise-sensitive only during the evening and nighttime hours of 7:00 p.m. to 7:00 a.m. Parks, which are closed during nighttime hours, are considered to be noise sensitive only during their typical operational hours of 6:00 a.m. to 10:30 p.m. Schools, museums, and other institutional uses are also considered to be noise sensitive only during their standard hours of operation.

Chapter 3
Fundamentals of Environmental Vibration

This section describes basic concepts related to groundborne vibration. Groundborne vibration is a small, rapidly fluctuating motion transmitted through the ground. The effects of groundborne vibrations are typically limited to causing nuisance or annoyance to people, but at extreme vibration levels damage to buildings may also occur.

In contrast to airborne sound, groundborne vibration is not a phenomenon that most people experience every day. The ambient groundborne vibration level in residential areas is usually much lower than the threshold of human perception (FTA, 2018). Most perceptible indoor vibration is caused by sources within buildings, such as mechanical equipment while in operation, people moving, or doors slamming. Typical outdoor sources of perceptible groundborne vibration are heavy construction activity (such as blasting, pile driving, or earthmoving), steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is rarely perceptible, even in locations close to major roads. The strength of groundborne vibration from typical environmental sources diminishes (or attenuates) fairly rapidly over distance.

For the prediction of groundborne vibration, the fundamental model consists of a vibration source, a receptor, and the propagation path between the two. The power of the vibration source and the characteristics and geology of the intervening ground, which affect the propagation path to the receptor, determine the groundborne vibration level and the characteristics of the vibration perceived by the receptor.

The following sections provide an explanation of key concepts and terms used in the analysis of environmental groundborne vibration.

3.1 Frequency and Amplitude

The frequency of a vibrating object describes how rapidly it is oscillating. The unit of measurement for the frequency of vibration is Hz (the same as used in the measurement of noise), which describes the number of cycles per second.

The amplitude of displacement describes the distance that a particle moves from its resting (or equilibrium) position as it oscillates and can be measured in inches. The amplitude of vibration velocity (the speed of the movement) can be measured in inches per second (in/s). The amplitude of vibration acceleration (the rate of change of the speed) can be measured in inches per second.

3.2 Vibration Descriptors

As noted above, there are various way to quantify groundborne vibration based on its fundamental characteristics. Because vibration can vary markedly over a short period of time, various descriptors have been developed to quantify vibration. The two most common descriptors used in the analysis of groundborne vibration are vibration velocity level and peak particle velocity, each of which are described below:

Peak Particle Velocity (PPV) is defined as the maximum instantaneous positive or negative peak amplitude of the vibration velocity. The unit of measurement for PPV is inches per second (in/s). Unlike many quantities used in the study of environmental acoustics, PPV is typically presented using linear values and does not employ a dB scale. Because it is related to the stresses that are experienced by buildings, PPV is generally accepted as the most appropriate descriptor for evaluating the potential for building damage (both the Federal Transit Administration (FTA) and Caltrans guidelines recommend using PPV for this purpose). It is also used in many instances to evaluate the human response to groundborne vibration (Caltrans guidelines recommend using PPV for this purpose).

Vibration Velocity Level (L_V) describes the root-mean-square[3] vibration velocity. Due to the typically small amplitudes of groundborne vibrations, vibration velocity is often expressed in decibels, calculated as follows.

$$L_V = 20 \times \log_{10}\left(\frac{V}{V_{ref}}\right)$$

where V is the actual root mean square (rms) velocity amplitude and V_{ref} is the reference velocity amplitude. It is important to note that there is no universally accepted value for V_{ref}, but the accepted reference quantity for vibration velocity in the United States is 1 micro-inch per second (1×10^{-6} in/s). The abbreviation VdB is commonly used for vibration decibels to distinguish from noise level decibels. L_V is often used to evaluate human response to vibration levels (FTA guidelines recommend using L_V for this purpose).

3.3 Vibration Propagation

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. High-frequency vibrations reduce much more rapidly than low frequencies so that low frequencies tend to dominate the spectrum at large distances from the source. The propagation of groundborne vibration is more complex than the propagation of airborne noise. This is due to the fact that noise in the air travels through a relatively uniform medium, while groundborne vibrations travel through the earth which may contain significant geological differences. Geological factors that influence the propagation of groundborne vibration include the following:

Soil Conditions. The type of soil is known to have a strong influence on the levels of groundborne vibration. Among the most important factors are the stiffness and internal damping of the soil. Hard, dense, and compacted soil, stiff clay soil, and hard rock transmit vibration more efficiently than loose, soft soils, sand, or gravel.

Depth to bedrock. Shallow depth to bedrock has been linked to efficient propagation of groundborne vibration. One possibility is that shallow bedrock acts to concentrate the vibration energy near the surface, reflecting vibration waves back toward the surface that would otherwise continue to propagate farther down into the earth.

[3] Root-mean-square (rms) is defined as the average of the squared amplitude of the vibration signal.

Soil strata. Discontinuities in the soil strata (i.e., soil layering) can also cause diffractions or channeling effects that affect the propagation of vibration over long distances.

Frost conditions. Vibration waves typically propagate more efficiently in frozen soils than in unfrozen soils. Propagation also varies depending on the depth of the frost.

Water conditions. The amount of water in the soil can effect vibration propagation. The depth of the water table in the path of the propagation also appears to have substantial effects on groundborne vibration levels.

Specific conditions at the source and receiver locations can also effect the vibration levels. For instance, how the source is connected to the ground (e.g., direct contact, through rails, or via a structure) will affect the amount of energy transmitted into the ground. There are also notable differences when the source is underground (such as in a tunnel) versus on the surface. At the receiver, vibration levels can be affected by variables such as the foundation type, the building construction, and the acoustical absorption inside the rooms where people are located. When vibration encounters a building, a ground-to-foundation coupling loss will usually reduce the overall vibration level. However, under certain circumstances, the ground-to-foundation coupling may also amplify the vibration level due to structural resonances of the floors and walls.

3.4 Effects of Groundborne Vibration

Vibration can result in effects that range from annoyance to structural damage. Annoyance or disturbance of people may occur at vibration levels substantially below those that would pose a risk of damage to buildings. Each of these effects is discussed below.

3.4.1 Potential Building Damage

When groundborne vibration encounters a building, vibrational energy is transmitted to the structure causing it to vibrate, and, if the vibration levels are high enough, damage to the building may occur. Depending on the type of building and the vibration levels this damage could range from cosmetic architectural damage (e.g., cracked plaster, stucco, or tile) to more severe structural damage (e.g., cracking of floor slabs, foundations, columns, beams, or wells). Buildings can typically withstand higher levels of vibration from transient sources than from continuous or frequent intermittent sources. Transient sources are those that create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment. Older, fragile buildings (which may include important historical buildings) are of particular concern. Modern commercial and industrial buildings can generally withstand much higher vibration levels before potential damage becomes a problem.

3.4.2 Human Disturbance or Annoyance

Groundborne vibration can be annoying to people and can cause serious concern for nearby neighbors of vibration sources, even when vibration is well below levels that could cause physical damage to structures. Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may be discernible, but there is less

adverse reaction without the effects associated with the shaking of a building. The normal frequency range of most groundborne vibration that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz.

When groundborne vibration waves encounter a building, vibrational energy is transmitted to the building foundation and then propagates throughout the remainder of the structure causing building surfaces (walls, floors, and ceilings) to vibrate. This movement may be felt directly by building occupants and may also generate a low-frequency rumbling noise as sound waves are radiated by the vibrating surfaces. At higher frequencies, building vibration can cause other audible effects such as rattling of windows, building fixtures, or items on shelves or hanging on walls. These audible effects due to groundborne vibration are referred to as groundborne noise. Groundborne vibration levels that result in groundborne noise are often experienced as a combination of perceptible vibration and low-frequency noise. However, sources that have the potential to generate groundborne noise are likely to produce airborne noise impacts that mask the radiated groundborne noise. Any perceptible effect (vibration or groundborne noise) can lead to annoyance. The degree to which a person is annoyed depends on the activity in which they are participating at the time of the disturbance. For example, someone sleeping or reading will be more sensitive than someone who is engaged in any type of physical activity. Reoccurring vibration effects often lead people to believe that the vibration is damaging their home, although vibration levels are well below minimum thresholds for damage potential (Caltrans 2020).

Numerous studies have been conducted to characterize the human response to vibration, and, over the years, numerous vibration criteria and standards have been suggested by researchers, organizations, and governmental agencies. These studies suggest that the thresholds for perception and annoyance vary according to duration, frequency, and amplitude of vibration. For transient vibration sources (single isolated vibration events such as blasting), the human response to vibration varies from barely perceptible at a PPV of 0.04 in/s, to distinctly perceptible at a PPV of 0.25 in/s, and severe at a PPV of 2.0 in/s. For continuous or frequent intermittent vibration sources (such as impact pile driving or vibratory compaction equipment), the human response to vibration varies from barely perceptible at a PPV of 0.01 in/s, to distinctly perceptible at a PPV of 0.04 in/s, and severe at a PPV of 0.4 in/s (Caltrans 2020).

3.5 Vibration-Sensitive Land Uses

As discussed above, the potential effects of groundborne vibration can be divided into two categories: building damage and potential human annoyance. Because building damage would be considered a permanent negative effect at any building, regardless of land use, any type of building would typically be considered sensitive to this type of impact. Fragile structures, which often include historical buildings, are most susceptible to damage and are of particular concern.

Land uses that would be considered sensitive to human annoyance caused by vibration are generally the same as those that would be sensitive to noise and would typically include residential uses, hospitals, nursing facilities, intermediate care facilities, child educational facilities, libraries, museums, and child care facilities. It is noted, however, that vibration effects are typically only considered inside occupied buildings and not at outside areas such as residential yards, parks, or open space. Based on their transient residential nature, hotels are considered to be sensitive to human annoyance effects from vibration only during the evening and nighttime hours of 7:00 p.m. to

7:00 a.m. Schools, museums, and other institutional uses are considered to be sensitive to human annoyance effects from vibration only during their standard hours of operation.

Chapter 4
Existing Conditions

The study area considered in the analysis is quite large, extending from Coronado in the west to Barrio Logan in the east. As such, the existing noise environment and the dominant noise sources vary considerably. Existing noise levels are affected by contributions from a wide range of sources including the following:

- Transportation sources such as traffic, aircraft (civilian and military), watercraft (recreational, commercial, and military), and rail (passenger, freight, and trolley).
- Industrial activities including ship building and repair, cargo-handling and other marine terminal activity, and manufacturing operations.
- Local pedestrian traffic and park users.
- Typical neighborhood noise sources such as barking dogs and landscaping activity.

All of the land uses immediately adjacent to the proposed project site are industrial or commercial and would not be considered noise-sensitive. The closest existing noise-sensitive receivers are over 1,000 feet away. These include hotels and Coronado Tidelands Park to the west on Coronado Island, Cesar Chavez Park to the northwest, Perkins Elementary School to the north, and homes to the north and northwest. Sensitive receivers to the east and south are even farther away due to the separation provided by commercial/industrial zones and San Diego Bay.

4.1 Noise Monitoring

In order to document the existing ambient noise conditions, noise monitoring was conducted at five locations in the project vicinity between January 7 and January 9, 2019. Long-term noise monitoring (24 hours or more) was conducted at three locations, designated LT1, LT2, and LT3; and short-term noise monitoring (20 minutes in duration) was conducted at two locations, designated ST1 and ST2. Long-term measurement sites were selected to represent land uses that are noise sensitive 24 hours per day (homes) or at nighttime (a hotel). Short-term measurement sites were selected to represent land uses with primarily daytime noise sensitivity (a park and a school). All measurement locations are indicated on Figure 4-1. The sound level meters (SLM) used for both the long- and short-term noise monitoring were field-calibrated prior to each measurement to ensure accuracy, using a Larson Davis CAL200 acoustical calibrator; the calibration was also rechecked at the conclusion of each measurement. All measurement microphones were fitted with a wind screen to reduce the effects of wind-related interference. All acoustical instruments are maintained to manufacturer specifications, in accordance with American National Standards Institute (ANSI) standard S1.4-2014. Field noise survey sheets are provided in Appendix A.

Figure 4-1. Ambient Noise Monitoring Locations

4.1.1 Long-Term Noise Measurements

Long-term ambient noise measurements were conducted between January 7 and January 9, 2019, at three locations. Measurements LT1 and LT2 were obtained using Piccolo SLM-P3 Type 2 sound level meters. Measurement LT3 was obtained using a Rion NL-21 Type 2 SLM. Hourly noise data was collected continuously at each measurement site for approximately 41 to 46 hours. Daily noise levels in terms of CNEL were also calculated from the hourly sound level data. Table 4-1 summarizes the results of the long-term noise measurements. The table indicates the range of measured CNEL values and hourly average (L_{eq}) noise levels. The range of hourly L_{eq} values is reported separately for the daytime (7 a.m. to 7 p.m.) and evening/nighttime (7 p.m. to 7 a.m.) periods; the overall L_{eq} value for each time period is also reported. Each of the long-term noise measurement locations is briefly described below:

LT1 was at the northeast corner of Coronado Tidelands Park, approximately 90 feet west of San Diego Bay and 50 feet south of guest accommodations at the Coronado Island Marriott Resort and Spa.

LT2 was in the parking lot at the southwest corner of the Mercado Apartments at 2001 Newton Avenue. These apartments are the closest residential receptors north of the project site.

LT3 was in the yard of a single-family residence at 2644 Boston Avenue. This location was representative of the closest residential neighborhood to the northeast of the project site.

4.1.2 Short-Term Noise Measurements

Short-term noise measurements were taken at two locations on Monday, January 7, and Wednesday, January 9, 2019. Measurements ST1 and ST2 were obtained using a Larson Davis LxT1 Type 1 SLM. Each measurement lasted approximately 20 minutes and was conducted with the meter mounted on a tripod at a height of 5 feet above the ground. Noise metrics were recorded subsequent to the conclusion of each measurement. Data from the measurements are shown in Table 4-1. Each of the short-term noise measurement locations is briefly described below:

ST1 was near the southeast corner of the Cesar Chavez Park Soccer field, approximately 105 feet northwest of the curb of Cesar E. Chavez Parkway.

ST2 was on the sidewalk adjacent to the southeast corner of Perkins Elementary School campus, near the intersection of Beardsley Street and Main Street.

Table 4-1. Summary of Noise Measurement Results

Site#	Location	Date	Range of CNEL (dB)	Time of Day	Range of Hourly L_{eq} Values (average, dBA)
LT1	Coronado Tidelands Park	1/7/19 to 1/9/19	63.0–65.6	Daytime (7 a.m. to 7 p.m.)	54.7–62.3 (59.5)
				Evening/Nighttime (7 p.m. to 7 a.m.)	51.3–61.7 (57.8)
LT2	Mercado Apartments	1/7/19 to 1/9/19	68.5–69.4	Daytime (7 a.m. to 7 p.m.)	59.1–65.7 (62.7)
				Evening/Nighttime (7 p.m. to 7 a.m.)	56.6–66.1 (61.9)
LT3	2644 Boston Ave.	1/7/19 to 1/9/19	61.0–62.0	Daytime (7 a.m. to 7 p.m.)	53.2–60.9 (56.5)
				Evening/Nighttime (7 p.m. to 7 a.m.)	50.4–58.6 (54.5)
ST1	Cesar Chavez Park	1/7/19	N/A	2:47 p.m. to 3:07 p.m.	58.5
ST2	Perkins Elementary School	1/9/19	N/A	9:47 a.m. to 10:07 a.m.	61.2

Source: ICF field noise measurements (see Appendix A)
CNEL = community noise equivalent level; dB = decibels; Leq = equivalent sound levels; dBA = A-weighted decibels.

Chapter 5
Applicable Laws and Regulations

The District does not have its own noise or vibration standards and does not currently maintain formal impact thresholds for assessing potential impacts under the California Environmental Quality Act (CEQA). The following sections discuss various laws, regulations, and guidelines that may apply to the proposed project or that are otherwise useful in developing thresholds of impact for the proposed project.

There are no federal noise regulations that apply directly to the proposed project.

5.1 State Regulations

5.1.1 California Department of Transportation

None of the local laws and regulations discussed below provide any quantitative criteria regarding groundborne noise and vibration. Therefore, while the proposed project would not be subject to Caltrans oversight, guidance published by the agency nonetheless provides groundborne vibration criteria that are useful in establishing thresholds of impact. Caltrans' widely referenced *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020) provides guidance for two types of potential impact: (1) damage to structures, and (2) annoyance to people. Guideline criteria for each are provided in Tables 5-1 and 5-2.

Table 5-1. Caltrans Guideline Vibration Damage Criteria

	Maximum PPV (in/s)	
Structure and Condition	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Caltrans 2020.

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls.
Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

PPV = peak particle velocity; in/s = inches per section.

Table 5-2. Caltrans Guideline Vibration Annoyance Criteria

Human Response	Maximum PPV (in/s)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Source: Caltrans 2020.

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

PPV = peak particle velocity; in/s = inches per section.

5.2 Local

The following discussion of local regulations includes a summary of all standards and guidelines that might typically be used to assess noise and vibration from project construction and operations. As discussed elsewhere in this report, the proposed project is primarily a construction project without substantial changes to facility operations and, as such, noise and vibration from project operations are discussed qualitatively. As a result, a number of the following regulations are not used for any quantitative assessment of impact contained in this report. These regulations, which are provided for reference only, include the *City of San Diego General Plan*, portions of the *City of San Diego Significance Determination Thresholds* (Noise from Adjacent Stationary Uses and Noise/Land Use Compatibility), and the *City of Coronado General Plan*.

5.2.1 Port of San Diego Port Master Plan

The proposed project is within the jurisdiction of the District. Key noise-related policies in the Port Master Plan are described below.

Planning Goals

Section II of the Port Master Plan sets forth goals and related policies for development and operation of land within the District's jurisdiction.

> **Goal VIII.** The Port District will enhance and maintain the bay and tidelands as an attractive physical and biological entity.
>
> - Establish guidelines and standards facilitating the retention and development of an aesthetically pleasing tideland environment free of noxious odors, excessive noise, and hazards to the health and welfare of the people of California.

5.2.2 City of San Diego General Plan

The City of San Diego General Plan, Noise Element, provides information, goals, and policies related to the noise environment within the City. The Noise Element presents Land Use – Noise Compatibility Guidelines for the compatibility of various land uses with different noise exposures, defined using the CNEL. There are three different tiers of compatibility: (1) Compatible, (2) Conditionally Compatibility, and (3) Incompatible. The compatibility is described in Table NE-3, which is reproduced below as Table 5-3. Referring to the table, hotels ("Visitor Accommodations") are compatible with an exterior noise exposure of up to 60 dB CNEL, and conditionally compatible with an exterior noise exposure of up to 75 dB CNEL. The building structure must reduce interior noise levels to 45 dB CNEL or less.

Table 5-3. City of San Diego General Plan Land Use – Noise Compatibility Guidelines

Land Use Category	Exterior Noise Exposure (dBA CNEL) 60	65	70	75
Parks and Recreational				
Parks, Active and Passive Recreation				
Outdoor Spectator Sports, Golf Courses; Water Recreational Facilities; Indoor Recreation Facilities				
Agricultural				
Crop Raising & Farming; Community Gardens, Aquaculture, Dairies; Horticulture Nurseries & Greenhouses; Animal Raising, Maintain & Keeping; Commercial Stables				
Residential				
Single Dwelling Units; Mobile Homes		45		
Multiple Dwelling Units **For uses affected by aircraft noise, refer to Policies NE-D.2. & NE-D.3.*		45	45*	
Institutional				
Hospitals; Nursing Facilities; Intermediate Care Facilities; Kindergarten through Grade 12Educational Facilities; Libraries; Museums; Child Care Facilities		45		
Other Educational Facilities including Vocational/Trade Schools and Colleges and Universities		45	45	
Cemeteries				
Retail Sales				
Building Supplies/Equipment; Food, Beverages & Groceries; Pets & Pet Supplies; Sundries Pharmaceutical, & Convenience Sales; Wearing Apparel & Accessories			50	50
Commercial Services				
Building Services; Business Support; Eating & Drinking; Financial Institutions; Maintenance & Repair; Personal Services; Assembly & Entertainment (includes public and religious assembly); Radio & Television Studios; Golf Course Support			50	50
Visitor Accommodations		45	45	45
Offices				
Business & Professional; Government; Medical, Dental & Health Practitioner; Regional & Corporate Headquarters			50	50
Vehicle and Vehicular Equipment Sales and Services Use				
Commercial or Personal Vehicle Repair & Maintenance; Commercial or Personal Vehicle Sales & Rentals; Vehicle Equipment & Supplies Sales & Rentals; Vehicle Parking				
Wholesale, Distribution, Storage Use Category				
Equipment & Materials Storage Yards; Moving & Storage Facilities; Warehouse; Wholesale Distribution				
Industrial				
Heavy Manufacturing; Light Manufacturing; Marine Industry; Trucking & Transportation Terminals; Mining & Extractive Industries				
Research & Development				50

	Compatible	**Indoor Uses**	Standard construction methods should attenuate exterior noise to an acceptable indoor noise level. Refer to Section I.
		Outdoor Uses	Activities associated with the land use may be carried out.
45, 50	**Conditionally Compatible**	**Indoor Uses**	Building structure must attenuate exterior noise to the indoor noise level indicated by the number (45 or 50) for occupied areas. Refer to Section I.
		Outdoor Uses	Feasible noise mitigation techniques should be analyzed and incorporated make the outdoor activities acceptable. Refer to Section I.
	Incompatible	**Indoor Uses**	New construction should not be undertaken.
		Outdoor Uses	Severe noise interference makes outdoor activities unacceptable.

Source: Table NE-3, City of San Diego General Plan, Noise Element

5.2.3 City of San Diego Municipal Code 59.5.0401 (Noise Ordinance)

The Noise Ordinance makes it unlawful for any person to cause noise by any means to the extent that the 1-hour L_{eq} exceeds the applicable limit given in Table 5-4 at any location in the City of San Diego on or beyond the boundaries of the property on which the noise is produced.

Table 5-4. City of San Diego Noise Limits

Land Use	Time of Day	1-Hour L_{eq} (dBA)
Single Family Residential	7 a.m. to 7 p.m.	50
	7 p.m. to 10 p.m.	45
	10 p.m. to 7 a.m.	40
Multi-Family Residential (up to a maximum density of 1/2,000)	7 a.m. to 7 p.m.	55
	7 p.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
All other Residential	7 a.m. to 7 p.m.	60
	7 p.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
Commercial	7 a.m. to 7 p.m.	65
	7 p.m. to 7 a.m.	60
Industrial or Agricultural	Any time	75

Source: City of San Diego Municipal Code.

Note: The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts.

5.2.4 City of San Diego Municipal Code 59.5.0404 (Construction Noise)

The City's Noise Ordinance also regulates construction noise levels. Specifically, construction that creates disturbing, excessive, or offensive noise is prohibited between 7:00 p.m. of any day and 7:00 a.m. of the following day, and on legal holidays as specified in Section 21.04 of the San Diego Municipal Code, with exception of Columbus Day and Washington's Birthday, and on Sundays unless a permit is granted by the Noise Abatement and Control Administrator.

In granting a permit, the Administrator must consider whether the construction noise in the vicinity of the proposed work site would be less objectionable at night than during the daytime because of different population densities or different neighboring activities; whether obstruction and interference with traffic particularly on streets of major importance, would be less objectionable at night than during the daytime; whether the type of work to be performed emits noises at such a low level as to not cause significant disturbances in the vicinity of the work site; the character and nature of the neighborhood of the proposed work site; whether great economic hardship would occur if the work were spread over a longer time; whether proposed night work is in the general public interest; and he shall prescribe such conditions, working times, types of construction equipment to be used, and permissible noise levels as he deems to be required in the public interest.

Except under special circumstances related to emergency work as detailed in the Noise Ordinance, construction activity that creates an average sound level greater than 75 dB during the 12-hour period from 7:00 a.m. to 7:00 p.m. at or beyond the property lines of any property zoned residential is prohibited by ordinance.

5.2.5 City of San Diego Significance Determination Thresholds

The City of San Diego's CEQA Significance Determination Thresholds outline the criteria and thresholds used by the City to determine whether project impacts are significant (City of San Diego 2016). The District has not adopted these City Significance Thresholds. However, the significance determination thresholds for traffic noise are useful in assessing impacts related to construction traffic for the proposed project. Other City Significance Thresholds are not used in the proposed project assessment but are included below for reference only.

Interior and Exterior Noise Impacts from Traffic-generated Noise

The City's traffic noise significance thresholds are reproduced below as Table 5-5.

Table 5-5. City of San Diego CEQA Significance Determination Thresholds, Traffic Noise

Structure or Proposed Use that Would Be Impacted by Traffic Noise	Interior Space (CNEL)	Exterior Usable Space[1] (CNEL)	General Indication of Potential Significance
Single-Family Detached	45 dB	65 dB	Structure or outdoor usable area[2] is <50 feet from the center of the closest (outside) lane on a street with existing or future ADT >7,500
Multi-Family, Schools, Libraries, Hospitals, Day Care, Hotels, Motels, Parks, Convalescent Homes	Development Services Department ensures 45 dB pursuant to Title 24	65 dB	
Offices, Churches, Business, Professional Uses	N/A	70 dB	Structure or outdoor usable area is <50 feet from the center of the closest lane on a street with existing or future ADT of >20,000
Commercial, Retail, Industrial, Outdoor Spectator Sports Uses	N/A	75 dB	Structure or outdoor usable area is <50 feet from the center of the closest lane on a street with existing or future ADT of >40,000

Source: City of San Diego 2016, Table K-2.

[1] If a project is currently at or exceeds the significance thresholds for traffic noise described above, and noise levels would result in less than a 3 dB increase, then the impact is not considered significant.

[2] Exterior usable areas do not include residential front yards or balconies, unless the areas such as balconies are part of the required usable open space calculation for multi-family units.

CNEL = Community Noise Equivalent Level; dB = decibels; ADT = average daily traffic.

Noise from Adjacent Stationary Uses (Noise Generators)

Regarding adjacent stationary uses, the City's CEQA Significance Determination Thresholds defer primarily to the standards contained in the City's municipal code (Section 59.5.0401, discussed above) to provide quantitative noise limits. In addition, the Significance Determination Thresholds state that a noise level above 65 dB CNEL at a residential property line could be considered a significant environmental impact.

Temporary Construction Noise

Regarding temporary construction noise, the City's CEQA Significance Determination Thresholds defer to the standards contained in the City's municipal code (Section 59.5.0404, discussed above) to provide quantitative noise limits.

Noise/Land Use Compatibility

The City's CEQA Significance Determination Thresholds state that noise is one factor to be considered in determining whether a land use is compatible. Noise/land use compatibility is presented in the CEQA Significance Determination Thresholds as a chart, which is reproduced below as Table 5-6. Compatible land uses are shaded and incompatible land uses are unshaded. The CEQA Significance Determination Thresholds indicate that "the transition zone between compatible and incompatible should be evaluated by the environmental planner to determine whether the use would be acceptable based on all available information and the extent to which the noise from the proposed project would affect the surrounding uses."

Table 5-6. San Diego CEQA Significance Determination Thresholds Noise Land Use Compatibility Chart

	Land Use	Annual CNEL (dB)					
		50	55	60	65	70	75
1	Outdoor amphitheaters						
2	Schools, libraries						
3	Nature preserves, wildlife preserves						
4	Residential single-family, multi-family, mobile homes, transient housing						
5	Retirement homes, intermediate care facilities, convalescent homes						
6	Hospitals						
7	Parks, playgrounds						
8	Office buildings, business and professional						
9	Auditoriums, concert halls, indoor arenas, churches						
10	Riding stables, water recreation facilities						
11	outdoor spectator sports, golf courses						
12	livestock farming, animal breeding						
13	Commercial-retail, shopping centers, restaurants, movie theaters						
14	Commercial-wholesale, industrial manufacturing, utilities						
15	Agriculture (except livestock), extractive industry, farming						
16	Cemeteries						

5.2.6 City of Coronado General Plan

The City of Coronado General Plan, Noise Element, provides information, goals, and policies related to the noise environment within the City. The Noise Element describes the noise sensitivity of various land uses in terms of how acceptable different noise exposures are for various land uses, defined using the CNEL. There are four different tiers of compatibility: (1) Clearly Acceptable,

(2) Normally Acceptable, (3) Normally Unacceptable, and (4) Clearly Unacceptable. The guidelines are illustrated in Figure 2 of the General Plan, which is reproduced, below, as Table 5-7.

Table 5-7. City of Coronado Noise Sensitivity of Land Use

	CNEL Value					
Land Use	**45**	**55**	**65**	**75**	**85**	**95**
Mobile Homes						
Single Family, Townhouses, Apartments						
High Rise Residence						
Hotels, Motels						
Schools, Churches, Libraries						
Auditoriums, Concert Halls						
Parks, Playgrounds						
Golf Courses, Riding Stables						
Offices						
Commercial-Retail, Movie Theaters, Restaurants						
Commercial-Wholesale, Some Retail, Manufacturing						
Livestock Farming						
Other Farming						

	Clearly Acceptable
	Normally Acceptable
	Normally Unacceptable
	Clearly Unacceptable

Source: City of Coronado General Plan, Noise Element, Figure 2.

5.2.7 City of Coronado Municipal Code 41.10.010 (Noise Ordinance)

The Noise Ordinance makes it unlawful for any person to cause noise by any means to the extent that the 1-hour L_{eq} exceeds the applicable limit given in Table 5-8 at any location in the City of Coronado on or beyond the boundaries of the property on which the noise is produced.

Table 5-8. City of Coronado Noise Limits

Land Use Zone	Time of Day	1-Hour L_{eq} (dBA)
All R-1A; R-1B (Single-Family Residential)	7 a.m. to 7 p.m.	50
	7 p.m. to 10 p.m.	45
	10 p.m. to 7 a.m.	40
All R-3; R-4; R-PCD; and R-5 (Multi-Family Residential and Planned Community Development Residential)	7 a.m. to 7 p.m.	55
	7 p.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
Commercial (C); Commercial Recreation (C-R); Hotel/Motel (HM); Civic Use (C-U); Open Space (OS); and Parking Overlay (P-1)	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	50

Source: City of Coronado Municipal Code

Note: The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts.

5.2.8 City of Coronado Municipal Code 41.10.040 and 41.10.050 (Construction Noise)

The Municipal Code regulates both the permissible times of construction activities and the noise levels that these activities can generate. Section 41.10.040 provides a construction noise curfew that prohibits construction between 7:00 p.m. and 7:00 a.m. on any day or on legal holidays and Sundays in such a manner as to create a disturbing, excessive, or offensive noise (unless a noise control permit has been applied for and granted beforehand by the Noise Control Officer). Section 41.10.050 provides construction noise limits, making it unlawful for any person to conduct any construction activity so as to cause, at or within the property lines of any property zoned residential, an average sound level greater than 75 dBA during a 1-hour period any time between 7:00 a.m. and 7:00 p.m. (unless a variance has been applied for and granted by the Noise Control Officer.)

Chapter 6
Analysis Methodology and Thresholds of Impact

6.1 Construction Analysis Methodology

The evaluation of potential noise and vibration impacts associated with project construction activities was based on the proposed construction equipment schedule and phasing information provided by the project proponent.

6.1.1 Construction Noise

Construction-related noise was analyzed using data and modeling methodologies from the Federal Highway Administration's (FHWA's) Roadway Construction Noise Model (RCNM) (FHWA 2008), which predicts average noise levels at nearby receptors by analyzing the type of equipment, the distance from source to receptor, usage factor,[4] and the presence or absence of intervening shielding between source and receptor. This methodology calculates the composite average noise levels for multiple equipment items scheduled during each construction phase. The source-to-receptor distances used in the analyses were the acoustical average distances between the relevant construction area and each receptor. The acoustical average distance is used to represent noise sources that are mobile or distributed over an area (such as the project site); it is calculated by multiplying the shortest distance between the receiver and the noise source area by the farthest distance and then taking the square root of the product. Table 6-1 provides the noise levels of construction equipment expected to be used by the proposed project; the noise levels are provided for a reference distance of 50 feet.

Noise levels for each phase of construction were analyzed at five receptors (R1 through R5) in the project vicinity. These represent the closest noise-sensitive receptors to the project site. Each receptor is in proximity to one of the long-term or short-term measurement locations illustrated in Figure 4-1, and the corresponding noise measurement data is used to establish ambient noise levels for each receptor. The receptors, land uses, and corresponding ambient noise measurement locations are summarized in Table 6-2. The distance from each receptor to the nearest project boundary is also noted. Receptor R1 on Coronado Island is used to represent two different noise-sensitive land uses: Coronado Tidelands Park and the adjacent hotel (Coronado Island Marriott Resort and Spa). The remaining receptor locations are all located in the City of San Diego. R2 represents the closest park (Cesar Chavez Park); R3 represents the closest school (Perkins Elementary); R4 represents the closest multi-family homes (the Mercado Apartments); and R5 represents the closest single-family homes (on Boston Avenue).

For pile driving or extraction activity an attenuation rate of 6 dB per doubling of distance from the source was assumed for all receivers. This is generally expected to be a conservative assumption because it neglects any acoustical shielding or excess attenuation that may occur (such as may be provided by existing buildings, topography, and ground conditions); this assumption was

[4] Usage Factor is the fraction of time the equipment is operating in its noisiest mode while in use.

determined based on the elevated noise source height that is typical of much pile driving activity. An attenuation rate of 6 dB per doubling of distance was also assumed for all other construction activity affecting R1 due to the open water between the project site and Coronado Island. 6 dB per doubling of distance is representative for noise propagation across open water because it is based purely on geometric spreading and does not assume noise reduction due to any other factors including ground absorption, air absorption, or barrier effects. For all other receivers, noise from non-pile driving or extraction activity was assumed to attenuate at a rate of 7.5 dB per doubling of distance. The excess attenuation (1.5 dB per doubling of distance) was selected to represent the combined effects of existing buildings, topography, and ground effects between the project site and each of the receivers.

In order to estimate increases over ambient noise levels due to construction activities, the construction noise levels were compared to the corresponding measured noise levels. For locations where short-term ambient noise levels were measured, the ambient L_{eq} was used as the basis for comparison. For locations where long-term noise measurements were obtained, the average L_{eq} measured across all of the corresponding hours (i.e., daytime or nighttime) was used as the basis for comparison.

Table 6-1. Construction Equipment Noise Levels

Equipment Item	Maximum Noise Level (L_{max}) at 50 feet, dBA[1]	Usage Factor[1,2]	Average Noise Level (L_{eq}) at 50 feet, dBA
Backhoe	77.6	0.4	73.6
Crane	80.6	0.16	72.6
Dredge	81.0	0.3	75.8
Forklift	79.1	0.4	75.1
Generator	80.6	0.5	77.6
Impact Pile Driver	101.3	0.2	94.3
Loader	79.1	0.4	75.1
Material Barge	82.0	0.3	76.8
Other Construction Equipment	79.1	0.4	75.1
Other Material Handling Equipment	85.2	0.5	82.2
Scow/Barge	82.0	0.3	76.8
Survey Vessel	82.0	0.3	76.8
Tug boat	82.0	0.3	76.8
Vibratory Pile Driver/Extractor	100.8	0.2	93.8
Welder	74.0	0.4	70.0

[1] Obtained or estimated from FHWA 2008 (RCNM) and Port of Long Beach 2009

[2] Usage Factor is the fraction of time the equipment is operating in its noisiest mode while in use. L_{eq} is estimated from L_{max} using the following equation: $L_{eq} = L_{max} + 10 \times \log_{10}$ (Usage Factor).

L_{max} = maximum sound level; L_{eq} = equivalent sound level; dBA = A-weighted decibels.

Table 6-2. Summary Description of Analyzed Receiver Locations

Receiver	Represented Land Use(s)	Corresponding Ambient Noise Measurement	Location (city)	Distance to Nearest Project Boundary (feet)
R1	Coronado Tidelands Park Coronado Island Marriott Resort and Spa	LT1	Coronado	5,000
R2	Cesar Chavez Park	ST1	San Diego	1,700
R3	Perkins Elementary School	ST2	San Diego	2,550
R4	Mercado Apartments	LT2	San Diego	1,180
R5	Boston Ave Homes	LT3	San Diego	1,500

6.1.2 Construction Vibration

Construction-related vibration was analyzed using data and modeling methodologies provided by Caltrans' *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020). This guidance manual provides typical vibration source levels for various types of construction equipment, as well as methods for estimating the propagation of groundborne vibration over distance. Table 6-3 provides the PPV associated with the worst-case construction equipment expected to be used by the proposed project; the levels are provided for a reference distance of 25 feet.

Table 6-3. Construction Equipment Vibration Levels

Equipment Item	Reference PPV at 25 feet (in/s)[1]
Impact pile driver	0.65
Vibratory pile driver	0.65
Large bulldozer[2]	0.089

[1] Obtained from Caltrans 2020.

[2] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.

PPV = peak particle vibration; in/s = inches per second.

The following equations from the guidance manual were used to estimate the change in PPV levels over distance. For impact pile driving, the equation is:

$$PPV_{rec} = PPV_{ref} \times (25/D)^{n} \times (E_{equip}/E_{ref})^{0.5}$$

where PPV_{rec} is the PPV at a receiver; PPV_{ref} is the reference PPV at 25 feet from the pile driver; D is the distance from the pile driver to the receiver, in feet; n is a value related to the vibration attenuation rate through ground (the default recommended value for n is 1.1); E_{ref} is 36,000 foot-pounds (rated energy of reference pile driver); and E_{equip} is the rated energy of the actual impact pile driver in foot-pounds. (For the purposes of the analysis, it is assumed that the pile driver would be very similar to the reference pile driver and there would, therefore, be no adjustment for E_{equip}.)

For other equipment including vibratory pile drivers and heavy earthmoving equipment (such as excavators, graders, and backhoes), the equation is:

$$PPV_{rec} = PPV_{ref} \times (25/D)^n$$

where PPV_{rec} is the PPV at a receptor; PPV_{ref} is the reference PPV at 25 feet from the equipment; D is the distance from the equipment to the receiver, in feet; and n is a value related to the vibration attenuation rate through ground (the default recommended value for n is 1.1).

6.2 Operational Analysis Methodology

The general types of onsite operational activities (i.e., vessel service and repair) would remain the same as those that currently occur, and the overall intensity of the operations would not increase. In addition the closest noise-sensitive receptors are 1,200 feet or more away from the project site. As a result, a quantitative analysis of operational noise and vibration levels is not necessary and operational effects are discussed qualitatively.

6.3 Thresholds of Significance

The following significance criteria are based on Appendix G of the State CEQA Guidelines and the various laws, regulations, and guidelines discussed in Chapter 5 of this report, and provide the basis for determining significance of impacts from noise and vibration associated with the implementation of the proposed project. The District has not adopted its own specific thresholds of impact for potential noise and vibration impacts and therefore uses, where appropriate, the applicable standards and guidelines of other agencies such as the City of San Diego, City of Coronado, or Caltrans.

Impacts are considered significant if the proposed project would result in any of the following.

1. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. A significant impact would occur if, at any noise-sensitive receptors:

   (a) Daytime (7 a.m. – 7 p.m.) construction activity fails to comply with the construction noise standards provided by the City of San Diego or City of Coronado municipal code (San Diego Municipal Code section 59.5.0404 or Coronado Municipal Code sections 41.10.040 and 41.10.050); or

   (b) Nighttime (7 p.m. – 7 a.m.) construction activity exceeds existing ambient noise levels and fails to comply with the applicable nighttime noise standards provided by the City of San Diego or City of Coronado municipal code (San Diego Municipal Code section 59.5.0401 or Coronado Municipal Code section 41.10.010), or exceeds existing ambient noise levels by 5 dBA (a readily perceptible change) or more, 12-hour L_{eq}; or

(c) Project traffic generates a noise increase of 3 dB CNEL or more to a level in excess of *Impacts from Traffic Generated Noise* criteria of the City of San Diego's CEQA Significance Determination Thresholds, or any noise increase of 5 dB CNEL or more; or

(d) Noise from new onsite operational activity exceeds the exterior noise standards of the City of San Diego's noise ordinance (Municipal Code section 59.5.0401) or the City of Coronado's noise ordinance (Municipal Code Section 41.10.010).

(e) Noise from onsite operational activity increases ambient noise levels by 5 dBA or more (a readily perceptible change).

2. Generation of excessive groundborne vibration or groundborne noise levels. A significant impact would occur if construction or operation of the project exceeds Caltrans' guideline vibration criteria for damage to structures at any nearby buildings or annoyance to people (distinctly perceptible vibration) at any vibration-sensitive location.

3. 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 two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Chapter 7
Impact Analysis

7.1 Construction

7.1.1 Noise

Two types of short-term noise impacts could occur during project construction. First, construction worker vehicles and haul trucks that would transport equipment and materials would incrementally increase noise levels on access roads. The second type of short-term noise impact would be related to noise generated during onsite project construction. Construction is expected to start in June 2021 and be completed by March 2026.

Construction Traffic

Although there would be a relatively high single-event noise level, which could cause an intermittent noise nuisance (e.g., passing trucks at 50 feet would generate up to 77 dBA), the effect on longer-term ambient noise levels (e.g., the daily CNEL used to assess traffic noise levels) would be small, especially given the industrial nature of the surrounding neighborhood and the relatively high proportion of heavy trucks that are already present on the primary access roadways. An analysis of the average daily traffic volumes on nearby roadways was conducted based on the findings of the proposed project construction traffic memorandum (Chen Ryan 2019). The results of the analysis are summarized in Table 7-1 and indicate that average daily traffic volumes would increase by up to approximately 1.5% as a result of project construction traffic. A 1.5% daily traffic increase would generate a noise increase of less than 0.1 dB CNEL.[5] This noise increase is well below the threshold of 3 dB CNEL and would be imperceptible. As a result, construction traffic noise impacts would be less than significant.

[5] The greatest traffic increase occurs on Harbor Drive between Schley Street and 28th Street. The resulting noise increase is calculated as: $10 \times \log (11{,}802 / 11{,}626) = 0.07$ dB

Table 7-1. Traffic Volume Increases Due to Project Construction

Roadway	Segment	Ex. ADT	Ex. + Const. ADT	% Incr.	NT 2020 ADT	NT 2020 + Const. ADT	% Incr.	NT 2022 ADT	NT 2022 + Const. ADT	% Incr.
Harbor Drive	Sampson Street to Schley Street	12,050	12,226	1.46	17,471	17,647	1.01	18,560	18,670	0.59
	Schley Street to 28th Street	11,626	11,802	1.51	17,047	17,223	1.03	18,109	18,219	0.61
28th Street	National Avenue to Boston Avenue	22,112	22,256	0.65	23,104	23,248	0.62	24,544	24,634	0.37
	Boston Avenue to Main Street	19,563	19,739	0.90	20,650	20,826	0.85	21,937	22,047	0.50
	Main Street to Harbor Drive	16,134	16,310	1.09	17,264	17,440	1.02	18,340	18,450	0.60

Ex. = Existing; ADT = Average Daily Traffic; Const. = Construction; Incr. = Increase; NT = Near Term.

Onsite Construction

Project construction would be broken down into various project elements and phases, some of which would overlap. Construction is proposed to occur primarily between 7 a.m. and 7 p.m. Monday through Saturday as permitted by San Diego's municipal code. Dredging, but no other construction work, would continue to occur during the nighttime hours of 7 p.m. to 7 a.m. This work would consist of dredging associated with Project Elements 1 (Pride of San Diego Drydock Dredging and Moorage Replacement) and 4 (Pier 3 South Nearshore Dredging), and Project Element 6 (Pier 3 Lunchroom Wharf Replacement Realignment), which would occur 24 hour per day, 7 days per week for the duration of dredging activities. The details of the construction noise analyses are included in Appendix B. A summary of the results is provided in Table 7-2 and Table 7-3 for daytime and nighttime construction activities, respectively. The range of predicted construction noise levels over the entire course of project construction is reported in the tables. The results are reported separately for daytime construction with conventional construction equipment (i.e., no pile driving or pile extraction), daytime construction with pile driving or extraction (impact or vibratory) equipment included, and nighttime construction activities. Nighttime construction would not include any pile driving or pile extraction. The results indicate that construction of the proposed project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the proposed project in excess of local noise standards. As a result, the proposed project's construction noise impacts would be less than significant, and no mitigation measures would be required.

Table 7-2. Predicted Daytime Construction Noise Levels

Receiver #	Location	Measured Ambient L_{eq} (dBA)	Range of Construction Noise Levels, L_{eq} (dBA)	Municipal Code Standard Applied, L_{eq} (dBA)	Impact
Daytime Construction without Pile Driving and/or Pile Extraction					
R1	Coronado Tidelands Park	59.5	35.5 to 46.5	75[1]	LTS
	Coronado Island Marriott Resort and Spa	N/A – Not considered noise-sensitive during daytime hours			
R2	Cesar Chavez Park	58.5	33 to 46.5	75[2]	LTS
R3	Perkins Elementary School	61.2	30.2 to 42.7	75[2]	LTS
R4	Mercado Apartments	62.7	35.6 to 49.7	75[2]	LTS
R5	Boston Ave Homes	56.5	36.4 to 46.5	75[2]	LTS
Daytime Construction with Pile Driving and/or Pile Extraction					
R1	Coronado Tidelands Park	59.5	47.9 to 52.4	75[1]	LTS
	Coronado Island Marriott Resort and Spa	N/A – Not considered noise-sensitive during daytime hours			
R2	Cesar Chavez Park	58.5	54.2 to 59.4	75[2]	LTS
R3	Perkins Elementary School	61.2	51.3 to 56.2	75[2]	LTS
R4	Mercado Apartments	62.7	54.5 to 61.0	75[2]	LTS
R5	Boston Ave Homes	56.5	54.3 to 60.1	75[2]	LTS

[1] City of Coronado noise limit for construction during permissible daytime hours of 7:00 a.m. to 7:00 p.m. at any residentially zoned property.

[2] City of San Diego noise limit for construction during permissible daytime hours of 7:00 a.m. to 7:00 p.m. at any residentially zoned property.

LTS = less than significant impact; L_{eq} = equivalent sound level; dBA = A-weighted decibels.

Table 7-3. Predicted Nighttime Construction Noise Levels

Receiver #	Location	Measured Ambient L_{eq} (dBA)	Range of Construction Noise Levels, L_{eq} (dBA)	Municipal Code Standard Applied[1]	Impact Relative to Local Standards	Range of Combined (Ambient + Construction) Noise Levels, L_{eq} (dBA)	Range of Noise Level Increases, L_{eq} (dBA)	Impact Relative to Temporary Noise Increases
Nighttime Construction (Dredging Only)								
R1	Coronado Tidelands Park	57.8	38.6 to 38.6	50[2]	LTS	57.9 to 57.9	0.1	LTS
	Coronado Island Marriott Resort and Spa	57.8	38.6 to 38.6	50[3]	LTS	57.9 to 57.9	0.1	LTS
R2	Cesar Chavez Park	56.5	37.0 to 37.4	50[2]	LTS	56.5 to 56.6	0.0 to 0.1	LTS
R3	Perkins Elementary School	N/A – Not considered noise-sensitive during nighttime hours						
R4	Mercado Apartments	61.9	38.4 to 39.8	60[2]	LTS	61.9	0.0	LTS
R5	Boston Ave Homes	54.5	37.0 to 39.9	57.5[5]	LTS	54.6	0.1	LTS

[1] Total time period considered is 7:00 p.m. to 7:00 a.m. Nighttime (10:00 p.m. to 7:00 a.m.) municipal code standards are used because these are the most restrictive and applicable during the analyzed time period.

[2] City of Coronado noise limit for open space land use. In the absence of an established City of San Diego noise limit for parks, the City of Coronado noise limit for open space is applied to parks in San Diego.

[3] City of Coronado noise limit for hotel/motel land use.

[4] City of San Diego noise limit for boundary between multi-family residential use and industrial use zones (arithmetic average of 45 dBA and 75 dBA).

[5] City of San Diego noise limit for boundary between single-family residential use and industrial use zones (arithmetic average of 40 dBA and 75 dBA).

LTS = less-than-significant impact; L_{eq} = equivalent sound level; dBA = A-weighted decibels.

7.1.2 Vibration

When pile drivers and heavy construction equipment operate on site, they would generate groundborne vibration that could affect nearby receivers. All of the major vibration sources would be categorized as continuous/frequent intermittent sources. Given the industrial nature of the neighboring land uses, all of the closest offsite buildings are assumed to be industrial buildings with a threshold for potential vibration damage of 0.5 in/s PPV (refer to Table 5-1). Table 7-4 summarizes the estimated maximum distances from each piece of equipment at which groundborne vibration impacts would exceed the threshold (see Appendix C for additional details).

Table 7-4. Impact Distances from Construction Equipment for Potential Vibration Building Damage

Construction Equipment Item	Maximum Impact Distance for 0.5 in/s PPV
Impact Pile Driver	32 feet
Vibratory Pile Driver/Extractor	32 feet
Large Bulldozer[1]	6 feet

[1] Considered representative of various heavy earthmoving equipment such as excavators, graders, backhoes, etc.
in/s = inches per section; PPV = peak particle velocity.

There are no offsite buildings within 32 feet of the footprint for proposed pile driving activities or within 6 feet of the remainder of the project boundary where heavy construction equipment may operate. Therefore, potential building damage impacts from groundborne vibration associated with project construction are less than significant and no mitigation measures would be required.

Table 7-5 summarizes the estimated maximum distances from each piece of equipment at which groundborne vibration impacts would exceed the established "distinctly perceptible" threshold of 0.04 in/s PPV (refer to Table 5-2).

Table 7-5. Impact Distances from Construction Equipment for Potential Vibration Annoyance

Construction Equipment Item	Maximum Impact Distance for 0.04 in/s PPV (Barely Perceptible Vibration)
Impact Pile Driver	316 feet
Vibratory Pile Driver/Extractor	316 feet
Large Bulldozer[1]	52 feet

[1] Considered representative of various heavy earthmoving equipment such as excavators, graders, backhoes, etc.
in/s = inches per section; PPV = peak particle velocity.

The closest sensitive receptors to the project site are over 1,000 feet away, and, consequently, potential annoyance impacts from groundborne vibration associated with project construction are less than significant and no mitigation measures would be required.

7.2 Project Operation

7.2.1 Operational Noise

Operation of the BAE Systems facility generates noise that currently contributes to the existing ambient noise environment in the project vicinity. The primary source of noise is the heavy industrial activity related to the ship repair that occurs on site. Traffic noise is also generated in the surrounding community by workers commuting to and from the site and trucks delivering parts and materials to be used at the site.

Once project construction is completed, the improvements would allow BAE Systems to increase operational efficiency and service newer and different classes of vessels that cannot be accommodated under existing conditions. However, the changes would not lead to additional simultaneous vessel work and would not increase the number of people on site. In fact, the worst-case (largest) net onsite vessel crew and labor force size would decrease under the proposed project. Consequently, the general types of operational activities (i.e., vessel service and repair) at the project site would remain the same as those that currently occur, and the overall intensity of the operations would not increase. This, combined with the large distances to the nearest noise-sensitive receptors (1,200 feet or more), means that operational noise levels (including BAE-related traffic noise in the surrounding community) would not change appreciably at the nearest receptors, and the operational noise impacts would be less than significant.

7.2.2 Operational Vibration

Heavy equipment and machinery currently in use at the project site generates groundborne vibration levels that are localized and typically only perceptible at very close range or within the buildings where the equipment is operated. Based on the large distances to the closest offsite sensitive receptors (1,180 feet or more) operational vibration levels are not perceptible at sensitive offsite locations. As described above for operational noise, the type of operations at the site would be the same with implementation of the proposed project. As a result, there would be no new vibration sources that would cause potential impacts at offsite receptors and the operational vibration impacts would be less than significant.

7.2.3 Aircraft Noise

The closest air facilities to the project site are San Diego International Airport (SDIA) and Naval Air Station (NAS) North Island. SDIA is a public airport approximately 3 miles from the project site with an adopted airport land use plan. NAS North Island is a private airport approximately 3.25 miles from the site without an adopted airport land use plan. Based on the noise contour maps for both of these facilities (Ricondo & Associates 2014 and Onyz Group 2011, respectively), the project site is outside of their designated noise contours (the minimum noise contour value is 60 CNEL dB). In addition, the proposed project would not change the operations of SDIA or NAS North Island or otherwise affect the existing aircraft noise environment in the project vicinity. The proposed project also would not create any new noise sensitive receptors that could be affected by aircraft noise. Therefore, the proposed project would not expose people residing or working in the project area to excessive airport noise levels.

Chapter 8
References

California Department of Transportation (Caltrans). 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. Final. CT-HWANP-RT-13-069.25.2. Sacramento, CA. Prepared by: California Department of Transportation, Division of Environmental Analysis, Environmental Engineering, Hazardous Waste, Air, Noise, and Paleontology Office, Sacramento, CA.

———. 2020. *Transportation and Construction Vibration Guidance Manual*. Final. CT-HWANP-RT-20-365.01.01. April. Sacramento, CA.

Chen Ryan Associates. 2019. *BAE Systems Waterfront Improvements – Construction Traffic Impact Analysis*. August 28, 2019.

City of San Diego. 2015. Noise Element of the General Plan.

———. 2016. California Environmental Quality Act Significance Determination Thresholds. Available: https://www.sandiego.gov/sites/default/files/july_2016_ceqa_thresholds_final_0.pdf.

Federal Highway Administration (FHWA). 2008. FHWA Roadway Construction Noise Model (RCNM), Software Version 1.1. December 8, 2008. Prepared by: U.S. Department of Transportation, Research and Innovative Technology Administration, John A. Volpe National Transportation Systems Center, Environmental Measurement and Modeling Division

Onyx Group. 2011. *Air Installation Compatible Use Zones (AICUZ) Study Update for NAS North Island and Naval Outlying Landing Field Imperial Beach*. Figure 4-8.

Port of Long Beach. 2009. *Middle Harbor Redevelopment Project, Final Environmental Impact Statement (FEIS)/Final Environmental Impact Report (FEIR) and Application Summary Report (ASR)*. Appendix C, Noise. SCH No. 2004091010. April.

Ricondo & Associates. 2014. *San Diego International Airport, Airport Land Use Compatibility Plan (ALUCP).* Exhibit 2-1.

U.S. Department of Transportation/Federal Transit Administration. 2018. *Transit Noise and Vibration Impact Assessment Manual*. Final. FTA Report No. 0123. September 2018. Washington, DC. Prepared by Volpe National Transportation Systems Center. Cambridge, MA.

U.S. Environmental Protection Agency. 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.*

U.S. Environmental Protection Agency. 1977. *Speech Levels in Various Noise Environments.* May 1977. Washington DC.

World Health Organization (WHO). 1999. *Guidelines for Community Noise*. April 1999. London, United Kingdom.

Appendix A
Field Noise Survey Sheets

FIELD NOISE MEASUREMENT DATA

PROJECT: BAE PROJ. # 216.18

SITE IDENTIFICATION: LT 1 OBSERVER(S): Jonathan H. Jakob, K.

ADDRESS: Coronado tidelands park

START DATE / TIME: installed 12:35 pm / 01/07/19 END DATE / TIME: 11:40 Am 1/9/19

METEROLOGICAL CONDITIONS:

TEMP: _____ °F HUMIDITY: _____ %R.H. WIND: CALM LIGHT MODERATE VARIABLE

WINDSPEED: _____ MPH DIR: N NE E SE S SW W NW STEADY GUSTY

SKY: SUNNY CLEAR OVRCST PRTLY CLOUDY FOG RAIN OTHER:

ACOUSTIC MEASUREMENTS:

INSTRUMENT: Piccolo #4 TYPE: 1 (2) SERIAL #: 150320014

CALIBRATOR: LD CAL200 SERIAL #: 2916

CALIBRATION CHECK, BEFORE: 94.0 AFTER 94.2 WINDSCREEN ✓

SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER: _____

FILE / MEAS #	START TIME	END TIME	L_{eq}	max	L 1.67	8.33	25	50	90	99	min

COMMENTS: SLM started 10:00 AM, clear at 12:50 pm

Arrived 11:40 AM, left 11:50 AM

NOISE SOURCE INFO:

PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER: _____

ROADWAY TYPE: _____

OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL

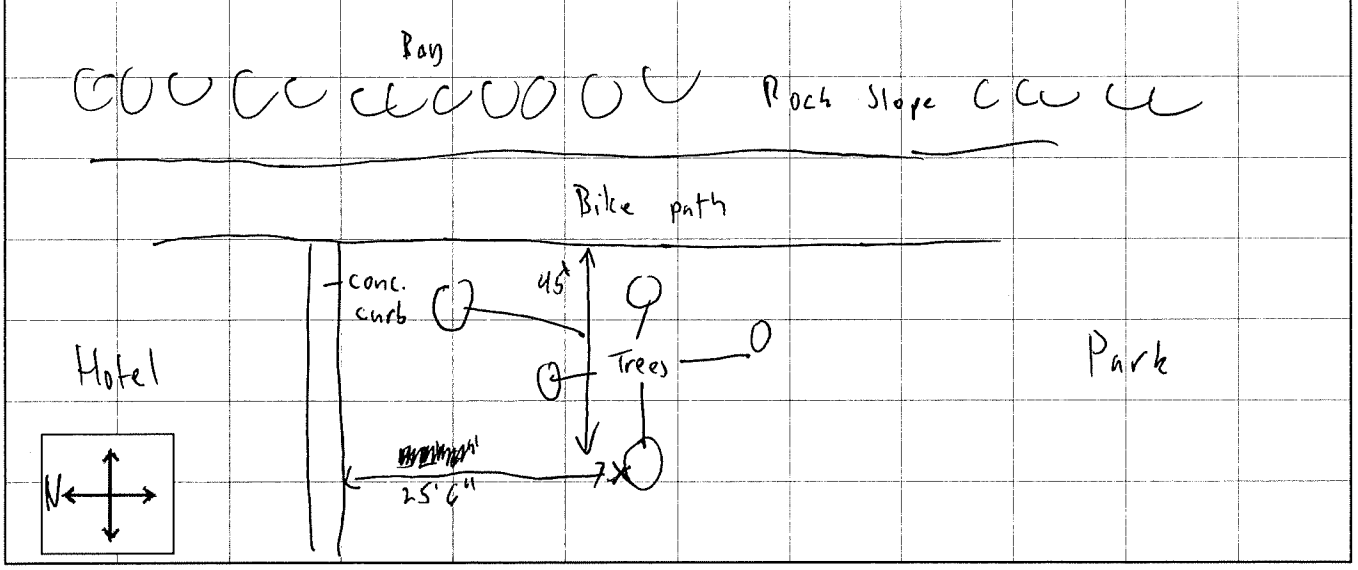
DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:

DESCRIPTION / SKETCH:

TERRAIN: HARD SOFT MIXED FLAT OTHER: _____

PHOTOS: ✓

OTHER COMMENTS / SKETCH:



FIELD NOISE MEASUREMENT DATA

PROJECT: BAE PROJ. # 216.18

SITE IDENTIFICATION: LT2 OBSERVER(S): Jonathan H. Jakob R.

ADDRESS: Mercado Apartments, 2001 Newton Ave

START DATE / TIME: Installed time 1:30 pm 1/7/19 END DATE / TIME: 11:20 1/9/19

METEROLOGICAL CONDITIONS:

TEMP: ____ °F HUMIDITY: ____ %R.H. WIND: CALM LIGHT MODERATE VARIABLE

WINDSPEED: ____ MPH DIR: N NE E SE S SW W NW STEADY GUSTY

SKY: SUNNY CLEAR OVRCST PRTLY CLOUDY FOG RAIN OTHER:

ACOUSTIC MEASUREMENTS:

INSTRUMENT: Piccolo # 5 TYPE: 1 (2) SERIAL #: 150320016

CALIBRATOR: LD CAL200 SERIAL #: 2916

CALIBRATION CHECK, BEFORE: 94.0 AFTER 93.8 WINDSCREEN ✓

SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER: ____

FILE / MEAS #	START TIME	END TIME	L_{eq}	max	1.67	8.33	L25	L50	L90	L99	min

COMMENTS: SLM started 10:00 AM, clear at 1:40 pm

arrives 11:05 AM

NOISE SOURCE INFO:

PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER: ____

ROADWAY TYPE: ____

OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL

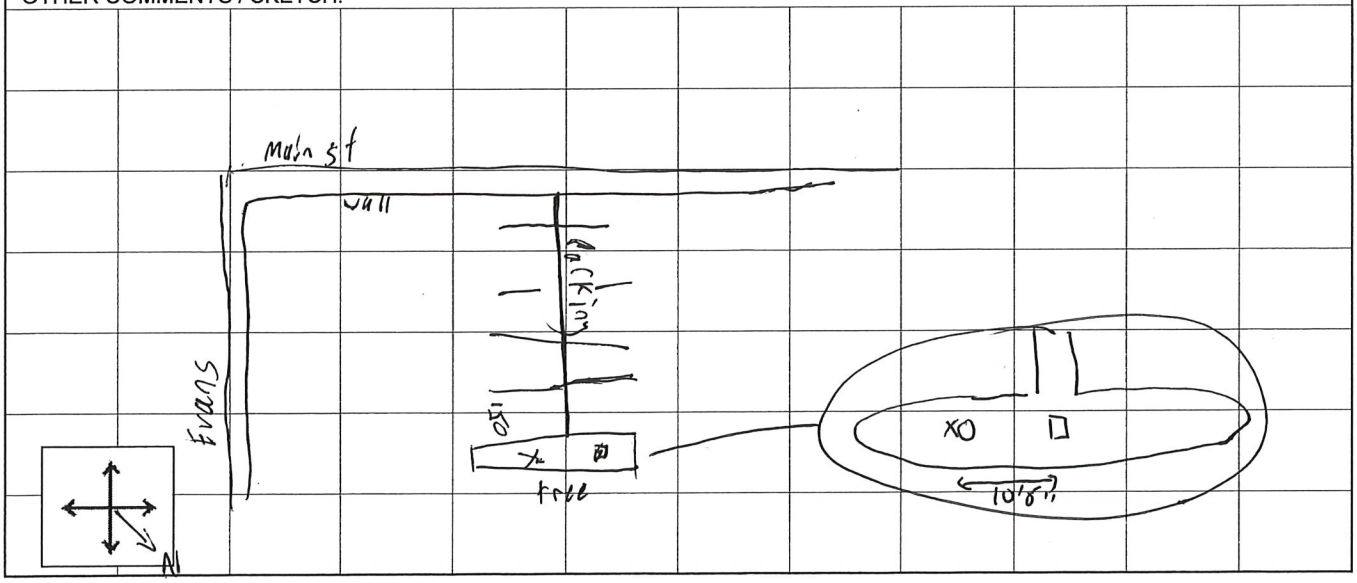
DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:

DESCRIPTION / SKETCH:

TERRAIN: HARD SOFT MIXED FLAT OTHER: ____

PHOTOS: ✓

OTHER COMMENTS / SKETCH:



FIELD NOISE MEASUREMENT DATA

PROJECT: BAE PROJ. # 216.18

SITE IDENTIFICATION: Lt 3 OBSERVER(S): Jonathan H. Jakob R.
ADDRESS: 2644 Boston ave.
START DATE / TIME: Installed 2:10 pm 1/7/19 END DATE / TIME:

METEROLOGICAL CONDITIONS:
TEMP: ____ °F HUMIDITY: ____ %R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: ____ MPH DIR: N NE E SE S SW W NW STEADY GUSTY
SKY: SUNNY CLEAR OVRCST PRTLY CLOUDY FOG RAIN OTHER:

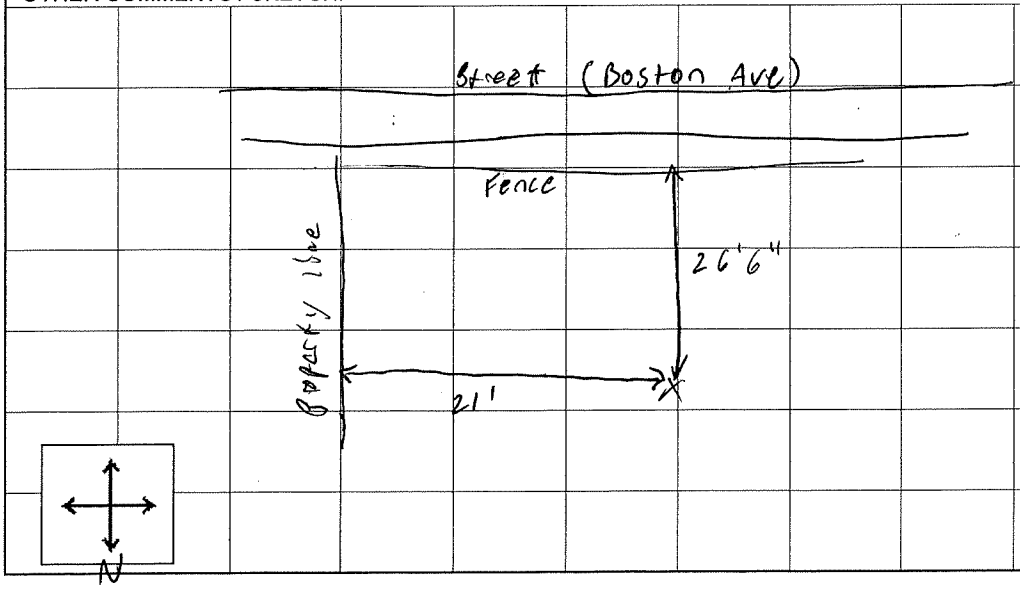
ACOUSTIC MEASUREMENTS:
INSTRUMENT: RION NL21 TYPE: 1 (2) SERIAL #: 6887
CALIBRATOR: LP CAL 200 SERIAL #: 2916
CALIBRATION CHECK, BEFORE: 94.0 AFTER 94.1 WINDSCREEN X
SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:

FILE / MEAS #	START TIME	END TIME	L_{eq}	max	1.67	8.33	L25	L50	L90	L99	min
	2:10 PM										

COMMENTS: SLM started 10:00 AM, clear at 2:20 pm
arrived 8:45 AM

NOISE SOURCE INFO:
PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:
ROADWAY TYPE:
OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL
DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:

DESCRIPTION / SKETCH:
TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS: ✓
OTHER COMMENTS / SKETCH:



FIELD NOISE MEASUREMENT DATA

PROJECT: BAE PROJ. # 216.18

SITE IDENTIFICATION: ST1 OBSERVER(S): Jake B., K. Jonathan H.

ADDRESS: Cesar Chavez Park

START DATE / TIME: 2:47 pm 1/7/19 END DATE / TIME: 3:07 pm 1/7/19

METEROLOGICAL CONDITIONS:

TEMP: 66 °F HUMIDITY: 52 %R.H. WIND: CALM LIGHT MODERATE VARIABLE

WINDSPEED: 1-3 MPH DIR: N NE E SE S SW W NW STEADY GUSTY

SKY: SUNNY CLEAR OVRCST PRTLY CLOUDY FOG RAIN OTHER:

ACOUSTIC MEASUREMENTS:

INSTRUMENT: LD LXT1 TYPE: 1 2 SERIAL #: 4005

CALIBRATOR: LD CAL200 SERIAL #: 2916

CALIBRATION CHECK, BEFORE: 114 AFTER 113.98 WINDSCREEN ✓

SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:

FILE / MEAS #	START TIME	END TIME	L_{eq}	max	L 1.67	L 8.33	L 25	L 50	L 90	L 99	min
0078	2:47	3:07	58.5	71.9	61.5	59.6	58.6	58.0	57.4	56.8	56.6

COMMENTS:

NOISE SOURCE INFO:

PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:

ROADWAY TYPE:

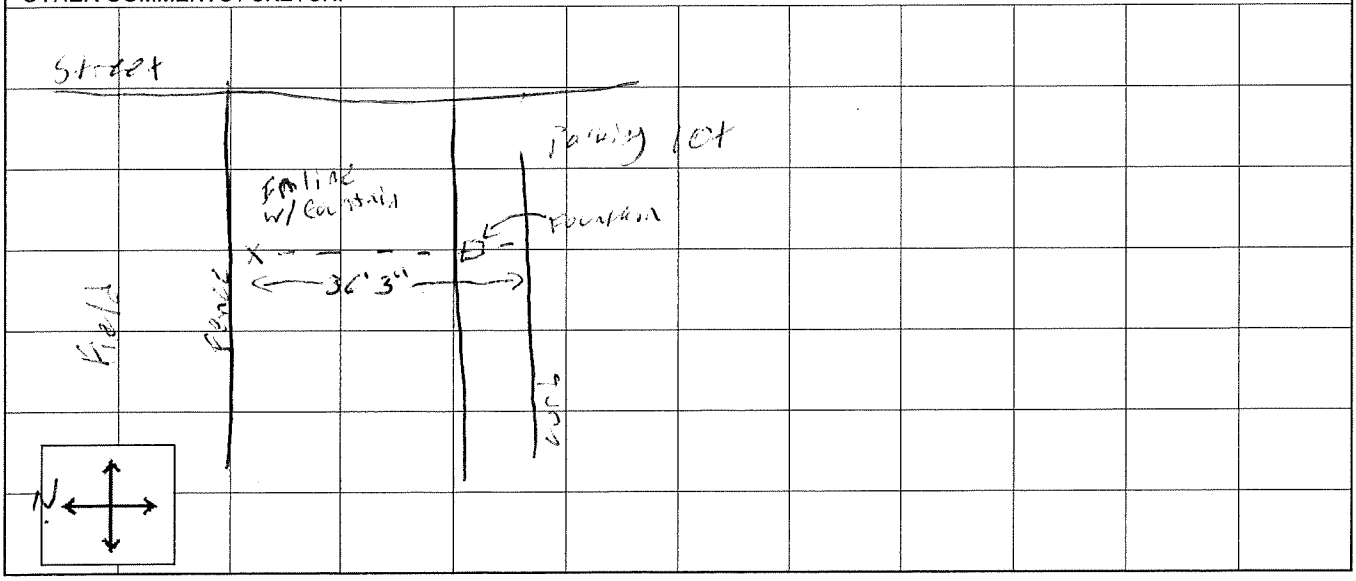
OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL
DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:

DESCRIPTION / SKETCH:

TERRAIN: HARD SOFT MIXED FLAT OTHER:

PHOTOS: ✓

OTHER COMMENTS / SKETCH:



FIELD NOISE MEASUREMENT DATA

PROJECT: BAE PROJ. # 216.18

SITE IDENTIFICATION: ST2 OBSERVER(S): Jakob R.
ADDRESS: Perkins K-8 1770 Main St
START DATE / TIME: 1/9/19 9:47 Am END DATE / TIME: 1/9/19 10:07 AM

METEROLOGICAL CONDITIONS:
TEMP: ~~59~~ °F HUMIDITY: 70 %R.H. WIND: CALM (LIGHT) MODERATE VARIABLE
WINDSPEED: 0-2 MPH DIR: N NE E SE S SW (W) NW STEADY GUSTY
SKY: (SUNNY) CLEAR OVRCST PRTLY CLOUDY FOG RAIN OTHER:

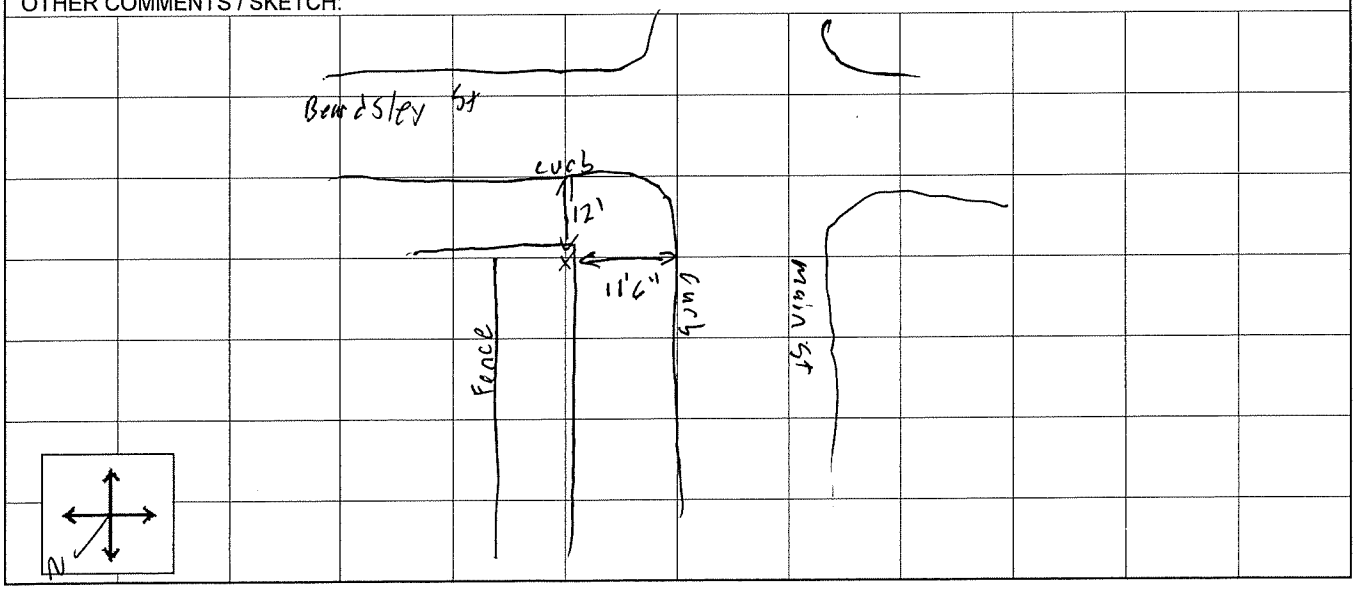
ACOUSTIC MEASUREMENTS:
INSTRUMENT: LD LXT1 TYPE: (1) 2 SERIAL #: 4005
CALIBRATOR: LD CAL 200 SERIAL #: 2916
CALIBRATION CHECK, BEFORE: 114. AFTER 113.97 WINDSCREEN ✓
SETTINGS: (A-WEIGHTED) (SLOW) FAST FRONTAL (RANDOM) (ANSI) OTHER:

FILE / MEAS #	START TIME	END TIME	L_{eq}	L max	1.67	8.33	25	50	90	99	min
.074	9:47Am	10:07Am	61.2	73.3	68.9	64.7	61.7	59.0	55.0	53.1	52.5

COMMENTS:

NOISE SOURCE INFO:
PRIMARY NOISE SOURCE: (TRAFFIC) AIRCRAFT (RAIL) INDUSTRIAL AMBIENT OTHER:
ROADWAY TYPE:
OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL
DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:
Pedestrian Conversation

DESCRIPTION / SKETCH:
TERRAIN: (HARD) SOFT MIXED FLAT OTHER:
PHOTOS: ✓
OTHER COMMENTS / SKETCH:



Appendix B
Construction Noise Analysis

Table 1a. Construction Noise Source Levels - Pride of San Diego Drydock Dredging

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
71	Dredge	81	0.3	1	12	50	hard	0	76
73	Tug boat	82	0.3	1	2	50	hard	0	69
74	Survey Vessel	82	0.3	1	2	50	hard	0	69
2	Backhoe	77.6	0.4	1	10	50	hard	0	73
29	Loader (Front End Loader)	79.1	0.4	1	10	50	hard	0	74
	Combined Equipment								***80***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 1b. Construction Noise Source Levels - Pride of San Diego Drydock Dolphin Demolition

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	8	50	hard	0	71
70	Forklift (based on front loader)	79.1	0.4	1	6	50	hard	0	72
39	Pneumatic Tools	85.2	0.5	2	6	50	hard	0	82
73	Tug boat	82	0.3	1	4	50	hard	0	72
75	Other Matl Hdlg Equip (based	79.1	0.4	2	6	50	hard	0	75
69	Welder/Torch	74	0.4	2	4	50	hard	0	68
20	Generator	80.6	0.5	1	4	50	hard	0	73
	Combined Equipment								***84***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 1c. Construction Noise Source Levels - Pride of San Diego Drydock Dolphin Construction

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	8	50	hard	0	71
70	Forklift (based on front loader)	79.1	0.4	1	6	50	hard	0	72
73	Tug boat	82	0.3	1	1	50	hard	0	66
39	Pneumatic Tools	85.2	0.5	2	6	50	hard	0	82
75	Other Matl Hdlg Equip (based	79.1	0.4	2	6	50	hard	0	75
69	Welder/Torch	74	0.4	2	4	50	hard	0	68
20	Generator	80.6	0.5	1	4	50	hard	0	73
	Combined Equipment								***84***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 2a. Construction Noise Source Levels - Pride of San Diego Drydock Wharf Demolition

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	8	50	hard	0	71
70	Forklift (based on front loader)	79.1	0.4	1	6	50	hard	0	72
39	Pneumatic Tools	85.2	0.5	2	6	50	hard	0	82
73	Tug boat	82	0.3	1	1	50	hard	0	66
75	Other Matl Hdlg Equip (based	79.1	0.4	2	6	50	hard	0	75
69	Welder/Torch	74	0.4	2	4	50	hard	0	68
20	Generator	80.6	0.5	1	4	50	hard	0	73
	Combined Equipment								***84***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 2b. Construction Noise Source Levels - Pride of San Diego Drydock Wharf Construction

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	8	50	hard	0	71
70	Forklift (based on front loader)	79.1	0.4	2	6	50	hard	0	75
39	Pneumatic Tools	85.2	0.5	2	6	50	hard	0	82
73	Tug boat	82	0.3	1	1	50	hard	0	66
75	Other Matl Hdlg Equip (based	79.1	0.4	2	6	50	hard	0	75
69	Welder/Torch	74	0.4	2	4	50	hard	0	68
20	Generator	80.6	0.5	1	4	50	hard	0	73
	Combined Equipment								***84***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 3a. Construction Noise Source Levels - Fender Repair and Replacement

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	8	50	hard	0	71
70	Forklift (based on front loader)	79.1	0.4	1	6	50	hard	0	72
73	Tug boat	82	0.3	1	4	50	hard	0	72
39	Pneumatic Tools	85.2	0.5	1	6	50	hard	0	79
75	Other Matl Hdlg Equip (based	79.1	0.4	1	6	50	hard	0	72
	Combined Equipment								***82***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 3b. Construction Noise Source Levels - Fender System New Construction

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	8	50	hard	0	71
73	Tug boat	82	0.3	1	4	50	hard	0	72
70	Forklift (based on front loader)	79.1	0.4	2	6	50	hard	0	75
39	Pneumatic Tools	85.2	0.5	2	6	50	hard	0	82
75	Other Matl Hdlg Equip (based	79.1	0.4	2	6	50	hard	0	75
	Combined Equipment								***84***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 3c. Construction Noise Source Levels - Fender System Maintenance & Replacement

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	8	50	hard	0	71
73	Tug boat	82	0.3	1	4	50	hard	0	72
70	Forklift (based on front loader)	79.1	0.4	2	6	50	hard	0	75
39	Pneumatic Tools	85.2	0.5	2	6	50	hard	0	82
75	Other Matl Hdlg Equip (based	79.1	0.4	2	6	50	hard	0	75
	Combined Equipment								***84***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 4. Construction Noise Source Levels - Pier 3 South Nearshore Dredging

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
71	Dredge	81	0.3	1	12	50	hard	0	76
73	Tug boat	82	0.3	1	4	50	hard	0	72
74	Survey Vessel	82	0.3	1	2	50	hard	0	69
2	Backhoe	77.6	0.4	1	12	50	hard	0	74
29	Loader (Front End Loader)	79.1	0.4	1	12	50	hard	0	75
	Combined Equipment								***81***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 5. Construction Noise Source Levels - Pier 3 Mooring Dolphin

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	8	50	hard	0	71
73	Tug boat	82	0.3	1	1	50	hard	0	66
39	Pneumatic Tools	85.2	0.5	1	6	50	hard	0	79
75	Other Matl Hdlg Equip (based	79.1	0.4	1	6	50	hard	0	72
	Combined Equipment								***81***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 6a. Construction Noise Source Levels - Pier 3 North Lunchroom Wharf Replacement Demolition

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	8	50	hard	0	71
70	Forklift (based on front loader)	79.1	0.4	1	6	50	hard	0	72
39	Pneumatic Tools	85.2	0.5	2	6	50	hard	0	82
73	Tug boat	82	0.3	1	1	50	hard	0	66
75	Other Matl Hdlg Equip (based	79.1	0.4	2	6	50	hard	0	75
69	Welder/Torch	74	0.4	2	4	50	hard	0	68
20	Generator	80.6	0.5	1	4	50	hard	0	73
2	Backhoe	77.6	0.4	1	10	50	hard	0	73
29	Loader (Front End Loader)	79.1	0.4	1	10	50	hard	0	74
	Combined Equipment								***85***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 6b. Construction Noise Source Levels - Pier 3 North Lunchroom Wharf Replacement Construction

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	8	50	hard	0	71
70	Forklift (based on front loader)	79.1	0.4	1	6	50	hard	0	72
39	Pneumatic Tools	85.2	0.5	2	6	50	hard	0	82
73	Tug boat	82	0.3	1	1	50	hard	0	66
75	Other Matl Hdlg Equip (based	79.1	0.4	2	6	50	hard	0	75
69	Welder/Torch	74	0.4	2	4	50	hard	0	68
20	Generator	80.6	0.5	1	4	50	hard	0	73
	Combined Equipment								***84***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 7a. Construction Noise Source Levels - Quay Wall Modifications (Dredging/Rock Removal)

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	8	50	hard	0	71
73	Tug boat	82	0.3	1	2	50	hard	0	69
74	Survey Vessel	82	0.3	1	1	50	hard	0	66
2	Backhoe	77.6	0.4	1	8	50	hard	0	72
29	Loader (Front End Loader)	79.1	0.4	1	8	50	hard	0	73
	Combined Equipment								***78***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 7b. Construction Noise Source Levels - Quay Wall Modifications (Pile Driving)

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	8	50	hard	0	71
70	Forklift (based on front loader)	79.1	0.4	1	6	50	hard	0	72
39	Pneumatic Tools	85.2	0.5	2	6	50	hard	0	82
73	Tug boat	82	0.3	1	1	50	hard	0	66
75	Other Matl Hdlg Equip (based	79.1	0.4	2	6	50	hard	0	75
69	Welder/Torch	74	0.4	2	4	50	hard	0	68
20	Generator	80.6	0.5	1	4	50	hard	0	73
	Combined Equipment								***84***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 8a. Construction Noise Source Levels - Port Security Barrier Demolition

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	8	50	hard	0	71
73	Tug boat	82	0.3	1	4	50	hard	0	72
39	Pneumatic Tools	85.2	0.5	1	6	50	hard	0	79
75	Other Matl Hdlg Equip (based	79.1	0.4	1	6	50	hard	0	72
	Combined Equipment								***81***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 8b. Construction Noise Source Levels - Port Security Barrier Construction

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	8	50	hard	0	71
73	Tug boat	82	0.3	1	2	50	hard	0	69
39	Pneumatic Tools	85.2	0.5	1	6	50	hard	0	79
75	Other Matl Hdlg Equip (based	79.1	0.4	1	6	50	hard	0	72
	Combined Equipment								***81***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 9a. Construction Noise Source Levels - Small Boat Mooring Float Replacement Demolition

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	4	50	hard	0	68
70	Forklift (based on front loader)	79.1	0.4	1	4	50	hard	0	70
39	Pneumatic Tools	85.2	0.5	1	4	50	hard	0	77
75	Other Matl Hdlg Equip (based	79.1	0.4	1	4	50	hard	0	70
	Combined Equipment								***79***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 9b. Construction Noise Source Levels - Small Boat Mooring Float Replacement Construction

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	4	50	hard	0	68
70	Forklift (based on front loader)	79.1	0.4	1	4	50	hard	0	70
39	Pneumatic Tools	85.2	0.5	1	4	50	hard	0	77
75	Other Matl Hdlg Equip (based	79.1	0.4	1	4	50	hard	0	70
	Combined Equipment								***79***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 10a. Construction Noise Source Levels - Central Tool Room Demolition and Reconstruction Demolition

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	4	50	hard	0	68
70	Forklift (based on front loader)	79.1	0.4	2	6	50	hard	0	75
39	Pneumatic Tools	85.2	0.5	2	6	50	hard	0	82
75	Other Matl Hdlg Equip (based	79.1	0.4	2	6	50	hard	0	75
29	Loader (Front End Loader)	79.1	0.4	1	4	50	hard	0	70
69	Welder/Torch	74	0.4	2	4	50	hard	0	68
	Combined Equipment								***84***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 10b. Construction Noise Source Levels - Central Tool Room Demolition and Reconstruction Construction

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	6	50	hard	0	70
70	Forklift (based on front loader)	79.1	0.4	2	6	50	hard	0	75
39	Pneumatic Tools	85.2	0.5	2	6	50	hard	0	82
75	Other Matl Hdlg Equip (based	79.1	0.4	2	6	50	hard	0	75
29	Loader (Front End Loader)	79.1	0.4	1	4	50	hard	0	70
69	Welder/Torch	74	0.4	2	4	50	hard	0	68
	Combined Equipment								***84***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 11a. Construction Noise Source Levels - New Production Building Demolition

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	4	50	hard	0	68
70	Forklift (based on front loader)	79.1	0.4	2	6	50	hard	0	75
39	Pneumatic Tools	85.2	0.5	2	6	50	hard	0	82
75	Other Matl Hdlg Equip (based	79.1	0.4	2	6	50	hard	0	75
29	Loader (Front End Loader)	79.1	0.4	1	4	50	hard	0	70
69	Welder/Torch	74	0.4	2	4	50	hard	0	68
	Combined Equipment								***84***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 11b. Construction Noise Source Levels - New Production Building Construction

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	6	50	hard	0	70
70	Forklift (based on front loader)	79.1	0.4	2	6	50	hard	0	75
39	Pneumatic Tools	85.2	0.5	2	6	50	hard	0	82
75	Other Matl Hdlg Equip (based	79.1	0.4	2	6	50	hard	0	75
29	Loader (Front End Loader)	79.1	0.4	1	4	50	hard	0	70
69	Welder/Torch	74	0.4	2	4	50	hard	0	68
	Combined Equipment								***84***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 12a. Construction Noise Source Levels - Administrative Office Building Demolition

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	4	50	hard	0	68
70	Forklift (based on front loader)	79.1	0.4	2	6	50	hard	0	75
39	Pneumatic Tools	85.2	0.5	2	6	50	hard	0	82
75	Other Matl Hdlg Equip (based	79.1	0.4	2	6	50	hard	0	75
29	Loader (Front End Loader)	79.1	0.4	1	4	50	hard	0	70
69	Welder/Torch	74	0.4	2	4	50	hard	0	68
	Combined Equipment								***84***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 12b. Construction Noise Source Levels - Administrative Office Building Construction

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	6	50	hard	0	70
70	Forklift (based on front loader)	79.1	0.4	2	6	50	hard	0	75
39	Pneumatic Tools	85.2	0.5	2	6	50	hard	0	82
75	Other Matl Hdlg Equip (based	79.1	0.4	2	6	50	hard	0	75
29	Loader (Front End Loader)	79.1	0.4	1	4	50	hard	0	70
69	Welder/Torch	74	0.4	2	4	50	hard	0	68
	Combined Equipment								***84***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 13. Construction Noise Source Levels - Pier 1 Restroom Renovation and/or Demolition

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
12	Crane	80.6	0.16	1	4	50	hard	0	68
70	Forklift (based on front loader)	79.1	0.4	1	6	50	hard	0	72
39	Pneumatic Tools	85.2	0.5	1	6	50	hard	0	79
75	Other Matl Hdlg Equip (based	79.1	0.4	1	6	50	hard	0	72
	Combined Equipment								***81***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 14a. Construction Noise Source Levels - Main Electrical Utility Service Update Demolition

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
70	Forklift (based on front loader)	79.1	0.4	1	6	50	hard	0	72
39	Pneumatic Tools	85.2	0.5	1	6	50	hard	0	79
75	Other Matl Hdlg Equip (based	79.1	0.4	1	6	50	hard	0	72
29	Loader (Front End Loader)	79.1	0.4	1	4	50	hard	0	70
	Combined Equipment								***81***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 14b. Construction Noise Source Levels - Main Electrical Utility Service Update Construction

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
70	Forklift (based on front loader)	79.1	0.4	1	6	50	hard	0	72
39	Pneumatic Tools	85.2	0.5	1	6	50	hard	0	79
75	Other Matl Hdlg Equip (based	79.1	0.4	1	6	50	hard	0	72
29	Loader (Front End Loader)	79.1	0.4	1	4	50	hard	0	70
	Combined Equipment								***81***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 15a. Construction Noise Source Levels - Sanitary Sewer and Potable Water Utility Services Demolition

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
70	Forklift (based on front loader)	79.1	0.4	1	6	50	hard	0	72
39	Pneumatic Tools	85.2	0.5	1	6	50	hard	0	79
75	Other Matl Hdlg Equip (based	79.1	0.4	1	6	50	hard	0	72
29	Loader (Front End Loader)	79.1	0.4	1	4	50	hard	0	70
	Combined Equipment								***81***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 15b. Construction Noise Source Levels - Sanitary Sewer and Potable Water Utility Services Construction

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
70	Forklift (based on front loader)	79.1	0.4	1	6	50	hard	0	72
39	Pneumatic Tools	85.2	0.5	1	6	50	hard	0	79
75	Other Matl Hdlg Equip (based	79.1	0.4	1	6	50	hard	0	72
29	Loader (Front End Loader)	79.1	0.4	1	4	50	hard	0	70
	Combined Equipment								***81***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 16. Construction Noise Source Levels - Impact Pile Driving

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
35	Pile-driver (Impact)	101.3	0.2	1	12	50	hard	0	94
	Combined Equipment								***94***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 17. Construction Noise Source Levels - Vibratory Pile Driving or Vibratory Extraction

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq, dBA
Item No.	Description								
36	Pile-driver (Sonic) (Vibratory Pl	100.8	0.2	1	12	50	hard	0	94
	Combined Equipment								***94***

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
   "Transit Noise and Vibration Impact Assessment", FTA, (FTA-VA-90-1003-06), May 2006; and/or
   Middle Harbor Redevelopment Project FEIS/FEIR, 2009
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Table 18. Combined Construction Noise Levels Over Time

Predicted Noise Levels, Leq, dBA	Lower Range	Upper Range	Dates when construction noise levels change based on the analyzed construction schedule*																																			
			2020/3/24	2020/4/18	2020/4/21	2020/4/26	2020/4/28	2020/4/29	2020/4/30	2020/5/23	2020/6/1	2020/6/22	2020/6/28	2020/7/2	2020/7/6	2020/7/18	2020/7/23	2020/8/4	2020/8/11	2020/8/14	2020/8/20	2020/8/22	2020/9/30	2020/10/1	2020/10/5	2020/10/19	2020/10/20	2020/11/6	2020/12/23	2021/2/1	2021/2/15
Receiver 1: Coronado Tidelands Park																																						
Without Pile Driving or Pile Extraction	35.5	46.5	40.4		37.6	37.6	40.7	37.6	37.6		42.5	45.7	45.7	42.9	44.3	44.3	38.6	44.2	46.5	45.8	45.8	45.8	42.7		41.7	42.6	35.5	42.9		40.5	43.4
During Pile Driving or Extraction	47.9	52.4	51.2			47.9	51.2	48.4					49.7			49.3		49.5	52.4	52.2	50.1				49.2	49.4		49.8										
Nighttime (Dredging)	35.5	38.6													38.6	38.6	38.6	38.6	38.6							35.5	35.5											
Receiver 2: Cesar Chavez Park																																						
Without Pile Driving or Pile Extraction	33.0	46.5	40.4		38.0	38.0	41.0	38.0	38.0		42.7	45.2	45.2	41.7	43.1	43.1	37.4	44.0	46.0	45.3	45.3	45.3	41.5		39.2	40.2	33.0	42.9		40.7	43.6
During Pile Driving or Extraction	54.2	59.4	59.2			56.1	59.4	56.6					56.2			55.3		56.6	59.2	59.2	55.9				55.0	55.1		57.2										
Nighttime (Dredging)	37.0	37.4													37.4	37.4	37.4	37.4	37.4																			
Receiver 3: Perkins Elementary School																																						
Without Pile Driving or Pile Extraction	30.2	42.7	36.5		34.0	34.0	37.0	34.0	34.0		38.7	41.3	41.3	37.8	39.2	39.2	33.5	40.0	42.0	41.3	41.3	41.3	37.6		36.4	37.3	30.2	39.0		35.8	38.7
During Pile Driving or Extraction	51.3	56.2	56.0			52.9	56.2	53.4					53.0			52.1		53.4	56.0	56.0	52.7				52.8	52.8		54.1										
Nighttime (Dredging)	30.2	33.5													33.5	33.5	33.5	33.5	33.5							30.2	30.2											
Receiver 4: Mercado Apartments																																						
Without Pile Driving or Pile Extraction	35.6	49.7	42.7		39.9	39.9	42.9	39.9	39.9		44.5	46.7	46.7	42.7	44.1	44.1	38.4	45.7	47.4	46.8	46.8	46.8	42.5		41.8	42.7	35.6	45.3		40.0	42.9
During Pile Driving or Extraction	54.5	61.0	61.0			57.7	61.0	58.2					57.7			56.1		58.1	60.4	60.4	56.8				57.1	57.1		59.1										
Nighttime (Dredging)	35.6	38.4													38.4	38.4	38.4	38.4	38.4							35.6	35.6											
Receiver 5: Boston Ave. Homes																																						
Without Pile Driving or Pile Extraction	36.4	46.5	41.5		37.2	37.2	40.2	37.2	37.2		42.1	44.7	44.7	41.3	42.7	42.7	37.0	43.4	45.4	44.8	44.8	44.8	41.1			37.1	37.1	44.1		38.5	41.4
During Pile Driving or Extraction	54.3	60.1	60.1			55.5	58.8	56.0					55.8			54.9		56.1	58.8	58.7	55.5							58.2										
Nighttime (Dredging)	36.4	37.0													37.0	37.0	37.0	37.0	37.0																			

Notes:

All noise levels are 12-hour Leq, dBA

All noise levels are for daytime (7 a.m. to 7 p.m.) activities unless noted as nighttime (7 p.m. to 7 a.m.)

Cells without values indicate dates without the indicated construction activity category

Highlighted cells indicate dates when construction noise levels change for the indicated construction activity category

*Analyzed dates based on an assumed start date in March 2020. Actual start and end dates may occur later but the estimated noise levels would remain representative of anticipated impacts. Analysis includes potential overlap of concurrent construction of two or more Project Elements/phases.

		38.3			39.8			35.5			40.4			40.2	2021/2/16
															2021/4/3
				57.0	45.3		51.9	39.0		55.1	42.9		48.2	42.9	2021/4/5
															2021/5/22
		43.9			45.0			38.8			42.2			42.9	2021/6/14
	56.5	43.9		57.4	45.0		52.4	38.8		55.2	42.2		48.5	42.9	2021/6/24
	59.8	46.5		60.6	47.6		55.7	41.5		58.4	44.9		51.6	45.5	2021/6/28
	57.0	43.1		57.8	44.2		52.9	38.1		55.6	41.5		48.7	42.2	2021/6/29
		43.1			44.2			38.1			41.5			42.2	2021/7/14
															2021/10/1
		41.9			43.9			36.0			38.9			39.2	2021/11/8
		41.9			46.9			39.0			41.9			42.2	2021/12/13
					43.9			36.0			38.9			39.2	2021/12/14
															2022/2/24
					42.2			35.4			38.7			39.2	2022/3/1
		40.2			45.2			38.4			41.7			42.2	2022/3/22
		40.2			42.2			35.4			38.7			39.2	2022/3/23
		39.9			39.8			33.9	37.0		37.0			38.6	2022/6/1
36.4	54.3	36.4		54.5	36.8		51.3	32.7		54.2	36.3		48.6	39.2	2022/8/10
36.4		36.4			36.8			32.7			36.3			39.2	2022/8/14
															2022/9/23
		43.5			45.8			39.4			42.9			42.2	2022/10/14
		46.5			48.8			42.4			45.9			45.2	2022/10/21
		43.5			45.8			39.4			42.9			42.2	2022/10/22
															2023/7/22
		42.8			46.6			39.7			43.5			42.4	2023/8/1
		45.9			49.7			42.7			46.5			45.4	2023/9/12
		42.9			46.7			39.7			43.5			42.4	2023/9/13
		44.5			48.5			41.5			45.3			44.1	2024/3/1
		42.9			46.7			39.7			43.5			42.4	2024/4/2
															2024/5/15
		43.4			44.6			38.2			41.5			42.0	2024/6/1
		46.5			47.6			41.2			44.6			45.1	2024/6/22
		43.5			44.6			38.3			41.6			42.1	2024/6/23
		43.5			44.6			38.3			41.6			42.1	2024/12/31

Appendix C

Construction Vibration Analysis

Table C1. Construction Vibration Analysis - Potential Building Damage

Vibration attenuation constant (n):			1.1					
		Building Category:	**Extremely fragile historic buildings, ruins, ancient monuments**	**Fragile buildings**	**Historic and some old buildings**	**Older residential structures**	**New residential structures**	**Modern industrial/ commercial buildings**
Equipment Item	**Reference PPV at 25 feet, in/s [a]**	**Vibration Damage Impact Criteria, PPV, in/s:**	**0.08**	**0.1**	**0.25**	**0.3**	**0.5**	**0.5**
Impact Pile Driver	0.65	Distance to Impact Criteria, feet:	168	138	60	51	32	32
Vibratory Pile Driver/Extractor	0.65		168	138	60	51	32	32
Large bulldozer[b]	0.089		28	23	10	9	6	6

[a] Obtained from "Transportation and Construction Vibration Guidance Manual", Caltrans 2013

[b] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.

Table C2. Construction Vibration Analysis - Potential Human Annoyance

Vibration attenuation constant (n):		1.1				
		Perceptibility:	**Barely perceptible**	**Distinctly perceptible**	**Strongly perceptible**	**Severe**
Equipment Item	**Reference PPV at 25 feet, in/s [a]**	**Vibration Damage Impact Criteria, PPV, in/s:**	**0.01**	**0.04**	**0.1**	**0.4**
Impact Pile Driver	0.65	Distance to Impact Criteria, feet:	1112	316	138	39
Vibratory Pile Driver/Extractor	0.65		1112	316	138	39
Large bulldozer[b]	0.089		183	52	23	7

[a] Obtained from "Transportation and Construction Vibration Guidance Manual", Caltrans 2013

[b] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.

Appendix D

Complete Project Description

Appendix D
Complete Project Description

Project Need and Purpose

The purpose of the proposed project is to maintain and improve facilities for the berthing needs of current and future Navy assets and other customers. As part of the U.S. Navy's "Pivot West" strategy, it is anticipated that more Navy vessels will be home-ported in San Diego. As a result, BAE Systems requires the ability to flexibly locate various ships within the existing facility as well as ensure safe and efficient facility utilization for the moorage of vessels, including during extreme weather conditions.

The proposed project would replace aging structures, improve existing infrastructure, increase space utilization, and increase the efficiency of operations at the ship repair yard. Although these improvements would allow newer and different classes of vessels to be moored and repaired on the site, the proposed improvements are not expected to increase the number of vessels serviced because no new berthing space would be provided. Furthermore, the mooring of newer, larger vessels would reduce the number of other vessels that could be concurrently moored at the ship repair yard.

Project Objectives

To achieve the need and purpose of the proposed project, the following project objectives have been identified:

1. Construct and operate shipyard repair facilities that maximize the use of existing waterways, available shoreline, and existing land.
2. Modernize the BAE Systems San Diego Ship Repair Yard by providing improved facilities that meet the needs of the current and anticipated fleets of the military and commercial customers.
3. Enhance worker safety, customer security, and environmental protection programs through the integration of relevant project elements.
4. Invest in new shipyard infrastructure that will enhance the short- and long-term attractiveness and viability of San Diego Bay and the region to military and commercial ship operators for construction and repair, consistent with the Port Master Plan.[1]
5. Preserve jobs by maintaining the physical capacity and technical capability to support the Navy's presence as well as commercial maritime needs in San Diego.

[1] "Renovation and redevelopment of existing facilities will continue as industries respond to market demands and changes in the maritime industrial climate." San Diego Unified Port District, Port Master Plan (August 2017), page 79.

Project Description

The proposed project consists of the following 15 project elements that are designed to improve the efficiency and functionality of the existing BAE Systems San Diego Ship Repair Yard.

1. Pride of San Diego Drydock Dredging[2] and Moorage
2. Pride of San Diego Drydock Wharf Replacement and Realignment
3. Fender System Repair and Replacement
4. Pier 3 South Nearshore Dredging
5. Pier 3 Mooring Dolphin
6. Pier 3 North Lunchroom Wharf Replacement and Realignment
7. Quay Wall Modifications
8. Port Security Barrier Replacement
9. Small Boat Mooring Float Replacement
10. Central Tool Room Demolition and Reconstruction
11. New Production Building
12. Administrative Office Building
13. Pier 1 Restroom Renovation and/or Demolition
14. Main Electrical Utility Service Update
15. Sanitary Sewer and Potable Water Utility Services

The majority of the proposed work would take place within the District's jurisdiction (i.e., Project Elements 2, 3, 4, 6, 7 and, 9–15). Project Elements 1, 5, and 8 are within the District's leasing jurisdiction and the California Coastal Commission's (CCC) permitting jurisdiction, per SB 507 and the California Coastal Act. BAE Systems will apply directly to the CCC for authorization and entitlements for Project Elements 1, 5, and 8; however, the entire proposed project is analyzed, as required by CEQA. Figure 1-1 shows the project location, Figure 1-2 illustrates the project site boundaries, and Figure 1-3 provides an overall site plan identifying the location of each project element by number. A detailed discussion of the proposed activities under each project element is provided below.

Pride of San Diego Drydock Dredging and Moorage Replacement (Project Element 1)

Project Element 1 includes dredging and associated replacement of mooring dolphins[3] to hold the Pride of San Diego drydock in place. Most of Project Element 1 is within the District's jurisdiction;

[2] Dredging is defined as the removal of sediments and debris from the bottom of lakes, rivers, harbors, and other water bodies.

[3] A *mooring dolphin* is defined as an in-water structure, typically made up of a cluster of piles that extends above the water surface to provide mooring points for vessels.

however, the westernmost mooring dolphin and a portion of the required dredging area would be within both District jurisdiction (leasing) and CCC jurisdiction (permitting).

Because of conflicts with the original 1983 dredge sump[4] design, the current configuration requires the drydock to be moved[5] from its mooring to the west and south in order to submerge and dock or undock a vessel each time a vessel comes in for drydock servicing. When a wide-bodied vessel is positioned adjacent to Pier 3 North, the size of the vessel prevents the drydock from being moved into its submergence location. Dredging and relocation of the mooring dolphins would allow the drydock to submerge and lift vessels in place without the need for the drydock to be moved. This would improve operational efficiencies because wide-bodied vessels could be moored at Pier 3 North concurrently with drydocked vessels while under repair at the Pride of San Diego drydock. Accordingly, this would eliminate the need to run the diesel engines of two separate vessels concurrently during docking and undocking activities as well as the need for tugboats to move the drydock. In addition, Project Element 1 proposes to dredge sediment around the Pride of San Diego ramp wharf and eastern mooring dolphin. This would remove potentially contaminated sediment that was not accessible during the remedial dredging that occurred in 2015 under Regional Water Quality Control Board (RWQCB) mandated Cleanup and Abatement Order (CAO) No. R9-2012-0024. During remedial activities, sand, including gravelly sand, was placed in areas that were not accessible. Proposed replacement of the mooring dolphins may allow access to these areas; therefore, potentially contaminated gravelly sand, sand, and sediment may be removed during dredging.

In total, Project Element 1 proposes to dredge approximately 98,800 cubic yards (cy) of material. Based on preliminary assessments conducted by the project proponent, it was conservatively estimated that 20 percent of the dredge material for Project Element 1 would contain contaminated sediment, although additional analysis indicates the estimate may be closer to 11 percent.[6]

Therefore, the analysis assumes approximately 80 to 89 percent of all dredged materials for Project Element 1 would be disposed of at an approved Ocean Dredge Material Disposal Site (i.e., U.S. Environmental Protection Agency [EPA] disposal site LA-5); the remaining 11 to 20 percent would be unsuitable for unconfined aquatic disposal, per U.S. Army Corps of Engineers (USACE) and EPA disposal criteria, and would be transported to an approved disposal facility capable of accepting contaminated sediments. It should be noted that, in the event that unconfined aquatic disposal is not suitable, only approximately 15,280 cy of the proposed 98,800 total cy of sediment would be dredged to comply with CAO No. R9-2012-0024.

The following actions are proposed as part of Project Element 1:

- Shifting the Pride of San Diego drydock west by approximately 100 feet.
- Replacing two existing 17.5- by 21-foot mooring dolphins (368 square feet for each dolphin), including removing twenty-six 18-inch-square concrete piles and 85 cy of concrete caps and installing thirty-eight 24-inch octagonal precast concrete piles with 900 total square feet of surface area.
    - Demolition of the existing mooring dolphins, concrete piles, and concrete caps would generate approximately 1,005 cy of debris.

[4] A *sump* is defined as a pit or other type of hollow area that collects liquids.

[5] Referred to as *translated*. *Translation* means to move the dock in a specific direction—north, south, east, or west.

[6] Where applicable, the more conservative estimate is used for analysis purposes.

- Relocating the drydock sump, which would require dredging to -70 feet mean lower low water (MLLW). The following dredging specifics are proposed:
    - Dredging approximately 98,800 cy[7] of material, including 2 feet of overdepth, consisting of:
        - 81,400 cy within District (leasing) jurisdiction.
        - 17,400 cy within CCC (permitting) jurisdiction.
    - Disposing of up to approximately 19,800 cy of dredged material (i.e., up to 20 percent of the total dredged material) at an approved upland disposal site, such as the Otay Landfill.
    - Disposing of up to approximately 87,900 cy of dredged material (i.e., up to 89 percent of the total dredged material) at the Ocean Dredge Material Disposal Site (i.e., EPA's San Diego disposal site LA-5).
    - Transporting up to 36 scows[8] (2,500 cy capacity each) to the LA-5 disposal site.

Dredging operations, including equipment maintenance activities, shift changes, barge changes, and movement about the site would be conducted 24 hours per day, 7 days a week, for 100 days.

Pride of San Diego Drydock Wharf Replacement and Realignment (Project Element 2)

Once drydock dredging and moorage replacement have been completed (i.e., Project Element 1), wharf and ramp modifications would be needed. Specifically, Project Element 2 would extend the existing Pride of San Diego wharf to provide a material handling area adjacent to the northeastern portion of the drydock and encompass the eastern gripper[9] mooring dolphin. An apron would be installed at the end of the drydock, while a new pedestrian access ramp and support platform would be installed on the south side of the drydock to minimize the number of in-water structures required to access and support the drydock at its proposed new location. The new replacement structure would be incorporated into the existing Pride of San Diego wharf ramp.

For the purposes of this analysis, complete demolition and construction activities are assumed, which would be the reasonably foreseeable worst-case scenario. The following actions are proposed as part of Project Element 2.

- Demolishing 5,540 square feet of existing wharf and twenty 18-inch piles, which would generate approximately 408 cy of debris.
- Installing 12,500 square feet of cast-in-place decking on 73 octagonal piles[10] and six concrete precast piles,[11] extending from the existing wharf structure to northeastern portion of the Pride of San Diego drydock. New in-water structures (fixed) associated with the new wharf would be built to an increased elevation of +12 feet MLLW.

[7] Volume based on pre-dredge bathymetric survey data from CLE Engineering, composite surveys dated February 2017 and January 2016, and conceptual dredging volumes provided by Anchor QEA, dated July 2019.

[8] A *scow* is a low, flat barge-like vessel used to carry material.

[9] A gripper is a mechanical feature of a mooring system, used for securing floating drydocks to a mooring dolphin.

[10] Octagonal piles are eight-sided concrete support structures.

[11] *Precast piles* are concrete piles that are formed in circular, square, rectangular, or octagonal shapes. Precast piles are manufactured in a casting yard before transport to the project site.

- Installing an apron[12] at the end of the drydock and a new pedestrian access ramp and support platform on the south side for material handling adjacent to the drydock.

Fender System Repair and Replacement (Project Element 3)

The existing fender[13] systems are experiencing natural deterioration due to age and routine damage from decades of use. New fenders are required where shoreline features have been reconstructed.

The following actions are proposed as part of Project Element 3.

- Removing and replacing in place the 503 existing 14-inch by 89-foot steel H-pile[14] fenders. Removal of the existing fenders would generate approximately 269 cy of debris.
- Installing 122 new steel H-pile fenders, for a total of 625 fenders. The new fender locations are as follows:
    - Bulkhead installation at the south side of Pier 1, resulting from remediation and fill of the former marine railways in 2004.
    - Bulkhead replacement along the shoreline south of Pier 3 to the southern property line.
    - The west-facing perimeter of the proposed new marginal wharf area associated with Pier 3 North Lunchroom Wharf Replacement and Realignment (Project Element 6).

In addition, fenders are occasionally damaged when struck by vessels, in which case they need to be replaced quickly in order to provide safe moorage for vessels. Therefore, for analysis purposes, it is assumed that up to 39 steel H-pile fenders per year would be replaced over the life of the existing lease (until 2034).

Pier 3 South Nearshore Dredging (Project Element 4)

Dredged material has entered the Pier 3 berth sump; therefore, this project element proposes to dredge approximately 15,000 cy of material. In addition, the Pier 3 sump requires modification for safe passage of tugboats while maneuvering large ships.

The following actions are proposed as part of Project Element 4:

- Dredging approximately 15,000 cy from the toes of the dredge sump to the limit line elevation of the new bulkhead (-17 feet MLLW). Dredging would extend to an operational depth of -35 feet MLLW plus 2 feet of overdepth dredging.
- Placing dredged material directly onto dredge scows, with no stockpiling of materials on the site; loading directly onto trucks from the scows; and disposing of materials. Dredged material is dewatered, treated, and disposed of in accordance with existing permit and landfill requirements.

Dredging operations, including equipment maintenance activities, shift changes, barge changes, and movement about the site would occur 24 hours per day, 7 days per week, for 69 days.

[12] An *apron* is the space allotted for maneuvering a vehicle into alignment with the dock.

[13] A *fender* is a piece of equipment that protects a pier, berth, jetty, or other vessel from a berthing vessel. Fenders are typically made of rubber, foam, or plastic in order to absorb energy from the berthing vessel.

[14] A *steel H-pile* is an in-water support structure with a cross beam that forms an H-like shape.

For Project Element 4, the extent of contamination within the sediment in this area is currently unknown. Therefore, there are two scenarios under consideration for disposal of dredged materials:

- The **50/50 Scenario** assumes that half of the total dredged material (7,500 cy) generated during Project Element 4 would be suitable for ocean disposal and half (7,500 cy) would require upland disposal. This scenario would result in approximately three scows to dispose of the material at the ocean disposal site, with each scow trip conveying 2,500 cy. The remaining half of the dredged material would be taken to upland locations using haul trucks with an estimated 15 cy capacity per truck.
- The **All-Truck Scenario** assumes that all dredged material (15,000 cy) would be disposed of at an upland location using haul trucks with an estimated 15 cy capacity per truck.

Pier 3 Mooring Dolphin (Project Element 5)

Installation of an additional mooring dolphin would be necessary to ensure safe vessel moorage, especially during extreme storm surge or other climatic conditions (e.g., wind and tide). The mooring dolphin would provide a fixed structure for securing the bow of large vessels and be designed consistent with existing mooring dolphins at the BAE Systems facility. The proposed new mooring dolphin would be entirely within CCC's jurisdiction.

The following actions are proposed as part of Project Element 5:

- Installing one 16- by 20-foot, 3-foot-thick mooring dolphin 970 feet offshore (i.e., 270 feet west of the U.S. Pierhead Line). The height of the new mooring dolphin would extend to +13 feet MLLW. The following components are proposed for the new mooring dolphin:
  - Eight 24-inch concrete octagonal piles.
  - Two 150-ton double bitts.[15]

Sixteen steel H-pile fenders, 12 cylindrical fenders, whalers,[16] and chocks[17] around the perimeter of the proposed mooring dolphin.

Pier 3 North Lunchroom Wharf Replacement and Realignment (Project Element 6)

The Pier 3 wharf is a timber structure at the northern foot of Pier 3 that is aging and in need of replacement. The timber deck, which is supported by twenty-seven 12-inch-square precast concrete piles, was originally installed in the 1950s or 1960s but underwent significant modifications in 1985. The structure is currently used by employees during lunch breaks. In addition, an open area, which is currently surrounded by structures, would be covered. As part of the replacement, dredging may remove potentially contaminated sediment that was not accessible during the remedial dredging associated with CAO No. R9-2012-0024. An estimated 2,000 cy of potentially contaminated sediment would be dredged from this area (Anchor QEA 2019).

The following actions are proposed as part of Project Element 6:

[15] A *double bitt* is a type of bollard with two metal protrusions, which are used to secure lines from vessels to a dock. (A *bollard* is a short, thick post on the deck of a ship, or a wharf, for securing lines from a ship.)

[16] *Whalers* are the large wooden crossbars that support the bulkhead, which is part of the pier. (The *bulkhead*, as defined here, refers to a retaining wall along the waterfront.)

[17] *Chocks* are metal fixtures that hold lines in position so that vessels can tie up to a bollard, bitt, etc.

- Demolishing the existing overwater, 1,150-square-foot restroom structure; removing 2,915 square feet of wood decking; and removing 595 square feet of metal. Removal of these existing materials would generate approximately 77 cy of debris.
- Removing twenty-seven 12-inch concrete pilings and one H-pile.
- Installing forty-eight 24-inch octagonal pre-cast concrete pilings.
- Constructing a new overwater structure consisting of 8,800 square feet of cast-in-place decking (including a berm edge and stormwater collection system) to replace the existing overwater structure that would be demolished. The height of the new decking would extend to +13 feet MLLW.
- Dredging approximately 2,000 cy of material from beneath the Pier 3 break area and disposing of it at an approved upland disposal site, such as the Otay Landfill.

Quay Wall Modifications (Project Element 7)

A rock revetment slope is affecting vessel mooring and requires reinstallation. The following actions are proposed as part of Project Element 7:

- Dredging 300 cy of rock, which would be disposed of at a local recycling facility.
- Dredging 500 cy of sediment in the immediate vicinity of the submerged sheet pile structure, which would be disposed of at an approved upland disposal site, such as the Otay Landfill.
- Installing up to 50 linear feet of a submerged sheet pile structure.

Port Security Barrier Replacement (Project Element 8)

A Port Security Barrier (PSB) is maintained around the facility, as required by the U.S. Navy, for vessels within the BAE Systems facility. The PSB deters small craft from approaching Navy vessels while they are undergoing repair. The U.S. Navy has instituted newer, stricter requirements for the PSB system, resulting in the need to replace the existing PSB with a new design. The proposed new PSB would be partially within CCC jurisdiction.

The following actions are proposed as part of Project Element 8:

- Removing the existing 3,500-linear-foot floating boom and replacing it with a new 3,500-foot hard barrier. The new PSB includes the following components:
    - Ten 8- by 7.55-foot buoys secured by three anchors per buoy location.
    - 3,500 linear feet of hard barrier (PSB-T or PSB-V type) with navigational aid lights.
- Removing and disposing of the existing barrier, buoys, and anchors. Disposing of 3,500 linear feet, or approximately 120 cy, of debris, and recycling 13 tons of scrap steel and 19 cy of concrete.

Small-Boat Mooring Float Replacement (Project Element 9)

The small-boat mooring float allows personnel and materials to be deployed for waterfront facility maintenance and inspection as well as other surveillance activities, including drills and exercises, conducted on site. In addition, as part of the enhanced site security requirements instituted by the

U.S. Navy, BAE Systems is required to maintain on-water security, including security patrol vessels. The following actions are proposed as part of Project Element 9:

- Removing and replacing four piles that support the float.
- Replacing the existing 320-square-foot aged timber moorage float system (160 square feet for each float) with two 200-square-foot concrete floats. The new floats would include one 45-foot-long aluminum gangway, low-voltage electrical service, and potable water.
- Installing four 18-inch-round precast concrete piles.

Central Tool Room Demolition and Reconstruction (Project Element 10)

The existing central tool room is an aging structure at the foot of Pier 3, on the south side of the project site. The structure would be demolished, and a new tool room would be constructed on the proposed new wharf structure (as proposed as part of the Pier 3 North Lunchroom Wharf Replacement and Realignment [Project Element 6]). The following actions are proposed as part of Project Element 10:

- Demolishing the existing 2,000-square-foot central tool room structure, which would generate approximately 16 cy of debris.
- Excavating approximately 150 cy of soil to a maximum depth of 2 feet for the new building foundation. The majority of the excavated soil material would be recompacted and used as the base for new asphalt.
- Constructing a three-story replacement structure that would provide an approximately 21,900-square-foot work space and a 7,300-square-foot building footprint. The height of the proposed new building would extend to +50 feet MLLW.
- Replacing the existing Pier 3 restroom facilities within the new central tool room or incorporating the existing Pier 3 restrooms into the new structure.
- Providing utilities and related infrastructure (e.g., potable water, sanitary sewer service, compressed air, natural gas, electrical, computer, communications) within the new tool room.

New Production Building (Project Element 11)

Project Element 11 would involve demolishing the existing production building and constructing a new production building near the existing Building 6/7. This proposed building would increase the efficiency of material assembly. The first floor of the new structure would be used for production and equipped with an overhead bridge crane. The second and third floors would contain engineering, production support, and administration functions. The following actions are proposed as part of Project Element 11:

- Demolishing the existing 17,675-square-foot production building, which would generate approximately 698 cy of debris.
- Excavating approximately 2,600 cy of soil to a maximum depth of 4 feet for the new building foundation. The majority of the excavated material would be reused as backfill around foundations or for the concrete slab under the new production building. However, it is

anticipated that approximately 400 cy of excavated soil material would not be suitable for reuse and therefore would be disposed of at an approved upland disposal site.

- Constructing a new three-story production building with a 48,379-square-foot work space and a 16,475-square-foot footprint, with a height of up to 50 feet.
- Installing an overhead bridge crane within the first floor of the new production building.

Administrative Office Building (Project Element 12)

The existing offices are trailers that BAE Systems rents/leases for customer use in support of ship repair contracts performed on the site. These facilities provide space for the government contracts, quality assurance, and program management personnel who have been assigned to these contracts. This project element includes construction of permanent administrative office spaces. The first floor would contain production spaces, a tool room, and restroom. The second and third floors would contain office space and a break room. The new administrative office building would accommodate existing personnel, with the intention of reducing/eliminating the need for double and triple occupancies, which currently occur at several work stations in the production spaces throughout the project site.

The following actions are proposed as part of Project Element 12:

- Disassembling and removing four trailers, totaling approximately 8,016 square feet, which would generate approximately 150 cy of debris.
- Demolishing approximately 8,600 square feet of asphalt pavement and excavating for water and sewer service piping, footings/foundations, and general recompaction activities. It is anticipated that approximately 650 cy of soil material would be excavated to a maximum depth of 5 feet and a maximum of 200 cy of material would be disposed of at an approved upland disposal site.
- Constructing a new three-story administrative office building with approximately 46,000 square feet of work space, a building footprint of 16,000 square feet, and a height of up to 55 feet.

Pier 1 Restroom Renovation and/or Demolition (Project Element 13)

The existing 506-square-foot restroom facility requires reconfiguration to increase capacity and improve functionality for employees, customers, and contractors. The restrooms would be retrofitted with more water efficient fixtures, LED lighting, and other features to increase utility and efficiency.

As an alternative, upon completion of Project Element 12 (Administrative Office Building), which includes a restroom facility, the Pier 1 restroom may be demolished if it is determined that it is no longer needed. The demolition would generate approximately 51 cy of debris, and excavation would be limited to removal of the buried piping to the Pier 1 lift station. It is anticipated that approximately 40 cy of soil material would be excavated to a maximum depth of 5 feet, and 10 cy of material would be disposed of at an approved upland disposal site.

Main Electric Utility Service Update (Project Element 14)

Project Element 14 would reconfigure the electrical utility distribution system in Building 13. This would involve relocation of the San Diego Gas & Electric main in Building 13 to Building 65, alongside East Belt Street, adjacent to the shipyard's existing four-way switch. Relocation of this electrical main would increase overall site safety by allowing San Diego Gas & Electric technicians access to critical electrical components outside the secure property perimeter. In addition, this project element would also provide additional space in the Building 13 electrical room, allowing BAE Systems to reconfigure and/or modernize the electrical equipment as needed. The following actions are proposed as part of Project Element 14:

- Replacing and upgrading electrical distribution equipment to ensure reliability and protect site infrastructure.
- Relocating the existing San Diego Gas & Electric main (i.e., meter) from Building 13 to Building 65. Existing electrical conduits within the project site would be reused to pull electrical cables to the relocated main in Building 65.

Sanitary Sewer and Potable Water Utility Services (Project Element 15)

The existing sanitary sewer and potable water service feeds have not been modified since the original installation in 1983. The hotel service requirements of current naval and commercial vessels necessitate improvements to sanitary sewer and potable water services. If implemented, this project element would include the replacement of existing sanitary and potable water feeds currently connected to existing utility services, which would require minor trenching. At this time, the exact locations and details of the specific sanitary and potable water feeds that would be replaced is unknown. Therefore, it is assumed that these improvements could occur throughout the project site.

Appendix G

BAE Systems Waterfront Improvements Transportation Impact Study (TIS), Vehicle Miles Traveled – SB 743 Analysis

Transportation Impact Study

Vehicle Miles Traveled – SB 743 Analysis

BAE Systems Waterfront Improvements

Draft Report

Prepared for:

San Diego Unified Port District
3165 Pacific Highway
San Diego, CA 92101

ICF
525 B Street, Suite 1700
San Diego, CA 92101

Prepared by:

CHEN RYAN

3900 5th Avenue, Suite 310
San Diego, CA 92103

June 2020

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Appendices

1.0 Introduction

The purpose of this Transportation Impact Study (TIS) is to identify and document any significant transportation related impacts associated with the maintenance and enhancement of BAE Systems (Proposed Project), and to recommend mitigation measures for identified impacts, as necessary.

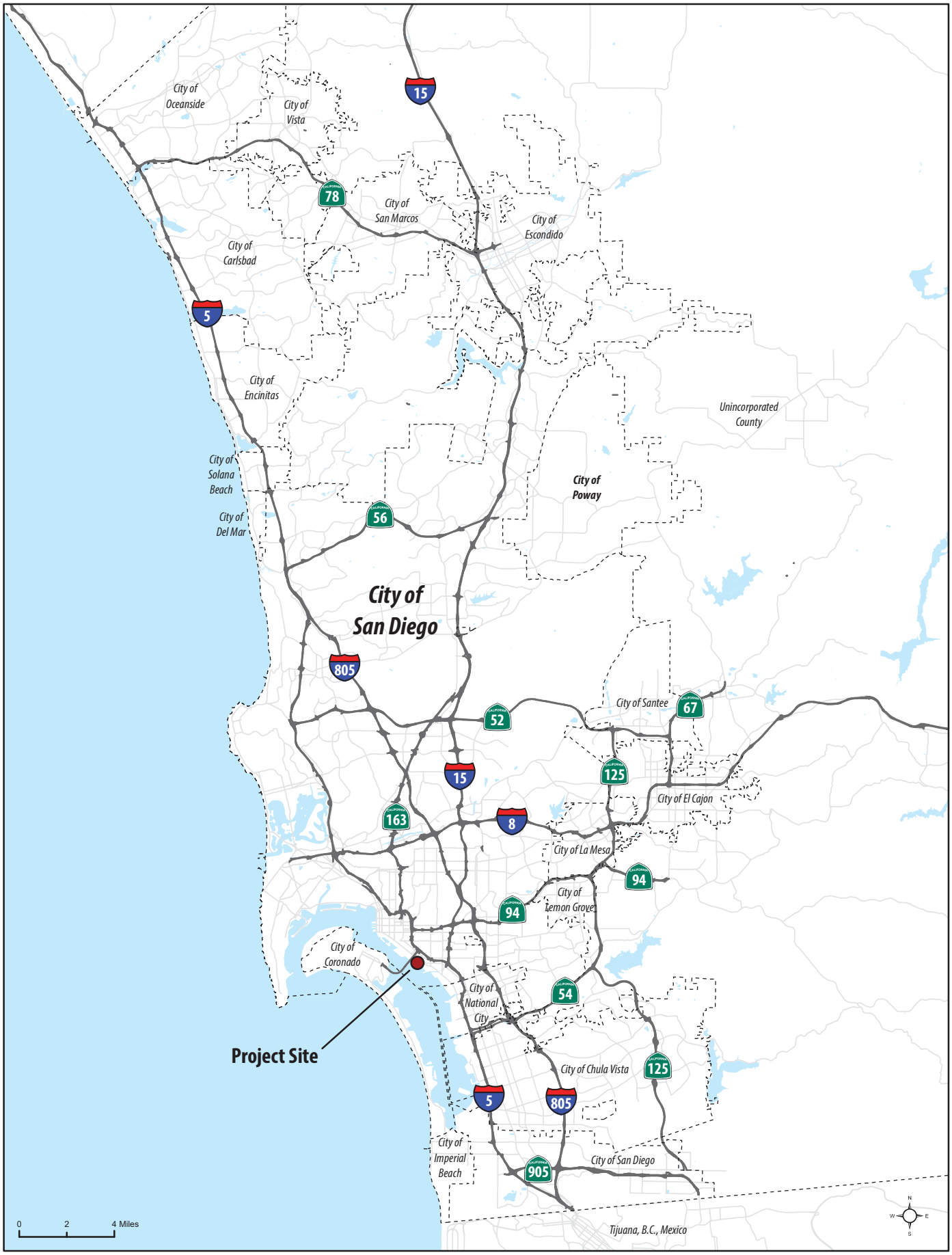
1.1 Project Description

BAE Systems San Diego Ship Repair, Inc. (BAE Systems), is a ship repair company in the San Diego area, serving primarily non-nuclear Navy vessels but also commercial customers. BAE Systems currently leases 9.8 acres of land and 16.6 acres of water from the District. This lease is scheduled to expire in 2034. In addition, BAE Systems currently occupies a parcel pursuant to a now-expired 5-year Tidelands Use and Occupancy Permit (TUOP) from the District for an additional 2.0 acres of land and 4.0 acres of water. As a result, BAE Systems leases approximately 11.8 acres of land area and approximately 20.6 acres of water area from the District. In addition to these leased and permitted areas, BAE Systems leases 3.5 acres of submerged land from the District. These submerged lands were originally leased from the California State Lands Commission (SLC). However, effective January 1, 2020, this area was transferred to the District's jurisdiction per Senate Bill (SB) 507, which granted and conveyed in trust to the District all right title, and interest in certain tidelands and submerged lands, as enumerated in SB 507. BAE Systems' lease with the SLC was transferred to the District. The total acreage occupied by BAE Systems (including the TUOP parcel) pursuant to agreements with the District makes up the BAE Systems San Diego Ship Repair Yard (project site). The regional location of the Proposed Project is displayed in **Figure 1-1**.

BAE Systems, as the project proponent, is proposing a maintenance, repair, and replacement project for waterfront infrastructure associated with mooring and operational facilities at its San Diego Ship Repair Yard. The BAE Systems Waterfront Improvement Project (project or proposed project) includes 15 distinct project elements. Briefly, the proposed project includes the following.

- Replacement and realignment of the Pride of San Diego drydock access wharf and ramp, along with several associated improvements.
- Replacement and realignment of the Pier 3 wharf structure, along with other associated improvements.
- Replacement of aging or inefficient facilities, including offices, the production building, the central tool room, and restrooms.
- Implement mooring infrastructure improvements to ensure safety and accommodate the newer and different classes of vessels to be moored and repaired on the site.
- Upgrade electrical and potable water utility infrastructure.

The anticipated changes to labor and crew size, with and without the project, are outlined in in **Appendix A.**



BAE Systems Waterfront Improvements
Transportation Impact Analysis
CHEN RYAN

Figure 1
Project Regional Location

1.2 Report Organization

Following this Introduction chapter, this report is organized into the following sections:

2.0 *Analysis Methodology* – This chapter describes the methodologies and standards utilized to analyze and identify the transportation related impacts associated with the Proposed Project.

3.0 *Transportation Related Impacts and Mitigation* – This chapter derives and analyzes the projected Vehicle Miles Traveled (VMT) that will be generated by the Proposed Project. This chapter also identifies if the Proposed Project related VMT would create significant project related impact, as it relates to the standards outlined in the California Environmental Quality Act (CEQA). Finally, the chapter provides recommendations for mitigation measures to reduce the identified transportation related impacts to less than significant levels, if necessary and evaluates the feasibility of the proposed mitigation measures.

2.0 Analysis Methodology and Threshold

This TIS was conducted in accordance with the California Environmental Quality Act (CEQA) Statutes and Guidelines.

2.1 Background (SB-743)

On September 27, 2013, Governor Edmund G. Brown, Jr. signed SB-743 into law, starting a process that is expected to fundamentally change the way transportation impact analysis is conducted under CEQA. Within the State's CEQA Guidelines, these changes will include elimination of auto delay, level of service (LOS), and similar measurements of vehicular roadway capacity and traffic congestion as the basis for determining significant impacts.

On December 2018, the Resources Agency certified and adopted the CEQA Guidelines update package, which included the California Natural Resources Agency Guidelines for the Implementation of the California Environmental Quality Act. As a result, the California Governor's Office of Planning and Research (OPR) updated and released the *Technical Advisory on Evaluating Transportation Impacts in CEQA (Technical Advisory)* in December 2018. According to the updated guidelines, lead agencies will have until July 1, 2020 to comply with the updated CEQA revision.

2.2 Analysis Guidelines and Significance Thresholds

In response to the implementation of SB-743, the District is anticipated to utilize the standards and thresholds recommended by ORP in the Technical Advisory to determine transportation related impacts. For land use development projects that have trip-making characteristics like an employment trip, such as the Proposed Project's industrial terminal, OPR recommends using VMT/employee to determine if a project has a significant transportation related impact.

VMT/Employee includes all vehicle-based person trips grouped and summed to the work location of individuals on the trip. This includes all trips, not just work-related trips. The VMT for each work location is then summed for all work locations in a particular census tract and then divided by the total number of employees of that census tract to arrive at the VMT/Employee. OPR suggest that a Proposed Project that generates a VMT/Employee great than 85 percent of the existing regional VMT may indicate a significant transportation impact.

Detailed descriptions of the VMT methodology is provided Appendix B.

2.2.1 Analysis Tool

The SANDAG Series 13 Activity Based Model (ABM) was utilized for this effort to determine the Proposed Project related VMT per Employee. The ABM is a travel demand forecasting model incorporates census data and travel surveys to inform the algorithms of the model's projections. It uses a simulated population based on existing and projected demographics to match residents to employment and forecasts the daily travel on the regional transportation network. In addition, the model is able to track the daily travel of individuals in the simulated population, including origins, destinations, travel distances and mode choices. The Series 13 ABM has four (4) forecast scenarios: 2012, 2020, 2035, and 2050.

The SANDAG Series 13 Activity Based Model (ABM) was customized by the District, the San Diego International Airport (SDIA) and the City of San Diego the to incorporate the land use and transportation network changes proposed within the area, based on a series of recently adopted or on-going planning efforts. These efforts include the Port Master Plan Update, SDIA Master Plan, Midway-Pacific Highway Community Plan Update, Mission Valley Community Plan Update, Barrio Logan Community Plan Update, and the Downtown Mobility Plan. This was a comprehensive effort by all jurisdictions to provide consistency between the on-going planning efforts within the area by providing a single transportation forecast model to build off of.

To calculate both the VMT/Employee and the total VMT generated, the land use changes were coded into their respective Transportation Analysis Zones (TAZ) and transportation network changes were also coded throughout the Tidelands. Select Zone Assignments were then conducted for the TAZs to track origin and destination pairings, as well as the routes choices for vehicular trips coming to and from the Districts land uses. The total VMT generated within the planning district in which the Proposed Project is located was calculated based on the total number of trips (all trip types) generated between the by District land uses then multiplying by the route distance between them. VMT/Employee was calculated by summing the total VMT generated by employees and then divided by the total number of jobs.

A detailed description of how the SANDAG Model calculates VMT is provided at the following location: https://www.sandag.org/uploads/2050RTP/F2050RTPTA15.pdf

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3.0 Transportation Impact & Mitigation

This chapter derives and analyzes the projected VMT that will be generated by the Proposed Project. This chapter also identifies if the Proposed Project related VMT would create significant project related impact, as it relates to the standards outlined in the California Environmental Quality Act (CEQA) and the draft Guidelines. Finally, the chapter provides recommendations for mitigation measures that may reduce the Proposed Project's impacts to less than significant levels, and evaluates the feasibility of the proposed mitigation measures, if necessary.

3.1 VMT Impact Analysis

To calculate the average VMT/Employee generated by the Proposed Project, the Proposed Project land uses, described in Section 1.1, were incorporated into the SANDAG Series 13 Year 2050 Regional Model. A Select Zone assignment was conducted for the Proposed Project Transportation Analysis Zone (TAZ) which tracked and calculated the Proposed Project VMT by user type. The results of the Select Zone assignment are provided in **Table 3.1.** Model output results are presented in **Appendix C.**

Table 3.1 VMT Analysis Results Impact Analysis

Metric	Commercial Uses VMT/Employee (miles/person)
Base Year Regional Average	25.9
Significant Impact Threshold[1]	22.0
Proposed Project	17.2
Proposed Project vs Significant Impact Threshold	4.8 miles under 66.4% over
2050 Regional Average	21.2
Significant Impact Threshold	18.0
Proposed Project[2]	17.2
Proposed Project vs Significant Impact Threshold	0.8 miles under 81.1%
Significant Impact	**No**

Source: SANDAG Regional Transportation Model, July 2019

Notes:
[1]San Diego Regional Average X 85% (See Table 2.1)

To determine potential transportation related impacts, the Proposed Project's VMT is first compared against the Base Year Regional Average threshold. Next, a Horizon Year 2050 analysis was conducted to identify any cumulative impacts that may occur with the full implementation of the forthcoming Port Master Plan Update, which is a reasonably foreseeable condition. It should be noted that the Proposed Project land uses are consistent with those contained in both the current Port Master Plan as well as the forth coming Port Master Plan Update.

As shown in Table 3.1, the Proposed Project's employment uses are anticipated to generate an average VMT/Employee of 17.2 miles, which is 4.8 miles under the Base Year average significance threshold. Therefore, the Proposed Project would have a less than significant transportation related impact under Base Year (Direct) conditions. Additionally, the Proposed Project VMT is 0.8 mile under the 2050 Regional Average significance threshold. Therefore, the employment uses within the Proposed Project would have a less than significant transportation related impact under cumulative conditions.

Finally, it should be noted that the Proposed Project's lease expires in 2034. It is anticipated that the VMT per employee threshold for Year 2034 conditions would fall between the Year 2050 threshold (18 vehicle miles per employee) and the Base Year threshold (22 vehicle miles per employee). Therefore, since the Proposed Project's VMT per employee is lower than both the Year 2050 and Base Year thresholds, it can also be assumed that it will be below the Year 2034 threshold as well resulting in a less than significant impact under year 2034 conditions.

3.2 Mitigation

The Proposed Project does not result in a significant transportation related impact; therefore, no mitigation is required.

3.3 Construction Analysis

The BAE Systems Waterfront Improvement Project is composed of 15 individual project elements that span a 3.75-year period from 2021 to 2025. Construction of the Proposed Project would include grading, paving, infrastructure construction, and electrical and utility upgrades.

Construction workers VMT is not newly generated; instead, it is redistributed throughout the network based on their travel to different work sites each day; therefore, they are not generating new VMT each day, only redistributing it. It is important to note that construction traffic is temporary and not expected to significantly increase VMT or permanently degrade operations of a roadway facility. This redistribution is considered to be nominal and momentary. Additionally, per OPR's *Technical Advisory*, SB 743's intent is to plan for "long term climate goals"[1], so project's with temporary affects to VMT and the transportation system are not deemed to be significant. Consequently, it is assumed that the transportation impacts would be less than significant during the construction of the Proposed Project.

[1] Page 10 of OPR's *Technical Advisory* states "Based on OPR's extensive review of the applicable research, and in light of an assessment by the California Air Resources Board quantifying the need for VMT reduction in order to meet the State's long-term climate goals...."

Appendix A
Construction Schedule
Vessel Crew & Labor Comparison

Vessel Crew and Labor Comparison Before and After Project (LHD at Pier 3 South)

		Existing Vessel Crew and Labor Size						Proposed Vessel Crew and Labor Size						Delta[3]
Scenario						Subtotal	Total					Subtotal	Total	
1	Pier[1]	3S	3N	4S	4N		2,216	3S	3N	4S	4N		1,844	-372
	Ship Type[2]	CG	DDG	DDG	CG			LHD	None	DDG	None			
	Crew	272	278	278	272	1,100		966	0	278	0	1,244		
	Labor	279	279	279	279	1,116		321	0	279	0	600		
2	Pier[1]	3S	3N	4S	4N		1,974	3S	3N	4S	4N		1,838	-136
	Ship Type[2]	LSD	LPD	DDG	CG			LHD	None	CG	None			
	Crew	318	266	278	272	1,134		966	0	272	0	1,238		
	Labor	141	141	279	279	840		321	0	279	0	600		
3	Pier[1]	3S	3N	4S	4N		1,572	3S	3N	4S	4N		1,447	-125
	Ship Type[2]	LSD	DDG	LCS	CG			LHD	None	LCS	None			
	Crew	318	278	35	272	903		966	0	35	0	1,001		
	Labor	141	124	125	279	669		321	0	125	0	446		

[1] 3S = Pier 3 South; 3N = Pier 3 North; 4S = Pier 4 South; 4N = Pier 4 North.

[2] CG = Cruisers; DDG = Destroyers; LSD = Dock Landing Ships; LPD = Amphibious Transport Docks; LHD = Amphibious Assault Ship; LCS = Littoral Combat Ships.

[3] Delta is the overall change in crew and labor size between existing and proposed project conditions for each scenario.

Estimated Construction Schedule – To Be Used for Planning Purposes Only							
Project Element	Approximate Duration (months)	Crew Size	Trucks	Working Days	Daily Worker Trips	Daily Truck Trips	Daily Total Trips
Fender System Repair and Replacement (Fender Repair and Replacement)	0.75	6	60	19	12	7	19
Small Boat Mooring Float Replacement	1	5	7	24	10	1	11
Pride of San Diego Drydock Wharf Replacement and Realignment	4	13	256	64	26	8	34
Pride of San Diego Drydock Dredging and Moorage	3.25	12	1380	83	24	34	58
Quay Wall Modifications	1	10	10	24	20	1	21
Fender System Repair and Replacement (Fender System New Construction)	1.5	6	60	33	12	4	16
Port Security Barrier Replacement	2	6	75	45	12	4	16
Fender System Repair and Replacement (Fender System Maintenance and Replacement)	1.5	6	60	35	12	4	16
Pier 3 Lunchroom Wharf Replacement and Realignment	3.5	7	289	79	14	8	22
Electric Utility Service Update	3.5	5	5	78	10	1	11
Sanitary Sewer and Potable Water Utility Services	3	3	5	66	6	1	7

Estimated Construction Schedule – To Be Used for Planning Purposes Only							
Project Element	Approximate Duration (months)	Crew Size	Trucks	Working Days	Daily Worker Trips	Daily Truck Trips	Daily Total Trips
Pier 3 South Nearshore Dredging	2.25	10	1,000	69	20	29	49
Pier 3 Mooring Dolphin	1.5	5	24	32	10	2	12
New Production Building	9.25	16	258	201	32	3	35
Administrative Office Building	9.5	16	213	206	32	3	35
Pier 1 Restroom Renovation and/or Demolition	1	10	25	22	20	3	23
Central Tool Room Demolition and Reconstruction	7	13	22	152	26	1	27

Appendix B
VMT Methodology

SB 743 VMT METHODOLOGY AND GUIDELINES

In response to the implementation of SB-743, the District is anticipated to adopt new transportation impact study guidelines and standards prior to the mandatory implementation of SB-743 (July 1, 2020). The SB-743 framework was developed for the Port Master Plan Update (PMPU) Environmental Impact Report (EIR) and would also be applied for other District projects.

1.1.1 Analysis Metrics

For land use development projects, OPR requires that the following two metrics be analyzed to determine if a project has a significant transportation related impact:

- *VMT/Capita* Includes all vehicle-based person trips grouped and summed to the home location of individuals who are drivers or passengers on each trip. It includes both home-based and non-home-based trips. The VMT for each home is then summed for all homes in a particular census tract and divided by the population of that census tract to arrive at Resident VMT/Capita. However, since residential land uses are not permitted within the District, this metric was not utilized for the analysis contained within this report.
- *VMT/Employee* Includes all vehicle-based person trips grouped and summed to the work location of individuals on the trip. This includes all trips, not just work-related trips. The VMT for each work location is then summed for all work locations in a particular census tract and then divided by the total number of employees of that census tract to arrive at the VMT/Employee.
- *Total VMT* the sum of all vehicle trips generated in an area multiplied by their associated trip lengths. This total includes all the generated vehicle miles for Internal-to-Internal (I-I), Internal-to-External (I-E), and External-to-Internal (E-I) in the area. For this analysis, the Total VMT was calculated per Districts.

1.1.2 Analysis Tool

The SANDAG Series 13 Activity Based Model (ABM) was customized for the Port District's jurisdictional area and to incorporate the land use and transportation network changes proposed by the Port Master Plan Update. The ABM is a travel demand forecasting model that incorporates census data and travel surveys to inform the algorithms of the model's projections. It uses a simulated population based on existing and projected demographics to match residents to employment and forecasts the daily travel on the regional transportation network. In addition, the model is able to track the daily travel of individuals in the simulated population, including origins, destinations, travel distances and mode choices. The Series 13 ABM has four (4) forecast scenarios: 2012, 2020, 2035, and 2050. The different components of the PMPU are projected to be implemented over a period of time, so the most appropriate year to conduct the VMT/Capita and VMT/Employee is for 2050.

To calculate both the VMT/Employee and the total VMT generated within each planning district, the PMPU land uses were coded into their respective Transportation Analysis Zones (TAZ) and transportation network changes were also coded throughout the Tidelands. Select Zone Assignments were then conducted for the TAZs located in each planning district, to track origin and destination pairings, as well as the routes choices for vehicular trips coming to and from the Districts land uses. The total VMT generated within the planning district was calculated based on the total number of trips (all trip types) generated between the by District land uses then multiplying by the route distance between them. VMT/Employee was calculated by summing the total VMT generated specifically by employees within each planning district and then divided by the total number of jobs within the same planning district.

A detailed description of how the SANDAG Model calculates VMT is provided at the following location: https://www.sandag.org/uploads/2050RTP/F2050RTPTA15.pdf

1.2 Determination of Significance – CEQA

The CEQA Guidelines recommend use of automobile VMT, as the preferred CEQA transportation metric, along with the elimination of auto delay/LOS for CEQA purposes statewide. For land use projects, the Technical Advisory reports that research has shown that automobile VMT/Capita at the project level should be fifteen percent (15%) below those of existing development. This section presents the transportation significance criteria that are based on the thresholds identified in the OPR Technical Advisory.

Section 15064.3 (4) of the *CEQA Guidelines* state:

> A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled, and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section.

To follow onto this standard, Section E.2 of the *OPR Technical Advisory* (pages 16 and 17) provides recommended thresholds for the following applicable District land uses[1]:

> Office: A PMPU exceeding a level of 15 percent below existing regional VMT per employee may indicate a significant transportation impact.
>
> Retail: A net increase in total VMT may indicate a significant transportation impact. Because new retail development typically redistributes shopping trips rather than creating new trips, estimating the total change in VMT (i.e., the difference in total VMT in the area affected with and without the project) is the best way to analyze a retail project's transportation impacts.
>
> Other Land Uses: Of land use projects, residential, office, and retail projects tend to have the greatest influence on VMT. For that reason, OPR recommends the quantified thresholds described above for purposes of analysis and mitigation. Lead agencies, using more location-specific information, may develop their own more specific thresholds, which may include other land use types. In developing thresholds for other project types, or thresholds different from those recommended here, lead agencies should consider the purposes described in section 21099 of the Public Resources Code and regulations in the *CEQA Guidelines* on the development of thresholds of significance (e.g., CEQA Guidelines, § 15064.7).
>
> Transportation Projects*:* The *CEQA Guidelines* indicate that a VMT analysis should be conducted for roadway capacity projects and the *OPR Technical Advisory* refers to the potential for induced travel, and its associated effects. Induced travel occurs when improvements to a roadway facility enhance traffic operations and/or relieve congestion to the point at which travelers have a higher incentive to make a vehicular trip in lieu of a different mode of travel, or not taking the trip at all. Appendix 2 of the OPR *Technical Advisory* identifies the following five factors that contribute to overall induced travel:
>
> 1. *Changes in Trip Length*: Roadway capacity could result in the ability to travel a longer distance in a shorter period of time, thereby making farther away destinations more attractive and resulting in longer trip lengths and more VMT.
> 2. *Changes in Mode Choice*: Roadway capacity could result in reduced automobile travel time, causing people to shift to automobile use from other travel modes, resulting in more auto trips and increased VMT.
> 3. *Route Changes*: Faster travel time may attract more drivers to a route with expanded capacity, which can increase or decrease vehicle travel depending on whether it shortens or lengthens trips.
> 4. *Newly Generated Trips*: Increasing travel speeds from added roadway capacity could induce additional vehicle trips, resulting in increased VMT.

[1] It should be noted that the *OPR Technical Advisory* also provides threshold recommendations for residential land uses; however, since the District is prohibited from allowing residential land uses, the recommendations were excluded from this framework.

5. *Land Use Changes*: Faster travel times from added roadway capacity could lead to land development farther out on the corridor, leading to a long-term incremental increase in trip lengths, resulting in increased VMT.

Additionally, there are several lands uses within the Tidelands that are not covered in the thresholds outlined above. Using the guidance provided under Other Land Uses, it is recommended that the District implement thresholds for the following user group:

Non-Commercial Employees: This would include all employees within the Tidelands that do not work within commercial offices or retail (which are both covered by the *OPR Technical Advisory*). Since the District has a diverse employment base, it would be difficult to categorize each employment group and compare their associated VMT/Employee rate to a comparable rate at the regional level. Additionally, most of the employment groups within the District have very similar travel patterns and trip generation rates (i.e. most employment is industrial or service based). Therefore, the average VMT/Employee for these uses were compared to the average non-commercial VMT/Employee rate at the regional level. If the District's average VMT/Employee rate is less than 15 percent below existing regional VMT/Employee rate, it may indicate a significant transportation related impact. See Table 2.1 for clarification on which land use would be applicable for this category.

Freight: Both the SB-743 legislation and the OPR Technical Advisory are silent on thresholds associated with freight. Since freight VMT is based upon the supply and demand of various goods throughout the nation, freight VMT typically cannot be lowered based upon standard TDM measures, local land use patterns, or other smart growth measures. Therefore, it is recommended that VMT related impacts for freight be based an increase in VMT by Cargo, either by ton or unit, from the current conditions and compliance with the *California Sustainable Freight Action Plan*, July 2016. These criteria will help to maintain the current freight conditions and emphasize the use of zero emission vehicles and alternative modes, such as rail and pipelines, whenever possible.

The *California Sustainable Freight Action Plan* sets the following vision for the State's future freight transportation system[2]:

> Utilize a partnership of federal, State, regional, local, community, and industry stakeholders to move freight in California on a modern, safe, integrated, and resilient system that continues to support California's economy, jobs, and healthy, livable communities. Transporting freight reliably and efficiently by zero emission equipment everywhere feasible, and near-zero emission equipment powered by clean, low-carbon renewable fuels everywhere else.

Executive Order B-32-15 directed the State agencies to establish targets to improve freight efficiency, transition to zero emission technologies, and increase the competitiveness of California's freight transport system. Below are the Targets set forth by the *California Sustainable Freight Action Plan* to meet this direction and track California's progress toward meeting the Vision and Guiding Principles of the Plan. It should be noted that the Targets are not mandates, but rather aspirational measures of progress toward sustainability for the State to meet and try

[2] Source: Section I.B. of the *California Sustainable Freight Action Plan*

to exceed. The State agencies will measure and report progress on the following statewide Targets, and will evaluate the Targets to determine necessary adjustments in 2019:

System Efficiency Target - Improve freight system efficiency 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030.

Transition to Zero Emission Technology Target - Deploy over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.

Increased Competitiveness and Economic Growth Targets - Establish a target or targets for increased State competitiveness and future economic growth within the freight and goods movement industry based on a suite of common-sense economic competitiveness and growth metrics and models developed by a working group comprised of economists, experts, and industry. These targets and tools will support flexibility, efficiency, investment, and best business practices through State policies and programs that create a positive environment for growing freight volumes and jobs, while working with industry to mitigate potential negative economic impacts. The targets and tools will also help evaluate the strategies proposed under the Action Plan to ensure consideration of the impacts of actions on economic growth and competitiveness throughout the development and implementation process.

Table 1.1 provides a summary of the PMPU land uses, the recommended metric that would be used to evaluate their potential transportation related impact, and the recommended impact threshold.

Table 1.1: Evaluation Criteria & Impact Threshold

Land Use	Evaluation Criteria	Covered By OPR?	Impact Threshold
LAND			
Hotel Only (rooms)	VMT / Employee &	No	15% below regional average
Hotel w/ R&R (rooms)	VMT / Employee	No	15% below regional average
Retail (sq ft)	VMT with vs. without proposed retail change	Yes	No increase in total Planning District VMT
Restaurant (sq ft)	VMT with vs. without proposed retail change	No	No increase in total Planning District VMT
Retail & Restaurant - Standalone (sq ft)	VMT with vs. without proposed retail change	Yes	No increase in total Planning District VMT
Convention (sq ft)	VMT / Employee	No	15% below regional average
Institutional	Exempt	No	N/A
Industrial / Terminal	VMT / Employee	No	15% below regional average
Commercial Fishing	VMT / Employee	No	15% below regional average
Conservation Open Space	Exempt	No	N/A
Freight	VMT / Cargo (unit or ton)	No	No increase in VMT / Cargo
WATER			
Recreational Boat Berthing	VMT with vs. without proposed slips change	No	No increase in total Planning District VMT

Appendix C
SANDAG SB-743 VMT Analysis Results

Vehicle Miles of Travel Report

Scenario ID **1156** **Port Master Plan Update - PMPU1 - District 4 - Barrio Logan**

VMT per Resident

		Scenario ID	Residents	Total Trips	Person Miles of Travel	Vehicle Miles of Travel	VMT per Resident
Regionwide		1156	4,243,618	15,168,868	88,739,376	61,033,942	14.4
Jurisdiction	SAN DIEGO	1156	1,917,354	6,880,317	35,596,371	23,598,863	12.3
CPA	Barrio Logan	1156	12,317	42,073	178,511	89,167	7.2
Site	District 4 - Barrio Logan	1156	-	-	-	-	**0.0**

VMT per Employee

		Scenario ID	Employees	Total Trips	Person Miles of Travel	Vehicle Miles of Travel	VMT per Employee
Regionwide		1156	1,797,656	5,778,893	44,533,639	38,068,205	21.2
Jurisdiction	SAN DIEGO	1156	950,209	2,898,736	21,586,988	18,628,173	19.6
CPA	Barrio Logan	1156	13,591	37,395	251,439	214,499	15.8
Site	District 4 - Barrio Logan	1156	6,429	18,288	126,003	110,430	**17.2**

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